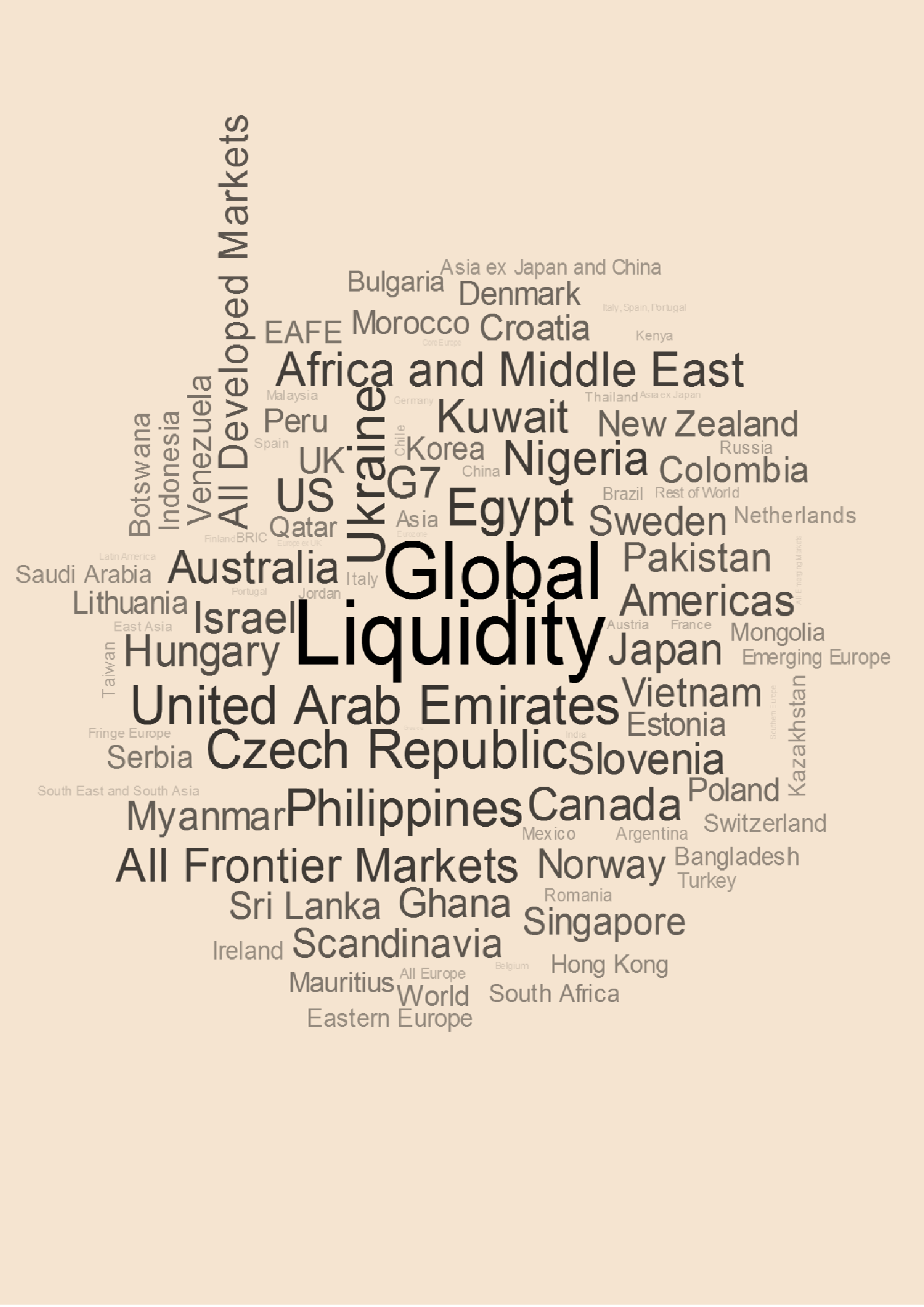
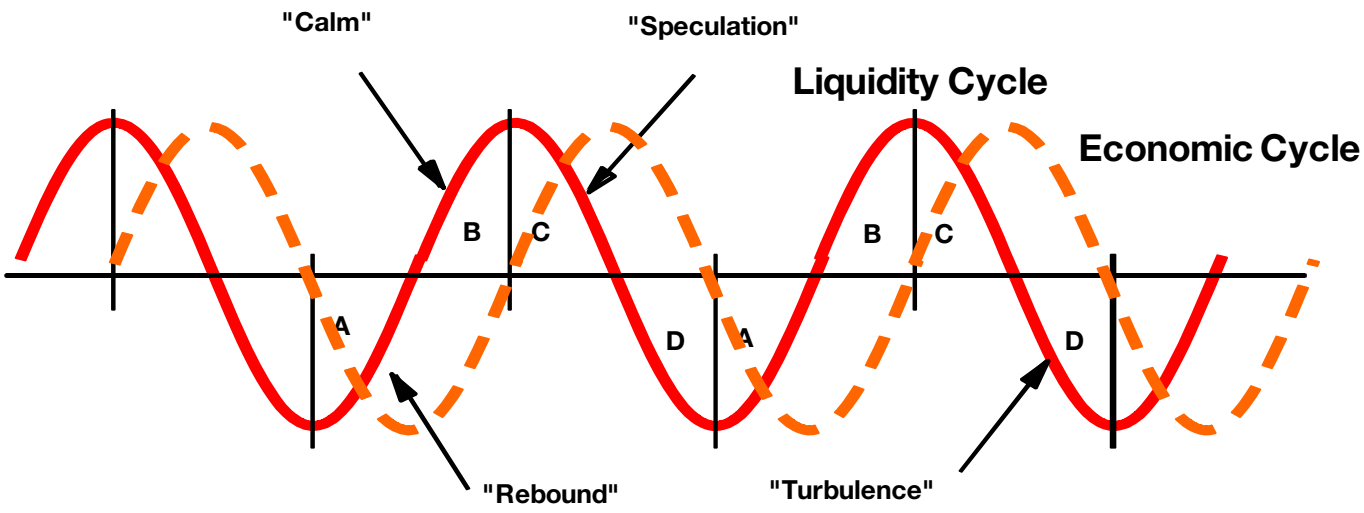

Global
Liquidity
Africa and Middle East
All Developed Markets
Ukraine
Asia ex Japan and China
Bulgaria
Denmark
Morocco
Croatia
EAFE
Kenya
Malaysia
Germany
Thailand
Asia ex Japan
Peru
Kuwait
New Zealand
Botswana
Indonesia
Venezuela
Spain
Chile
Korea
Nigeria
Russia
UK
China
Colombia
US
G7
Brazil
Rest of World
Egypt
Asia
Sweden
Netherlands
Qatar
Finland
BRIC
Pakistan
Saudi Arabia
Australia
Italy
Americas
Lithuania
Portugal
Jordan
Israel
Austria
France
Mongolia
East Asia
Hungary
Japan
Emerging Europe
Taiwan
Vietnam
United Arab Emirates
Estonia
Fringe Europe
Serbia
Czech Republic
Slovenia
Kazakhstan
South East and South Asia
Poland
Philippines
Canada
Myanmar
Switzerland
Mexico
Argentina
All Frontier Markets
Norway
Bangladesh
Turkey
Romania
Sri Lanka
Ghana
Singapore
Ireland
Scandinavia
Hong Kong
Belgium
Mauritius
All Europe
World
South Africa
Eastern Europe

Global Liquidity – Ebook

"It ain't the things you don't know what gets you into trouble, it's the things you know for sure what ain't so."
Mark Twain

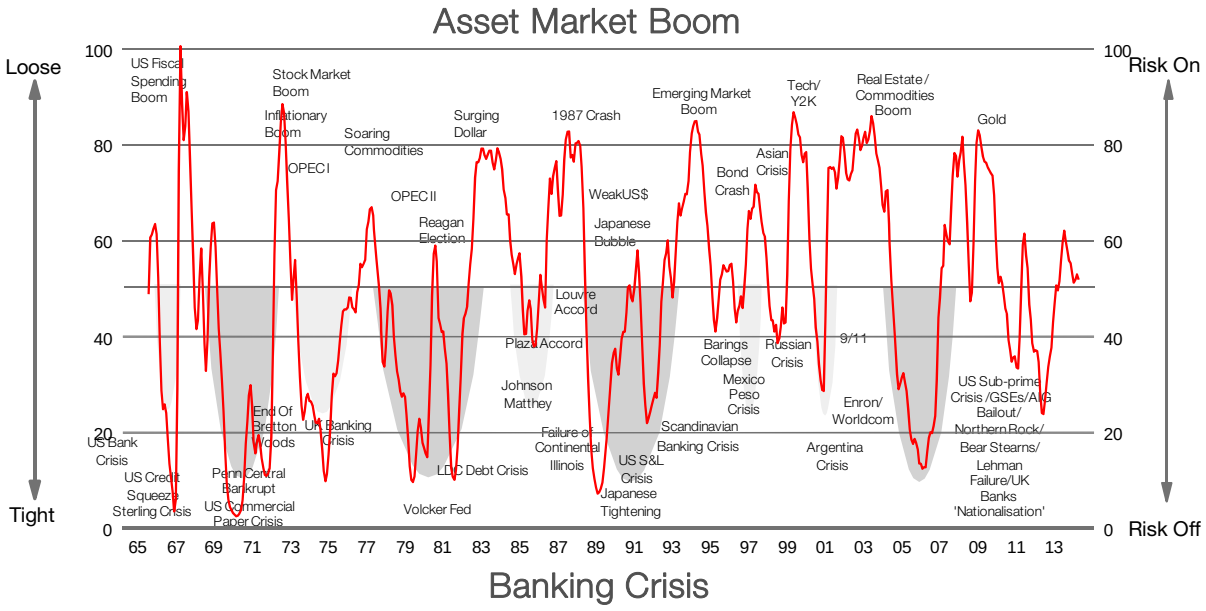


0. Introduction: Global Liquidity, The GLIs and the M-Shaped Investment Cycle

This E-book pulls together several of our research themes from the last decade. Our starting point is Global Liquidity, that is, the pool of cash and credit that flows through World financial markets. We have tracked these capital flows, now, for more than two decades, and regularly summarise the data using our Global Liquidity Indexes (GLIs). This data is distributed through an Excel add-in.

The Global Liquidity Indexes (GLIs) are comprehensive monthly surveys of carefully selected variables compiled by *CrossBorder Capital*. They provide an advance indicator of *'financial stress'*, and of what will happen to financial markets and the real economy by tracking data on credit spreads, credit growth and leverage, available funding, shadow banking, cross-border flows and Central Bank interventions across some 80 countries worldwide. The GLIs are regularly available within 10 working days of each month end, and typically lead financial markets and economies by between 6 – 12 months. These Indexes have been continuously refined and developed since their inception in the early 1980s. See Figure 1.

Figure 1: Global Liquidity Cycle, 1965-2014 (monthly, 'normal' range 0-100)



'Liquidity' includes financial intermediation beyond the traditional banking system. Structural change renders once useful money supply measurement out-dated. Therefore, we dig deeper into flow of funds statistics to find the roots of this 'new liquidity' among the shadow banks, wholesale money markets and Central Bank balance sheets. Our use of the flow of funds accounting system (see: US Federal Reserve Z1 Accounts) ties everything together and enforces consistency because balance sheets must balance, deficits must be funded and debt cannot be accumulated for ever.

We split 'Liquidity' into its three components: (1) Central Bank Liquidity; (2) Domestic Private Sector Liquidity and (3) Cross-border Financial Flows. The aggregate level of liquidity tends to lead

reported corporate profits by 18-20 months and measures of real economic activity by 12-15 months. The momentum of aggregate liquidity typically leads the slope of the yield curve by a shorter 3-6 months. And relative liquidity – Central Bank less Private Sector – usually leads exchange rates by around 6-9 months. These three relationships are shown, respectively, for profits growth on the MSCI Developed World universe, the G20 yield curve and the US trade-weighted dollar exchange rate in Figures 2 through 4.

Figure 2: Global Liquidity Cycle and World Corporate Earnings Growth

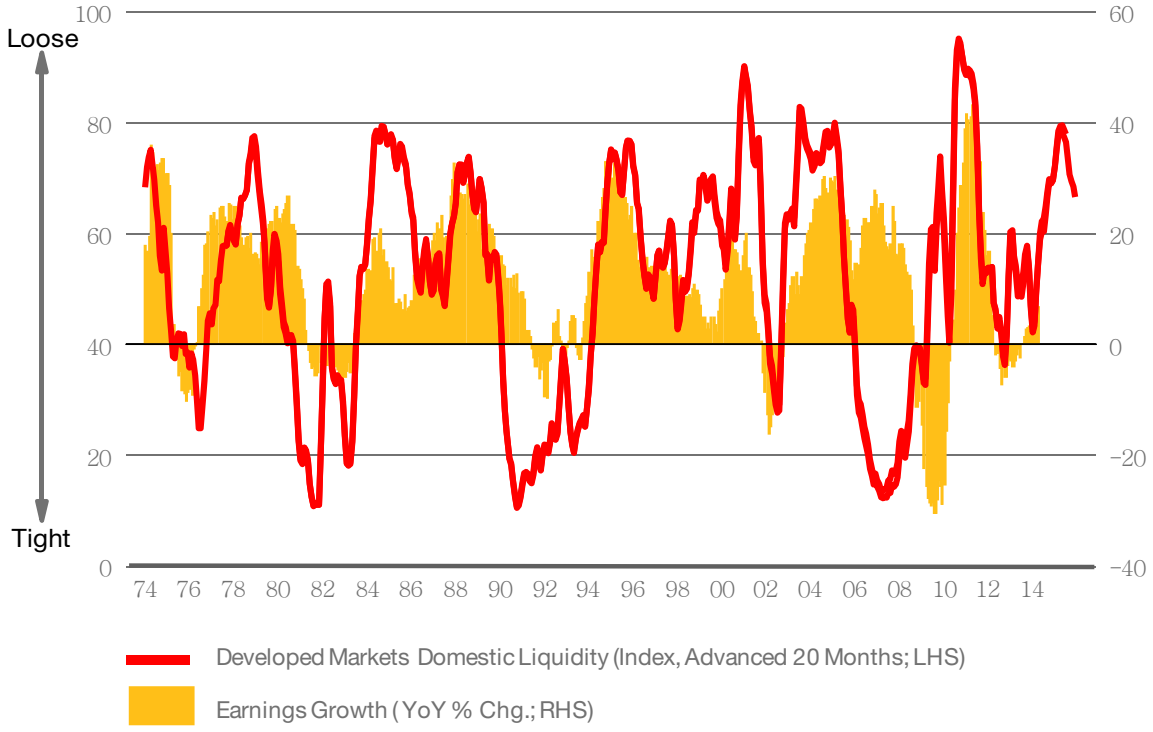


Figure 3: Global Liquidity and the G20 Yield Curve

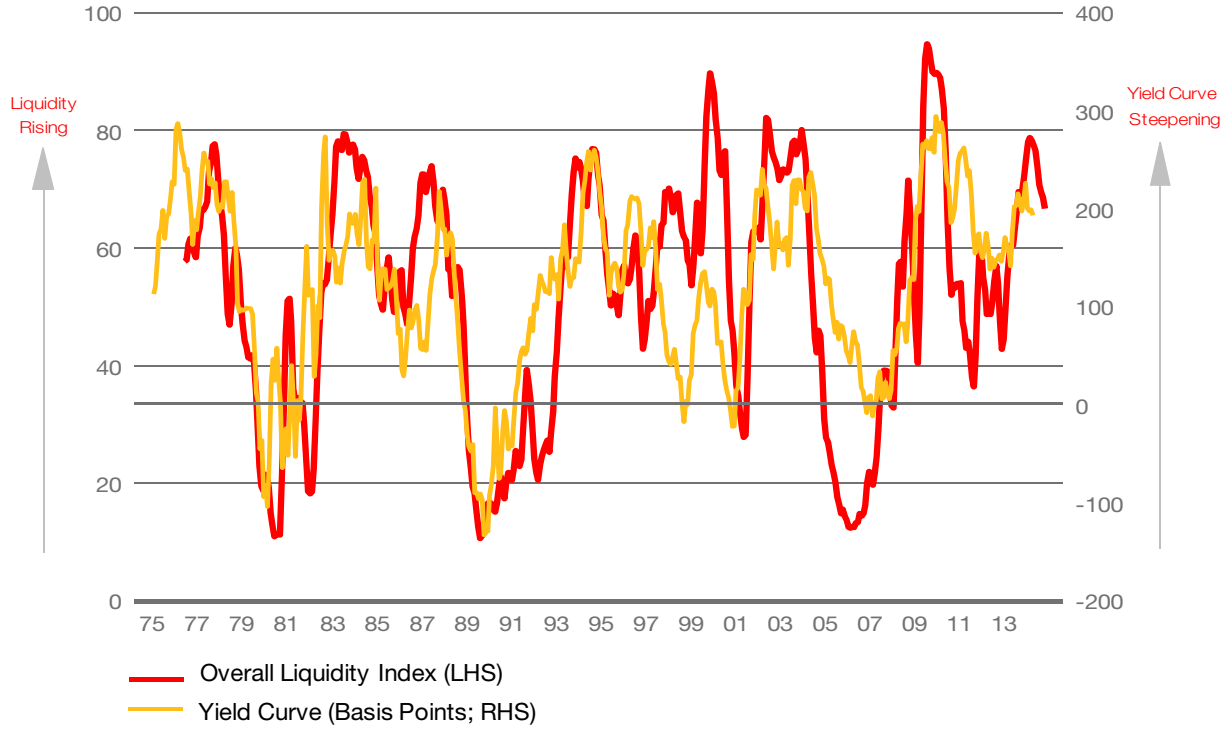
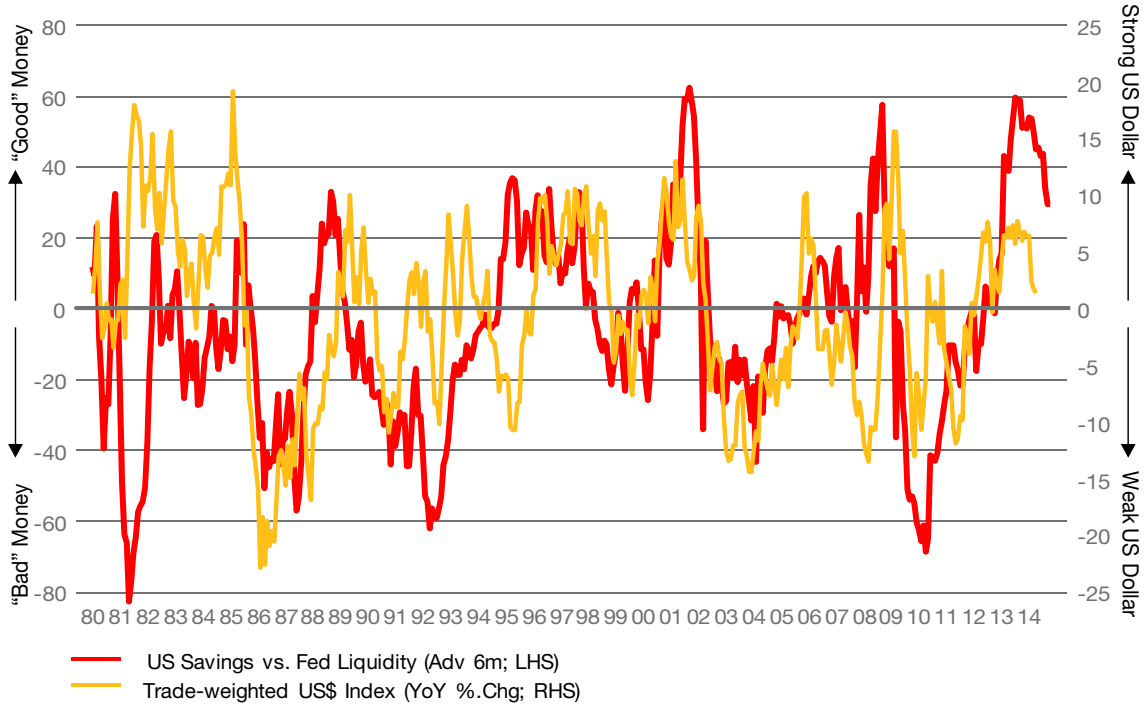
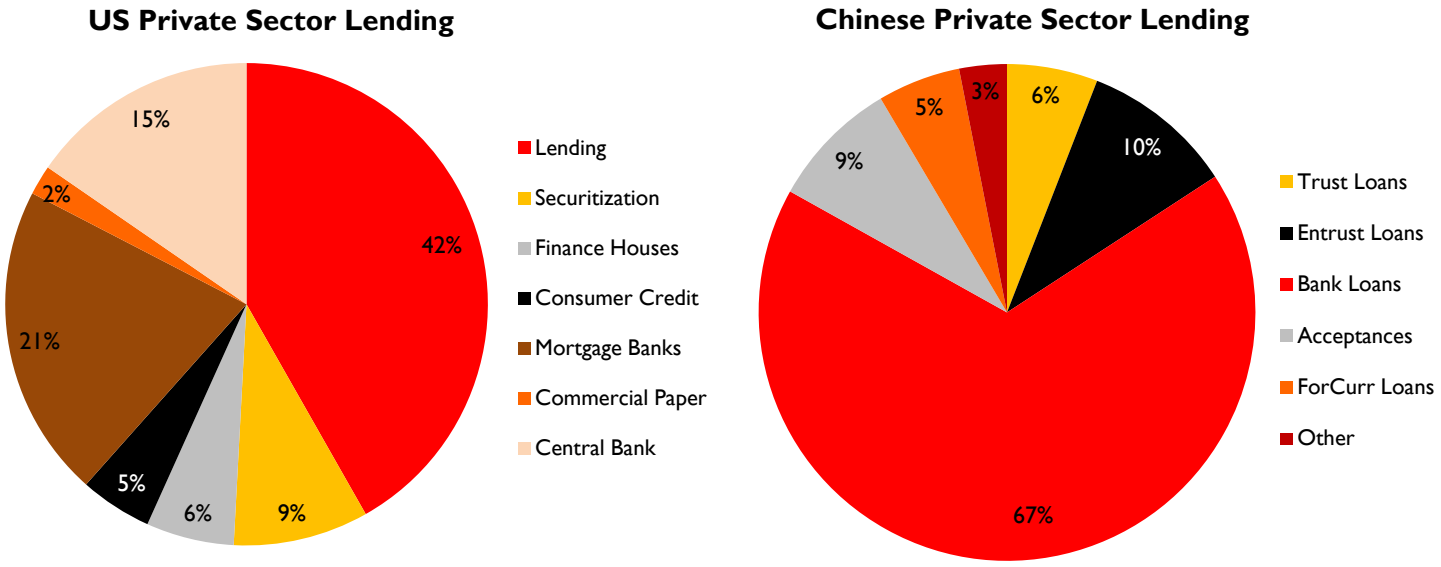


Figure 4: Trade-weighted US$ and Relative Liquidity



Ours is essentially a cyclical age: there exist distinct industrial and financial cycles. These are often, but not always, linked and they are driven at different times by an equivalent cycle of liquidity. Liquidity is a quantity measure. Looked at in more conventional terms, we analyse the movements in both the stock of money and its 'velocity'. Velocity varies greatly, spurred in particular by financial innovation and de-regulation, but also by the ebb and flow of funds between the industrial economy and the 'asset' (or financial) economy, which is our main focus. Figure 5 shows the latest breakdown of US and Chinese credit, which highlights the importance of Shadow banking.

Figure 5: Breakdown of US and Chinese Credit (End-2013)



Central Banks have only recently put credit back into their models. For too long they have been persuaded, Canute-like, of the 'horizontalist' view that only interest rates matter, and that they set them. No one has ever explained which rates they specifically set, but still. In this World, the supply of liquidity is perfectly elastic and no one is ever constrained by a lack of funding! Any one that has ever worked in finance must acknowledge that money is not fungible: in crises it is hoarded and never flows to where it is most needed. Put differently, velocity collapses.

Our thinking centres on what we call the 'Quality Theory of Money'. This essentially says four things:

1. money circulates because it has value, it does not have value because it circulates. In other words, the speed of circulation (velocity) depends on its 'price'
2. the 'price' of money is the exchange rate (not the interest rate), like the price of anything it represents purchasing power
3. money conceptually exists in two forms: *means of purchase*, which starts the circuit, and *means of settlement*, that ends it. Central Banks are near-monopoly suppliers of means of settlement money (legal tender) in crises. Monetary disequilibrium, highlighted in the exchange rate, occurs when these monies get out of line
4. money itself flows through two circuits: the industrial economy and the asset economy. Since the supply of assets is less elastic, changes in the tempo of money in the asset circuit drive asset prices up and down

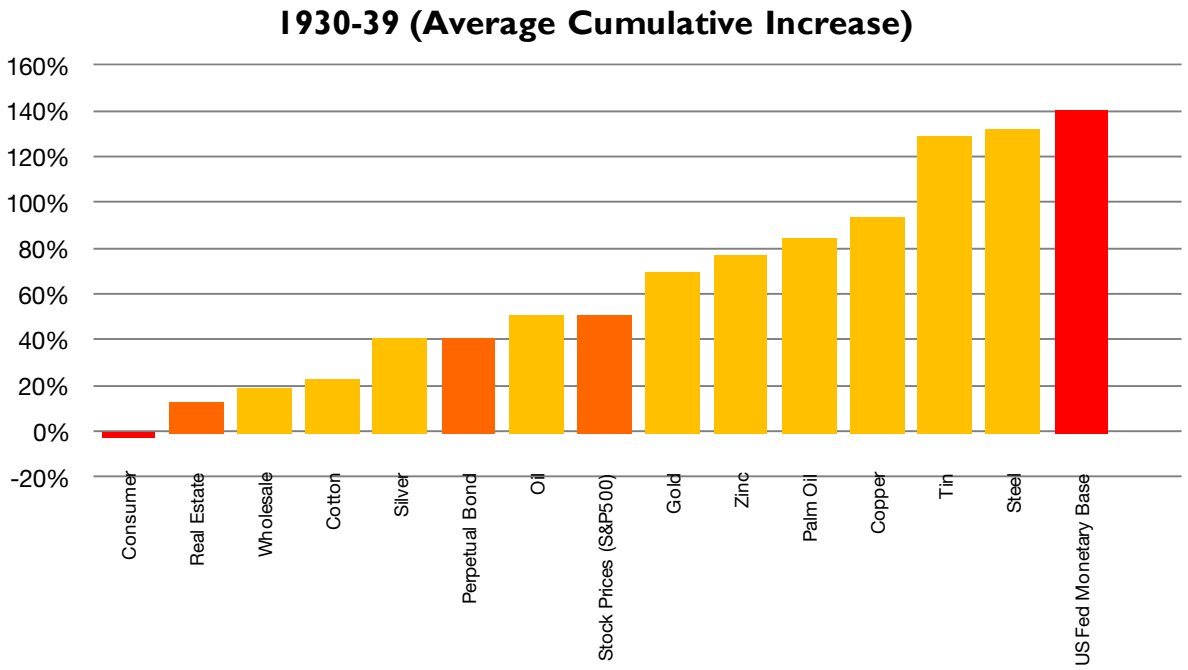
In those rare periods of monetary equilibrium, the velocity of money is stable and the conclusions of our Quality Theory align with those of the traditional Quantity Theory. If monetary velocity in Milton Friedman's sense is stable then money matters, not credit, and the asset economy is unimportant. In practice, velocity is highly unstable and credit is important. Credit can cause price rises but which prices rise or fall depends on where it enters the economic circuit. But if credit defaults, then the price level will drop, although not necessarily the same prices that originally rose in the upswing. For goods prices to rise, money needs to get into the industrial circuit. This is usually through faster investment spending which then filters into higher wages and more consumption. It is unlikely that banks will lend directly to consumers without collateral. This means that broker-dealers in Treasury markets and mortgage borrowers are more likely to get loans. Therefore, the real economy response largely depends first-of-all on a vibrant housing market.

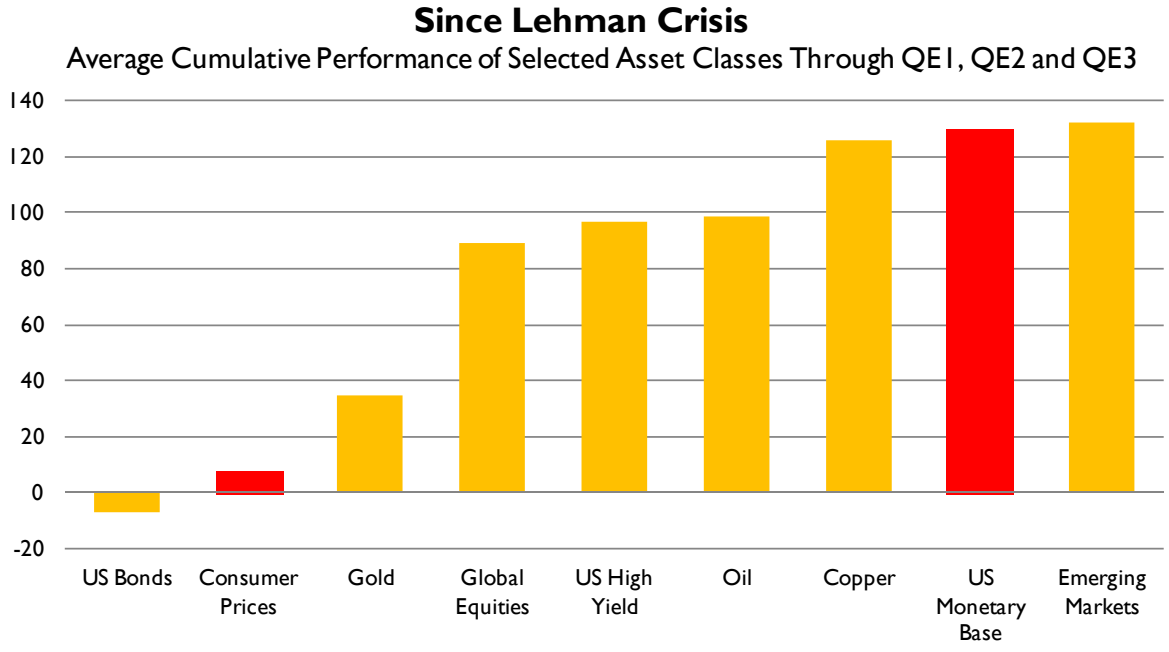
A corollary is that Central Bank QE (quantitative easing) is not necessarily (high street) inflationary. QE has been used previously to resolve four well-known debt crises: (1) Germany 1923; (2) US 1933; (3) Britain 1974 and (4) Japan 1995. The first and third were inflationary resolutions, and the second and fourth deflationary or disinflationary resolutions. Why? The issue does not concern the QE, but who holds the debt? In the cases of 1920s Germany and 1970s Britain the public sector was heavily indebted and the decision by the monetary authority to monetize this debt directly increased private sector liquidity. This 'unwanted' cash was quickly spent in near full employment

economies, thereby creating inflation. In contrast, in the cases of 1930s America and 1990s Japan, the private sectors were most indebted, and extra liquidity following QE policies simply led to the debt being liquidated, rather than money being spent in the anyway depressed real economy.

Again the lesson of this Crisis, much like the 1930s, is that *monetary inflation* -- the key lever in devaluing private sector debt -- causes asset price and not high street inflation. Figure 6 broadly compares the response of various prices to Federal Reserve QE in both periods.

Figure 6: Monetary Inflation – The 1930s Experience Updated





In practice, the underlying level of interest rates is not set in financial markets. Rather it is formed in the industrial economy by the marginal productivity of capital. We go on to argue later that, China, the World's marginal producer largely controls the level of global interest rates. This, Chinese overproduction and not the genius of Central Bankers might explain current low real interest rates. However, interest rate spreads are determined in financial markets, and notably the most important the slope of the Treasury yield curve. This, as we show, moves closely (and a little behind) the Liquidity Cycle.

Our overall impression is that, as the World has gotten bigger, it has become more volatile. Regular banking/credit crises seem to hit every 8-10 years, such as in 1996, 1974, 1982, 1990, 1997/98, 2007/08. Moreover, each cycle has traced out a stylised M-pattern, starting with a *monetary inflation* by Central Bankers and ending with a *cost inflation*, itself frequently the result of higher oil prices. The first peak of the 'M' is associated with strong bonds, rebounding financial shares and weak paper currencies; the second peak is linked to weak bonds, strength from cyclical shares, buoyant paper currencies and evidence of economic pick-up. Looking ahead, if we are correct, a 2016 Banking Crisis may be on the cards?

Three trends describe the modern economy:

- the productivity of industrial capital
- the elasticity of financial capital
- the inertia of consumer spending

Capitalism is largely about the distribution of the surplus, not about consumption or production. Consumption and finance facilitate the accumulation of capital: the accumulation of capital does not facilitate consumption. A clear lesson of economic history is that consumer spending is usually difficult to encourage. It plods.

Hence, profitability and, in particular, the return on capital are the key variables. These have a tendency to rise and fall in long waves. These trends speed up, slow down and re-direct the accumulation of capital between industrial sectors and between nations. These shifts show up in the flow of funds data that we regularly monitor. A falling marginal productivity of capital is reflected through weaker private sector cash inflows (i.e. Private Sector Liquidity) and this forces adjustment through a falling real exchange rate. Here the main conduits of change are the nominal exchange rate and asset prices. High street prices and wages can play a role, but they typically tend to be slower moving, particularly in mature, industrial economies.

Falling profitability does not necessarily imply a savings/investment imbalance. In a capitalist economy, the flow of funds identity means that liquidity rather than savings determines capital spending. However, it seems to be clear that over time the pool of savings rises faster than consumption. This has led many to project secular stagnation. It does show the importance of re-

cycling funds into capital spending if the pace of economic activity is to be maintained. This re-cycling is done by financial markets. Credit markets and other mechanisms develop to speed up circulation times, and so encourage more consumer and capital spending. This simultaneously heightens the supply of credit and liquidity and broadens the range of instruments that can be purchased. The modern monetary system is credit/debt-based and highly leveraged. Collateral becomes vulnerable when debt-repayment is compromised and so liquidity often becomes hugely pro-cyclical. What's more, since in a crisis the only true collateral is legal tender, aka Central Bank money, leverage can be extreme. As a result, Central Banks are required to play a bigger-and-bigger financial stability role. After having moved down through 2007 and 2008, collateral and liquidity have been moving up together since 2009, helped by Central Bank QE. In essence, as the World gets bigger it becomes more financial and more volatile. This explains why economies both trend (i.e. through profitability) and cycle (i.e. through liquidity), and why the two are often connected (e.g. through Central Banks). Consider, the latters' response to a falling real exchange rate. For trade-focussed economies, such as, say, Asia or Germany, a stable exchange rate is paramount, therefore their Central Banks will tend to operate policy to manage the nominal exchange rate (e.g. pro-cyclical Central Bank Liquidity). In contrast, a more financially-developed economy, such as Britain or the US, will first try to ensure the stability of their credit systems (e.g. counter-cyclical Central Bank policy) because sharp plunges in asset prices undermine collateral. Perhaps, this tells us why German Bunds, British house prices and American shares are often the three best investments?

Central Banks often make policy errors. These errors can be sizeable and typically coincide with their attempts to fix interest rates. Apart from obviously setting their policy discount rate, the Market, not Central Banks, determines all other rates across the term structure. The ‘price of money’ is the exchange rate and not the interest rate, and so attempts to control interest rates through adding and subtracting liquidity can cause currency instability. On the other hand, more Central Bank money does not automatically create high street inflation and lead to economic imbalances. This much is clear from the past five years. However, it can and frequently does lead to financial imbalance, distorts credit markets and encourages an excessive reach for yield. This threat is more immediate than high street inflation and at times, viz. 2008, more devastating.

How should we use this framework to understand the current crisis? Long-term supply shocks are important and, arguably, the biggest supply shock in recent history has been the Fall of the Berlin Wall. This economically enfranchised 2-3 billion new producers, not consumers, and hard-hit Western profitability. As a result of this supply shock, capital must flow Eastwards and Developed Market's real exchange rates need to fall, while EM real exchange rates need to rise. However, the adjustment channels are asymmetric. EM economies, being trade-related, push adjustment through higher asset prices rather than a higher nominal exchange rate. Exchange rates tend to be anchored to the US dollar. In contrast, the financially-developed DM, which need to see lower real exchange rates, cannot allow their asset prices to fall heavily because the blow to collateral would upset their credit markets and undermine the balance sheets of credit-providers. Hence, they tend to prefer to see nominal exchange rate weakness. This framework explains why EM asset prices exploded

upwards through the 1990s, halted only by the upward movement in the US dollar when a tight Federal Reserve and the lift to productivity from the US technology boom boosted its real exchange rate.

Apart from monitoring 'Liquidity data', over the period, we have written on four, often connected, research themes. We attach the raw and unrevised reports in their entirety to evidence these themes as subsequent chapters. They represent our 'hits and misses'. The themes are:

- Quality Theory of Money and the Rise of Gold
- Liquidity and the Shadow Banking Surge
- How China Controls World Interest Rates
- Style Selection Vs. Asset Allocation

1. Quality Theory of Money, The Bernanke Doctrine and the Rise of Gold

In a series of reports, starting with *Harry Potter and the Federal Reserve* (November 2002), we explore the US Fed's increasing use of its balance sheet to inject funds into the US financial system. *The Money Man: Bernanke's Doctrine 10 Years On*, November 2012, examines the legacy of 'Deflation: Making Sure 'It' Doesn't Happen Here' Bernanke's November 21st 2002 speech that signalled this policy change.

By increasing Fed liquidity faster than US private sector liquidity, the US dollar was likely to weaken and the gold price certain to rise. We set targets en route, but ultimately we were not surprised to see the US dollar gold price test US$2,000/oz. (See: *Why Gold Will Keep Rising ... And Oil*, February 2009). *All That Glisters Is Not Black Gold*, October 2006, outlines our view that the gold/oil ratio is critical to understanding oil prices, and for that matter other commodity prices. The commodity price constellation is priced from the nominal gold price, the pole star, whose position in many ways is in the gift of the Fed. In other words, today the US$1,300/oz. gold price is as consistent with a US$100/bbl oil price (13x) as US$35/oz. gold price was with a US$2.70/bbl oil price in the early 1970s, before the demise of Bretton Woods.

The Quality Theory of Money, September 2006, argued that money circulates because it has value and does not have value because it circulates. In other words, stable money is important, and the more traditional Quantity Theory of Money only seems to work well when the value of money does not change. To understand stable money, we split Central Bank liquidity from Private Sector liquidity. Relatively more Central Bank liquidity weakens currencies; relatively less Central Bank liquidity strengthens them. The former often describes a monetary inflation and the latter a monetary deflation. Financial crises, in turn, can be ultimately categorized as *crises of monetary inflation* and *crises of monetary deflation*.

In *Japan's Great Experiment: The Land of Rising Asset Prices*, April 2013, we turn our analysis to Abenomics in Japan, arguing that the same events would occur, starting with a much weaker Yen, and ending with rising asset prices.

2. Liquidity and the Shadow Banking Surge

What is Liquidity? This is a question that is not easy to answer, and this is the reason we spend so much time trying to be precise. *Money, Credit and 'Global' Liquidity*, February 2014, updates an earlier report, and provides background. Liquidity is essentially defined as all forms of cash and credit. It is a source rather than a use of funds measure. In practice, it comprises all types of funding for credit providers, beyond the traditional bank deposits or what economists by convention term 'money supply'. It covers non-deposit sources, such as wholesale funding, e.g. repos and commercial paper, which ballooned to stand bigger than the banking sector and then collapsed post-Lehman. Yet, today shadow banks remain important. The supply of money is not necessarily affected by this increase in funding, but the volume of credit should be. As an example, US liquidity totals around US$24 trillion whereas US M2 Money Supply is only US$8-9 trillion, or roughly one-third the size. Moreover, Liquidity has a Global dimension: since 2006, Chinese Liquidity has exploded upwards by a whopping 430%.

A series of reports *21st Century Schizoid Banks*, December 2007 and *New York Slides, Washington Wakes, Chicago Dreams,* March 2008 explore the rise of shadow banking and the leverage implicit in the repo and wholesale markets. In *The Nikkei, NASDAQ & ...Notting Hill*, July 2007, we warn about the impending bubble that this credit boom was then inflating. *Dissent Inside The Fed?* April 2008 argues that US policy makers may be underestimating the inherent leverage in the system. Moreover, it points to the use of the Taylor Rule and the over-emphasis on interest-rate setting rather than liquidity management as a major system risk.

To be early is to be wrong, and we were early in calling the ultimate Crisis. Our data pointed to 2007 rather than 2008 as the low water mark of liquidity, but that said no other rival indicators got close. In the aftermath, we produced *The Message From A Previous 'Low'*, February 2009 and May 2011. This gave a road-map for the future with a commentary illustrated by a series of contemporary 1930s/ 40s cartoons drawn by David Low during the last debt crisis. *Odds of a QE3...100%*, August 2011 published after QE2 suggested that it was only a matter of time before policy-makers would be compelled to add more liquidity. However, we note in *Asian Liquidity – No Tiger In the Tank*, February 2012, that in sharp contrast to the US, Asian emerging economies were starting to suffer the dangerous reversal in their liquidity that is now adversely affecting asset prices across the Emerging Markets.

Japan Is The New France, February 2009 argues that exchange rate volatility not higher inflation is the likely outcome of the post-Lehman debt crisis and QE. The lesson of the 1930s was that the economies of the early devaluers (again Britain and the USA) performed best. We suggest here, wrongly given the rise of Abenomics, that Japan may be the last economy to devalue and, hence, would suffer like France in the late-1930s. Maybe Japan has now escaped this deflation trap, but China and the Eurozone could still get caught?

Chinese Liquidity and China's Shadow Banking Sector, March 2014 focuses on how we measure the liquidity impulse from Shadow Banking.

3. How China Controls World Interest Rates

This theme was triggered by the popular but false notion of a 'global savings glut'. We argue this idea is wrong for two reasons: (1) a savings/investment imbalance can occur at many different rates of capital investment, and (2) low real interest rates suggest an equally low marginal return on capital. The 1989 *Fall of the Berlin Wall* effectively economically enfranchised 2-3 billion new producers, not consumers. On top, China was in the midst of a major capital spending boom financed by the PBoC (Peoples' Bank). Both events glutted the World with excess product and made it hard for Western capital to compete. Consequently, they stopped investing and instead spent time cutting costs and investing the rising free cash flow into wholesale money markets (see Theme #2). The result was an elevated average return on capital (from cost-cutting) reported to shareholders and a depressed, but hidden, marginal return on capital. The latter meant low new investment and this forced down real interest rates in financial markets, notably TIPS yields. Thus, it was not the genius of policy-makers, but the reality of China's investment boom that led to falling World real interest rates. See: *How China Sets World Interest Rates*, March 2007 and *How China Controls World Interest Rates*, June 2013.

This idea is taken a couple of steps further in *Good Money, Bad Money and the Chinese Elephant*, September 2013 and *China, America and Collapsing Capital Flows to EM*, January 2014. In the first report, we suggest that the latest slowdown in Chinese liquidity and the drop in capex is behind the jump in US real interest rates, as the previous forces unwind. The second report continues the theme that, as China slows, it takes down EM with it because these economies are tied to the skidding Chinese capex cycle. The threat of US tapering is thus secondary to the fact of Chinese tightening by the PBoC.

The link between Chinese liquidity and the US bond market is explored in *Gross Interest Rates and the End of QE2*, April 2011 and in *The New 'Old' Yield Curve*, December 2013. Both reports argue that the long-end of the bond market drives the short-end, and not vice versa. The level of the long-end is set by inflation expectations and by real interest rates (see above). The transmission to the short-end is through the yield curve, with a steep curve implying low short-term rates. The Federal Reserve and other Central Banks do not set interest rates, the market does, but by its liquidity injections the Fed has a big say over the term structure. These reports show that rising liquidity causes a steepening yield curve within six months, while declining liquidity produces a flattening curve. Inflections in the liquidity cycle are important for bonds and we have one again now in early 2014.

4. Style Selection Vs. Asset Allocation (TSS vs TAA)

The centrepiece of our liquidity analysis is that *investor power* rather than *earnings power* determines asset pricing. In the report *Money, Money, Money …A Different Asset Allocation*, August 2006, we note that at the macro-level P/Es may be unbounded and not mean-reverting and so cannot be used to guide asset allocation. Instead we suggest P/M, or price-to-money ratios. A corollary is that investors tend to be more volatile than their investments! Therefore, we analyse the *investment climate*, i.e. the liquidity backdrop, and *investors' mood*, e.g. risk appetite, to understand this. Monetary inflation and deflation describe the investment climate, and cost inflation and cost deflation are major influences on risk appetite. *Macro-Finance – Or What They Don't Teach You At The Chicago Business School*, September 2010, summarises many of these ideas.

Styles vs. Assets, June 2004 was an early report that argues that investment style returns are less correlated and have a more stable variance/covariance matrix than asset returns. *What Can Yale Teach Us?* July 2011 updates an earlier report that suggests many asset allocators would be better off diversifying across styles. Thus, Tactical Style Selection (TSS) may be preferable to Tactical Asset Allocation (TAA). The idea that the investment climate can change is explored in *The Volatility of Volatility*, May 2010. This introduces the idea of four regimes: Calm, Speculation, Turbulence and Rebound. Each regime describes a different variance/covariance matrix, and volatility in each regime is very different. *The Return of TAA?* December 2012 notes that the then fashion for 'risk on/ risk off' is a facet of these investment regimes. The report shows that asset allocation should be done in absolute terms by comparing assets against money and not in relative terms against each other. Thus, the bond/equity yield gap is highly unstable and dependent on the inflation backdrop.

Asset valuation is tackled further in *Liquidity and Modern Finance, Looking Inside the P/E*, August 2004. This breaks down P/E valuation into a price-to-money ratio that represents portfolio exposure, and a liquidity factor. The effects of inflation on asset returns and risk appetite is a recurring theme explored for bonds in *Lost in the Bretton Woods*, May 2010, and for equities in *The Bear Market in Valuations and the Bull Market in History*, June 2011 and *The Bear Market in Valuations ... Part 2*, September 2011. Equity valuation (and ownership) is dependent on the inflation regime, with valuations highest at low inflation, circa 2-3%, and lower either side. Bond yields respond to both monetary and cost inflation, but asymmetrically. Both inflations are required to push yields higher, but either cost or monetary deflation is sufficient to push yields down.

5. Conclusion: Liquidity Makes The Modern World Go Round

The bottom-line is that shifts in monetary conditions cause changes in asset prices and exchange rates. Monetary conditions are defined by the 'sources of funds'. These sources of funds precede in timing the 'uses of funds', or things like capital and consumer spending, exports and fiscal deficits, which make up the domain of economic analysis. Moreover, the sources are conceptually bigger than Central Banks and even bigger than traditional Commercial Banks. Central Bank QE, by itself, is an inaccurate measure because of the endogenous liquidity created by the private sector. Thus, the total sources of funds include both these credit flows as well as funds provided by shadow banks, which typically borrow directly from the capital markets and wholesale money markets. Some call this 'money in all its forms'. On top, we argue that interest rates are not the price of money, but a category of profits. Interest rates alone ignore risk premia and the often restrictive terms behind loans. Therefore, they cannot be used to measure 'liquidity'. Thus, in our view, trying to predict Central Banks' interest rate policy is entirely pointless. The exchange rate is the 'true' price of money and swings in the sources of funds cause changes in real exchange rates: in mature economies, where goods prices and labour costs are 'sticky', asset prices move by more.

The liquidity framework can be represented symbolically to show how the two main drivers - *monetary conditions* and *risk appetite* - affect asset prices. Liquidity is the 'best' gauge of monetary conditions. Let Pf denote average asset prices; M represents liquidity, and k is a multiplier:

$$P_f = k \cdot \frac{M}{n} = k^1 . M$$

$$k = \frac{P_f \cdot n}{M}$$

where k defines the price-to-money ratio, a measure of portfolio structure, and n denotes the (roughly constant) number of assets outstanding. Hence, if liquid assets represent 20% of portfolios, then the price-to-money ratio is 4 times (80/ 20). Hence, asset prices have two moving parts: *liquidity* and, what we have termed *risk appetite*. Assuming an unchanging price-to-money ratio (P/M), or portfolio mix, then expansions of liquidity will drive asset prices higher. Let deviations of this portfolio mix, or P/M ratio, from its underlying level or trend measure investors' risk appetite. It follows that a relatively high exposure to risk assets, such as equities, implies a high risk appetite, and similarly vice versa. Ideally, we should increase exposure to risk assets when liquidity is high and rising, and when risk appetite is unusually depressed.

Ultimately, flow of funds and capital flows are the key drivers of economics and markets. The modern economy is a vast re-financing mechanism that requires liquidity. Unlike modern economic analysis, we largely focus on sources and not uses of funds. In our World, liquidity rather than

savings determines the economic cycle through variations in investment spending. Many of the above themes are connected. Investment regimes (Theme #4) are clearly linked to liquidity and changes in Central Bank policy (Theme #1). Controversially, the Bernanke Doctrine (Theme #1) and the China boom (Theme #3) proved to be major factors behind the explosion of Global Liquidity and the shadow banking system (Theme #2) ahead of the 2007/08 Lehman Crisis.

The following reports contained in four sections, one for each theme, may help to clarify our thinking? We have deliberately excluded 'quant' research from this survey. A series of research papers detailing data construction, Granger Causality Tests and model applications using the GLI dataset is also available on request.

Section 1
(Quality Theory of Money and the Rise of Gold)

- Harry Potter and The Federal Reserve, Or is Greenspan putting the US back on the Gold Standard – *November 2002*

- The Money Man: Bernanke's Doctrine 10 years on – *November 2012*

- Why Gold will Keep Rising……..And Oil – *February 2009*

- The Quality Theory of Money – *September 2006*

- Japan's Great Experiment: The Land of Rising Asset Prices – *April 2013*

Global View

CrossBorder Capital®

November 2002

Harry Potter And The Federal Reserve,
Or Is Greenspan Putting The US Back On The Gold Standard?

Ten years ago many investors believed that the US Federal Reserve was targeting the price of gold. Indeed, Chairman Alan Greenspan virtually said so. But the gold price slumped from late-1996 preceding a five-year period of asset market turbulence and coinciding with Greenspan's growing belief in the 'new economy'. Recently, US dollar gold prices have risen noticeably from their mid-2001 lows. Could the Fed be reverting to a gold price target? This would dovetail with Greenspan's long-held beliefs. What's more, it would have negative implications for the US dollar and bond markets, but it would add much needed support to Wall Street and to global stock markets.

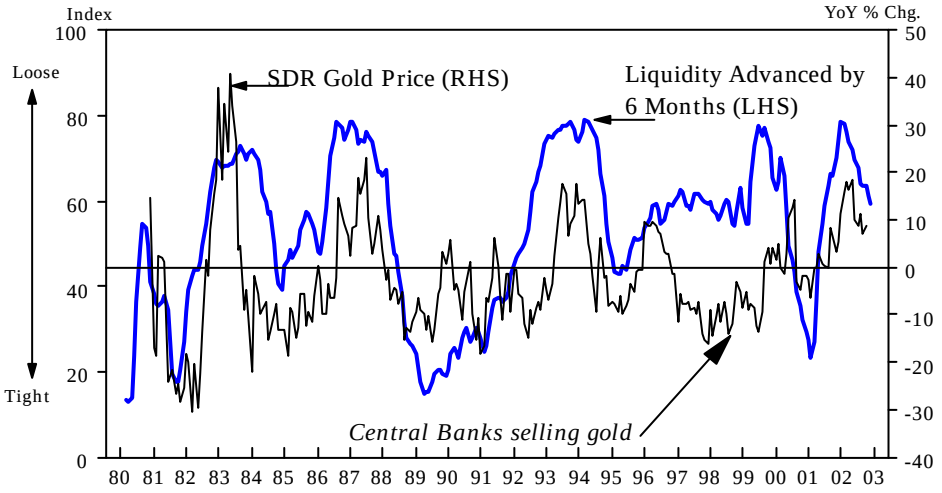
Inside The Chamber Of Secrets

Although it is unfashionable, we often watch gold. Gold is not just the mystical metal prized by wizards and feted at Hogwarts. **Rather it is the natural corollary to monitoring the liquidity cycle because the gold price is the 'price' of liquidity.** Imbalances in global liquidity are highlighted within around six months by swings in the nominal price of gold. Thus, gold is an important barometer of global financial stability. The gold price leads other asset, raw material, producer and retail prices by between three months and around three years. See Figures 1, 2 and 3.

These relationships are robust. Roy Jastram an authority on the history of gold notes:[1] *"Gold maintains its purchasing power over long periods of time, for example, half-century intervals,"* And… *"The amazing aspect of this conclusion is that it is not because gold eventually moves towards commodity prices, but because commodity prices return to gold."*

[1] *Roy W. Jastram, The Golden Constant, New York, John Wiley & Sons, 1977*

Figure 1. Global Liquidity Cycle (Index) Advanced By Six Months And Gold Price (SDR/oz.), 1980-2002



Source: *CrossBorder Capital*

Marcol House
289-293 Regent Street
London W1B 2HJ

www.liquidity.com
Tel: (020) 7535-0400
Email: www@liquidity.com

But it's not just its track record that makes gold worth watching. **The world's most important policy-maker, Fed Chairman Alan Greenspan, is a keen observer of the gold price.** Greenspan has had a long-term love affair with gold:

"An almost hysterical antagonism toward the gold standard is one issue which unites statists of all persuasions. They seem to sense ... that gold and economic freedom are inseparable, that the gold standard is an instrument of laissez-faire and that each implies and requires the other." Alan Greenspan, Gold and Economic Freedom, July 1966

In an op-ed article written for the Wall Street Journal some 15 years later Greenspan underscored the importance of targeting the nominal gold price:

"Those who advocate a return to a Gold Standard should be aware that returning our monetary system to gold convertibility is no mere technical, financial restructuring. It is a basic change in our economic processes. However, considering where the policies of the last 50 years have eventually led us, perhaps there are lessons to be learned from our more distant Gold Standard past. ... The only seeming solution is for the U.S. to create a fiscal and monetary environment which in effect makes the dollar as good as gold, i.e. stabilizes the general price level and by inference the dollar price of gold bullion itself." Alan Greenspan, WSJ, 1981

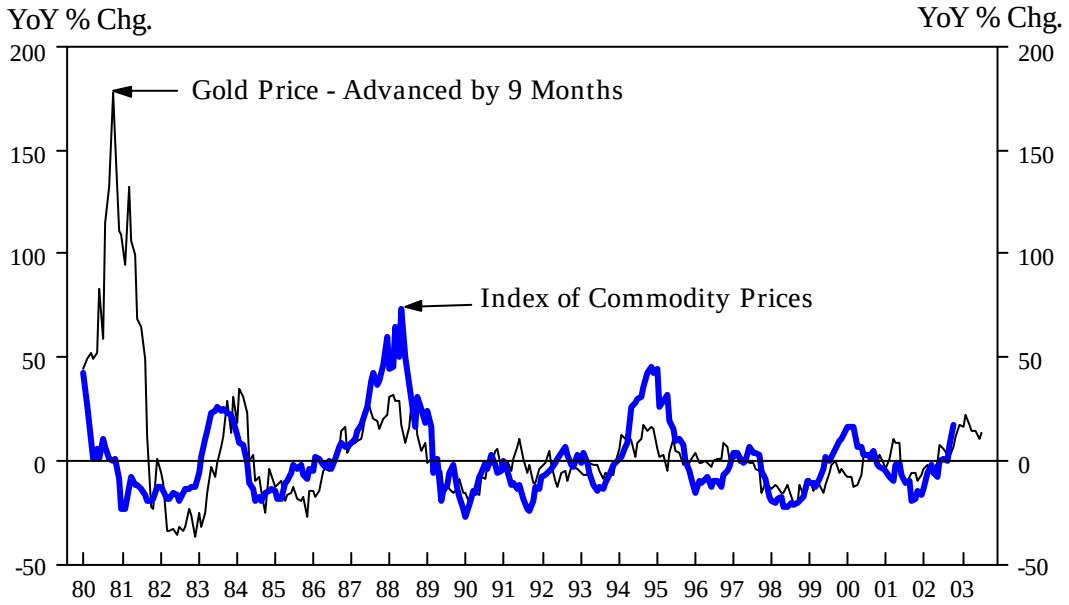
In a 1994 testimony as the Fed Chairman, Greenspan said:

"*The price of gold . . . has been especially sensitive to inflation concerns ...*"

and

"Gold is a different type of commodity because virtually all of the gold that has ever been produced still exists. And therefore changes in the level of production have very little effect on the ongoing price, which means that it's virtually wholly a monetary demand phenomenon. So it's a store of value measure which has shown a fairly consistent lead on inflation expectations and has been over the years a reasonably good indicator. It does this better than commodity prices or a lot of other things."
Alan Greenspan, Semi-annual Testimony to Congress, Fall 1994

Figure 2. Gold Prices Advanced By Nine Months And Economist Commodity Price Index, 1980-2002 (Year-on-Year Percentage Changes)



Source: *CrossBorder Capital*

Questioned by the US Senate Banking Committee, Greenspan re-iterated the importance of gold:

"…[A]nything which would change the view of long-term inflation prospects in the United States, whether it be a gold standard, whether it be credible monetary and fiscal policy, or some combination, will effectively reduce both nominal and real interest rates." Alan Greenspan, Comments to Senate Banking Committee, February 1995

And more recently to the same committee, he again stressed the value of the gold signal:

"… like a lot of commodity prices, and perhaps better than most, [the gold price] has been useful, in my judgement, in trying to get some sense of what inflationary pressures have evolved in this country." Alan Greenspan, Comments to Senate Banking Committee, February 1999

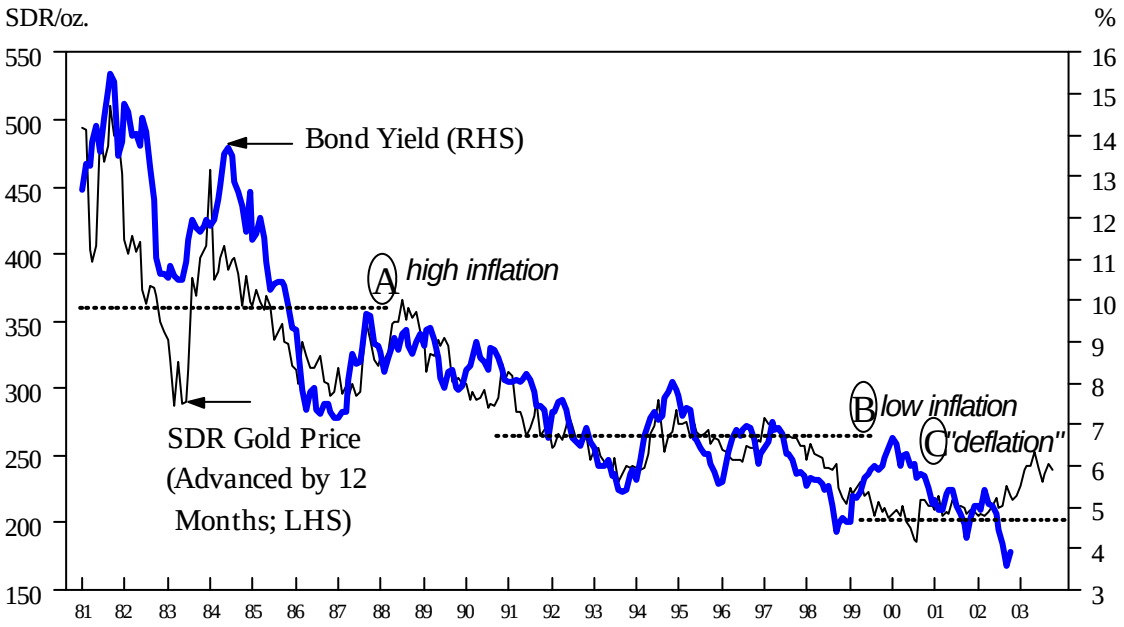
US Monetary Policy 1987-1996

The proof of the pudding lies in the eating. So, it should be clear from Figure 4 that the heightened stability of the US dollar gold price roughly coincided with the tenure of Greenspan as Fed Chairman from mid-1987. **Stability was spectacularly achieved between late-1993 and early-1996.** It would appear that a target level of US$380/oz. was set and broadly adhered to by fine-tuning US monetary policy. To hit its price target, the Fed altered the volume of dollar liquidity rather than buying or selling physical gold. More remarkably, gold roughly maintained US$380/oz. through the turmoil of the Kuwait Invasion in 1990-91 and the upheavals of the US Savings & Loan Crisis, a time when the existence of many US financial companies was severely threatened.

What Went Wrong?

But given Greenspan's clear enthusiasm for gold, why did he allow the US dollar price of gold to plunge from just over US$400/oz. in late-1996 to barely US$250/oz. by mid-2001 – a 39% drop? Surely, according to his stated criteria (above) this foreshadowed significant deflation?

Figure 3. Gold Prices (SDR/oz.) Advanced By 12 Months And US Long Bond Yield, 1981-2002



Source: *CrossBorder Capital*

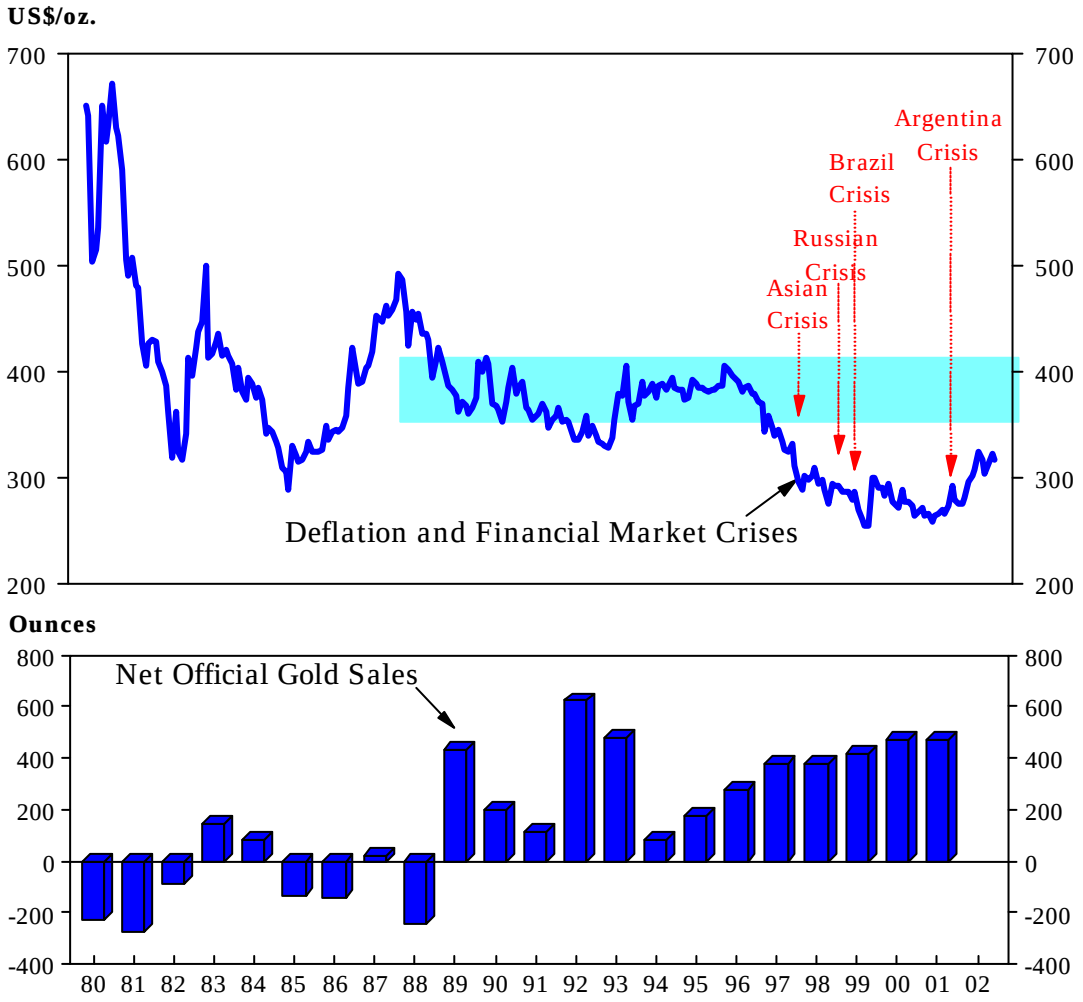
It did. **But deflation needs to be carefully defined.** Price deflation can arise for two reasons: (1) cost deflation, which usually arises because of an improvement in productivity performance, and (2) monetary/profits deflation, which is the result of insufficient circulating medium, i.e. too little money. Monetary deflations do not necessarily mean falling prices, but they often precede them. Did 1996-2001 signal a cost deflation or a monetary deflation?

Judging from contemporary speeches, Greenspan probably believed at the time that the weakness in the gold price reflected falling industrial costs as US productivity soared. Indeed, he frequently spoke favourably about the so-called 'new economy'. **However, in our view the gold price is a more specific measure of monetary imbalance.** Consequently, we viewed the weak gold price as confirmation of monetary deflation.

Monetary deflation is economically the most pernicious form of deflation because it destroys profits and ultimately capital. Cost deflation may punish certain industries – often the least efficient – but for the entire economy it is usually a plus. Take the falling price of computers. Typewriter manufacturers screamed as, one-after-another, they went out of business. But the rest of the world benefited hugely from cheaper, faster processing power. Much the same argument applies today to Chinese-made TVs and Korean-made cars.

In short, in 1996 Greenspan was content to oversee a falling gold price because he wrongly believed that it reflected economic success in boosting productivity and not monetary failure

Figure 4. US Dollar Gold Price And Recent Dollar Area Crises, 1980-2002 (US$/oz.)



Source: *CrossBorder Capital, GFMS*

in not sufficiently easing liquidity.[2] The 1997 Asian Crisis, the 1998 Russian Crisis, the 2002 Argentinean default, the firm US dollar and the lack of pricing power across global industry all show that dollar liquidity was too tight. But the recent downward revisions to US productivity trends almost certainly convinced Greenspan that his prior assessment was wrong: the weak gold price reflected monetary deflation.[3] Something had to be done to reverse it.

Back To US$380/oz.?

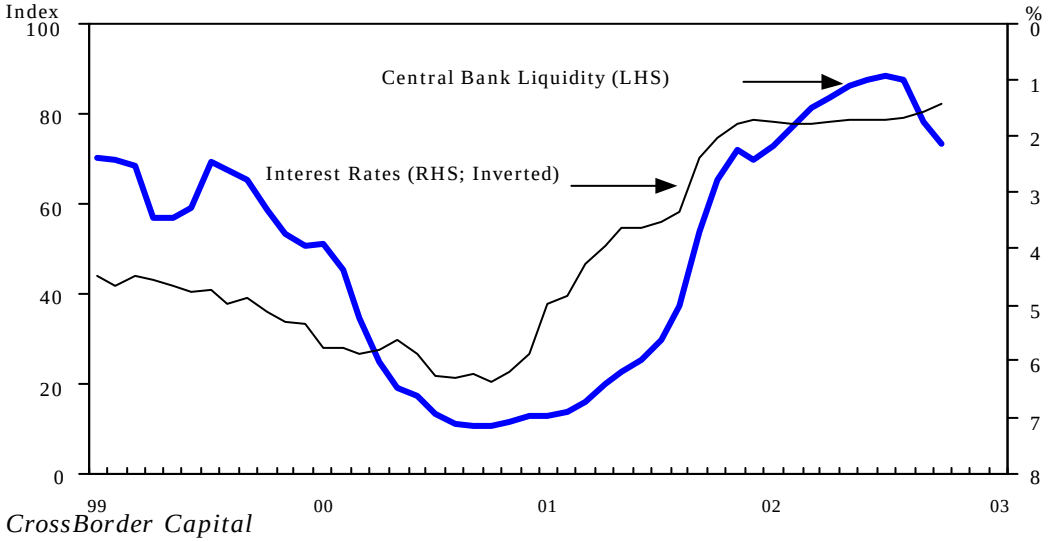
Early-2001 saw a sea change in US monetary policy. Fed liquidity was boosted and interest rates were cut. See Figures 5 and 6. Within months, the US dollar gold price had jumped. It has continued to trend higher bolstered by increasing dollops of Fed liquidity and ever lower interest rates.

If he is true to form, Alan Greenspan will correct his previous error and return the US dollar gold price to his previous target level of US$380/oz. What is significant about US$380/oz.? Only that it is roughly the median average gold price since the mid-1980s. A return to this level would judiciously balance the competing claims of dollar debtors and dollar creditors. Debtors lose in deflations; creditors win. **Thus, to redress the recent advantage to creditors, the Fed must create an offsetting monetary inflation that temporarily favours debtors.**

What does all this mean for markets? First, a 'high' gold price target of circa US$380/oz. implies that the US Federal Reserve must ease much further. But surely, at only 1¼%, America's rock-bottom level of interest rates dramatically reduces policy-makers' firepower? Wrong. Quantity liquidity can still be eased significantly. More liquidity will be bullish for stock markets and the real economy. A great mistake is to confuse the cost of credit with the price of money. Interest rates measure the cost of credit and prevailing low credit costs largely reflect an absence of credit demand. As we argued earlier the US Fed should control the price of money, i.e. the gold price, by adding and subtracting liquidity from markets through open market operations. In other words, loosening when the gold price is below, say, US$375/oz. and tightening when it gets above US$385/oz.

[2] *Note also that significant non-US Central Banks selling contributed to gold price weakness. See Figure 4.*
[3] *In two previous reports, we try to iron out two anomalies: (1) if US liquidity was tight, why did the tech bubble occur? (See* Europe – You Are The Weakest Link, *CrossBorder Capital, August 2002) and (2) although Greenspan should have eased liquidity from late-1996 in response, what originally caused the deflation? (See* Monetary Deflation – The Economic Consequence of Japan, *CrossBorder Capital, October 2002).*

Figure 5. US Monetary Conditions – Central Bank Liquidity Indicator (Index) And Fed Funds Rate (Inverted), 1999-2002



Source: *CrossBorder Capital*

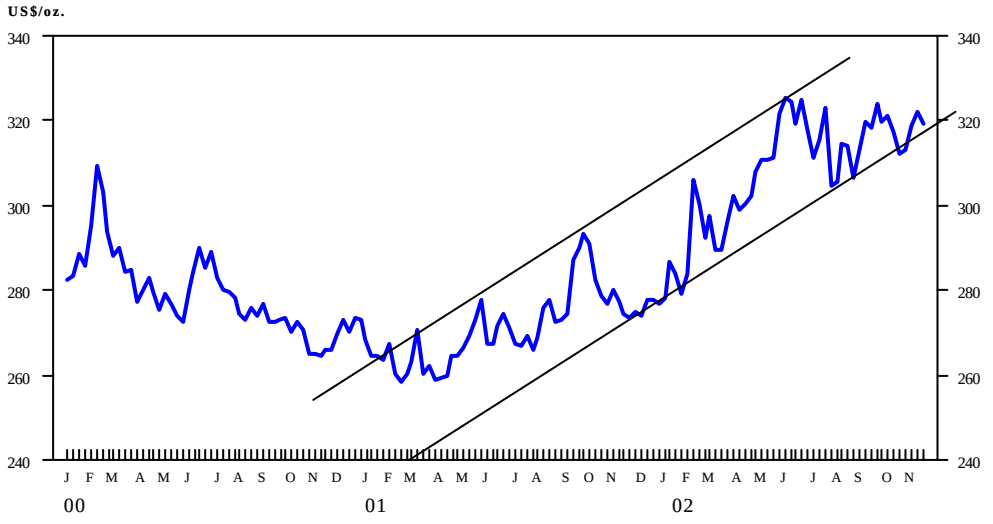
Second, a rising US dollar gold price implies a weakening paper dollar. Will this mean that the dollar is weak relative to other paper currencies, such as the Japanese Yen and Euro? On the face of things, this assertion is probably correct. It is very unlikely that either the Bank of Japan or the ECB will target gold. However, both Central Banks will pay attention to the cross-rates of their currencies against the US dollar. Consequently, ultimately expect monetary easing in both economies as the paper dollar weakens**. These moves will be reactive and, therefore, it is likely that the dollar will remain the weakest of the major currencies.**

Third, rising US dollar, Yen and Euro gold prices suggest general strength in gold, i.e. the currency-weighted or SDR price will increase. This will have significant implications for asset market valuations. Figure 3 highlights the close historical relationship between SDR gold and US bond yields some 12 months later. In short, higher gold prices spell danger for bond investors. But equities could prove the winner. See Figure 7. Our philosophy is to value assets against inflation and not against each other. A falling bond market will not disturb equities when existing inflation rates are low and rising gently. Equity valuations suffer greatly during periods of disinflation and deflation. Indeed, we have shown that sub-3% inflation is negative for US equity valuations[4]. **Therefore, higher gold prices will cause equities to significantly outperform bonds.**

Fourth, rising gold prices signal monetary inflation. **Monetary inflation does not mean price inflation, but it typically precedes it. Inflation must be viewed as a process and not an event.** Commodity and goods prices rise in a sequence, typically starting with gold and precious metals, moving through base metals, oil and manufactured products, and ending up (perhaps some three years later) with service sector prices. During this transition phase, pricing power shifts and profit margin strength follows the sequence of price increases. Consequently, during the early stages of a monetary inflation the profits of early-cycle commodity and basic industries will grow relatively to the profits of service businesses. But by the later stages of the monetary inflation, profits in service businesses will have caught up**. In short, US cyclical value equities, e.g. chemicals, steels, pulp, industrial materials, hedged into Euros, may be today's best investment bet.**

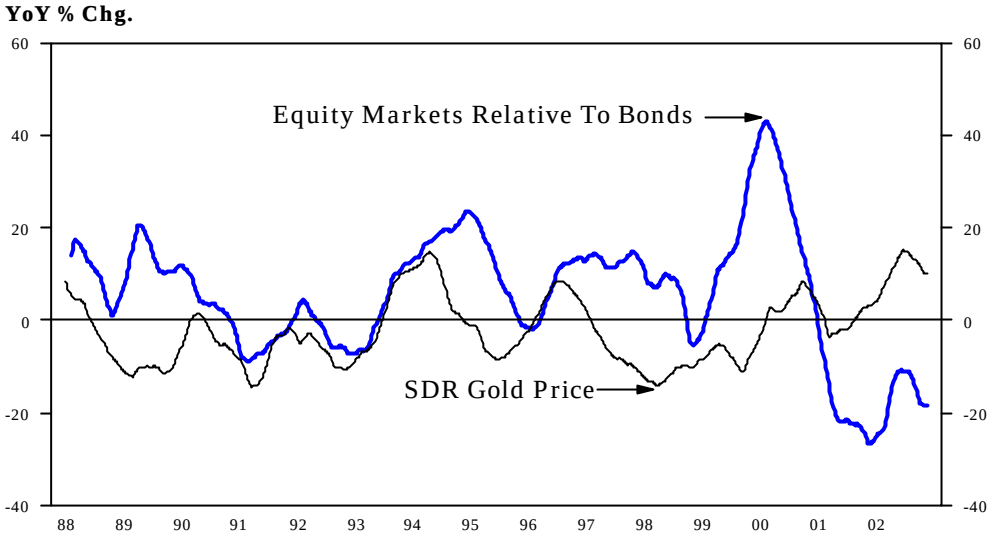
[4] *See* Wall Street: An Expensive Island In An Ocean Of Liquidity, *CrossBorder Capital, June 2002.*

Figure 6. US Dollar Gold Price (US$/oz.), 2000-2002 (Weekly)



Source: *CrossBorder Capital*

Figure 7. Gold Prices And Equity Market Performance, 1988-2002 (YoY % Change, 6-Month Moving Average)



Source: *CrossBorder Capital*

CROSSBORDER CAPITAL LIMITED

MARCOL HOUSE
289-293 REGENT STREET
LONDON W1B 2HJ
TELEPHONE 020 7535 0400 FACSIMILE 020 7535 0435

REGULATED BY THE SECURITIES AND FUTURES AUTHORITY

CrossBorderCapital
Implementing Insight

Global View

November 2012

The Money Man: Bernanke's Doctrine 10 Years On

QE3 is the latest chapter in the Bernanke Fed's monetary easing. Unlike QE1 and QE2, this liquidity injection is focused on boosting economic growth, not on saving the banks. Yet we believe it will have the same results as its immediate predecessors. There is a longer track record of QE against which to judge this than many realise. Bernanke's QE policies did not start in 2008: they kicked-off six years earlier in 2002, or roughly coincident with an important speech he made, now, almost exactly a decade ago.

QE rarely does much for underlying economic growth, but it does boost gold and commodity prices; spill-over into surging EM equities, and bearishly steepen bond yield curves. All-in-all, we may be returning to 'Risk On' investment markets, but knowing exactly where to hold this risk will be critical.

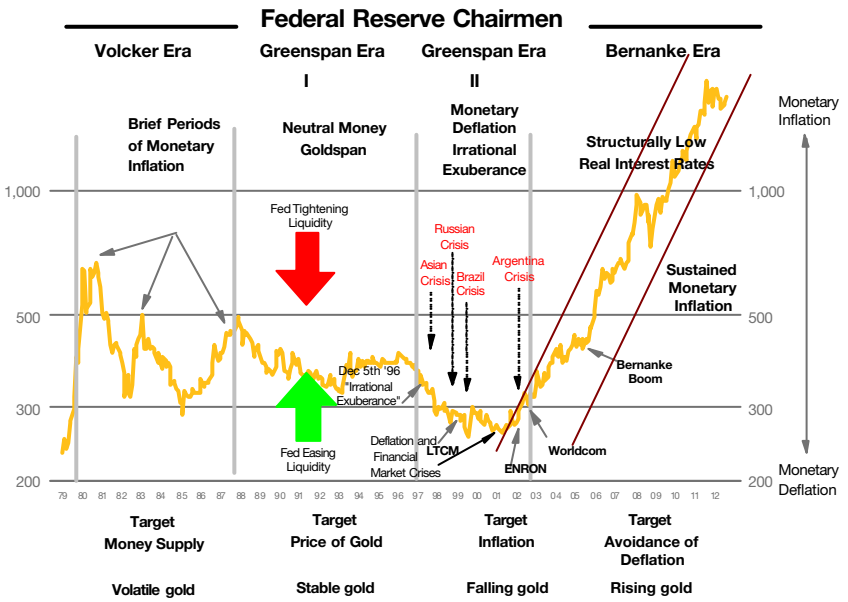
The Bernanke 'Put'

Two dates stand out in recent Western financial history – 9th November 1989 and 21st November 2002. The first marked the *Fall of the Berlin Wall* that deepened and accelerated the Emerging Market Revolution. The second was the date of new Fed appointee Ben Bernanke's 'Deflation: Making Sure 'It' Doesn't Happen Here' speech.

We believe that this latter date marked the true start of the Fed's QE policies. These helped to fuel the 2004-2007 asset bubble via a feeding-frenzy in US wholesale money markets as credit providers wolfed-down cheap and abundant funding. We are close to the ten-year anniversary of Bernanke's speech and it has unquestionably left its mark on global markets. See Figure 1.

Figure 1 shows the US dollar gold price through different policy regimes, broadly described by the incumbent Fed Chairman. In the first period shown, Chairman Volcker oversaw a volatile gold price by targeting US money supply.

Figure 1
The US Dollar Gold Price Under Different Fed Regimes
US$/oz. Monthly 1979-2012



Source
CrossBorder Capital, Datastream

96 Baker Street
London W1U 6TJ
Tel (44) 20 7908 2800
crossbordercapital.com

The second period, or Greenspan I, featured an implicit gold price target which broadly aligned with the then Fed Chairman's stated beliefs. By Greenspan II, Chairman Greenspan has been persuaded by 'irrational exuberance' to move away from a gold price target to an implicit inflation target. The resulting tighter monetary stance led the US dollar gold price to skid lower and the shortage of US dollars to usher in a sequence of defaults by major dollar debtors, starting with Thailand and embracing Russia and Brazil, before hitting ENRON and WorldCom back home. Bernanke's secondment to the Fed must be seen in the context of this worsening debt background.

Bernanke's 'Deflation' speech was the first important one he made after joining the Fed. He came in as an academic 'expert' on credit transmission, the 1930s Depression and Japan's post-Bubble economy. With hindsight, he looked well-suited to the then coming decade. The 'Deflation' speech started by dismissing the then prevailing inflation paranoia in the US. Bernanke argued that Japan's experience of deflation, slow growth and banking problems was the more sinister threat. Real interest rates could rise sharply once nominal interest rates hit the zero lower bound, leading to sizeable jumps in real repayment burdens and worsening bank balance sheets. Yet he dismissed the idea that , at zero interest rates, the Fed had 'run out of ammo'. Prevention being better than cure, Bernanke argued for: (a) a buffer zone on inflation targeting, i.e. 1-3% being preferred to 0%; (b) the Fed as active *lender of the last resort*; (c) aggressive and pre-emptive interest rate cuts, and (d) that deflation could always be reversed under a fiat money system. Here, one particular quote from the speech is worth re-considering:

"Like gold, US dollars have value only to the extent that they are strictly limited in supply. But the US government has a technology, called a printing press..."

Getting down to specifics, the *Bernanke Doctrine* consists of six policy actions:

(1) Rapid Fed balance sheet growth through asset purchases
(2) Ensure this gets through to financial markets by expanding the range of assets bought

Period	Average Annual Real Growth
June 1997 to March 2000	+6.1% over 38 months or +20.6%
April 2000 to February 2001	+1.6% 11 months or +1.5%
March 2001 to September 2002	+5.8% 19 months or +9.3%
October 2002 to March 2005	+3.6% 30 months or +9.2%
April 2005 to September 2008	-0.3% 42 months or -1.0%

Figure 2
Pre-Crisis US Federal Reserve Balance Sheet Expansion
Percent 1997-2008
Source
CrossBorder Capital, US Federal Reserve

(3) Cut short-term rates aggressively and early; use 'forward guidance', e.g. Japan's zero-rate target, and try to set a bond yield ceiling
(4) Buy GSE debt and/or foreign debt, and use purchases of banks' CP, corporate bonds and other private assets as collateral against Fed loans
(5) Depreciate the US dollar and the example of success he cites is devaluation against gold in 1933-34
(6) Enact a money-financed tax cut.

Quantitative Easing Plus Qualitative Easing

The Fed's net liquidity stimulus depends upon both the size and the composition of its balance sheet, i.e. quantitative and qualitative effects. Indeed, Bernanke was very specific in the wake of the Lehman Crisis that Fed policy was strictly focussed on supplying credit where needed, rather than a willy-nilly splurge of money. In short, it was more than a simple QE. Recent attention has still focussed more on the size of QE programmes, but individual actions in specific securities are sometimes more important than others. Figure 2 shows that it is hard to fingerprint the Fed's balance sheet alone as a culprit behind the 2004-07 bubble, although in the wake of the 2000/01 recession the Fed eased consistently for four years. To put this in context, in the run-up to the Lehman Crisis, the Fed's 2001-05 easing matched in size the huge injections made during the period of the Asian Crisis and Y2K.

A major easing effect also comes through the changing composition of the Fed balance sheet. Recent analysis by the IMF confirms that the 'type' of asset transaction here matters because each can have different collateral multiplier effects. What's more, 'good' collateral can be re-hypothecated a number of times. A stark example comes from the collateralised US wholesale money markets. See Figure 3. These exploded in size in the early 2000s, providing much of the fuel for the asset bubble.

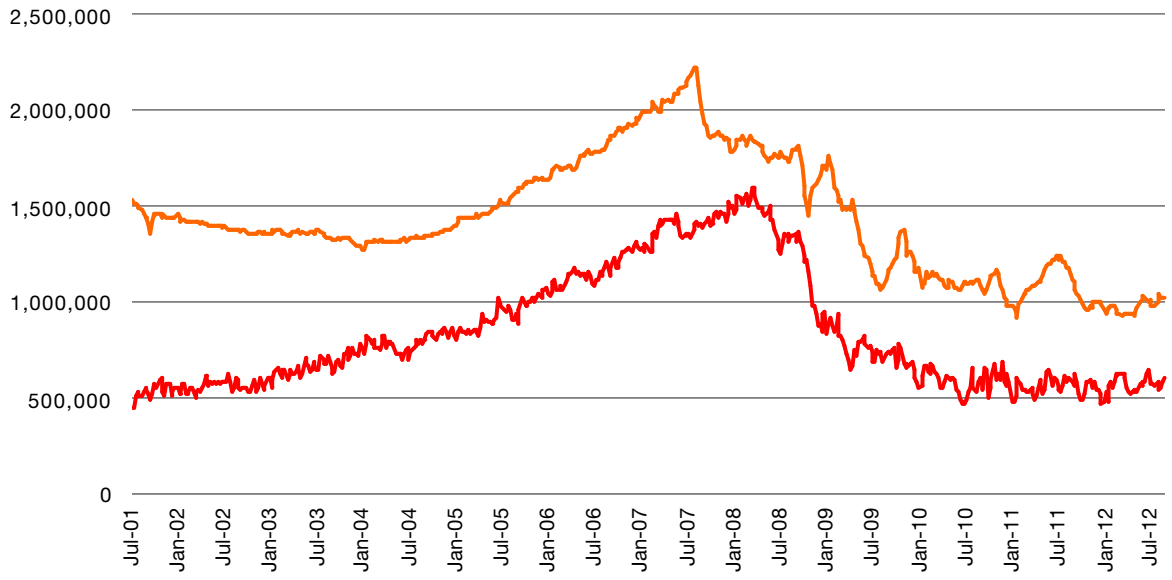


Figure 3
US Repo and Commercial Paper Markets
US dollar millions Monthly 2001-2012
Source
CrossBorder Capital, US Federal Reserve

More than a US$1 trillion were funded through repos and nearly the same again through commercial paper issuance, much of it by financial companies and with the Fed often a counterparty. Since the Lehman Crisis, funding from these markets has dropped directly by a combined US$2 trillion, and in practice by more since these resources are used for leveraged finance.

Thus, the mid-to-late 2000s saw the US Fed pumping in liquidity and bolstering collateral to such an extent that financial markets raced higher. To be fair, the Fed had little idea how leveraged the system had become, and just how vulnerable it was to a liquidity shock.

Therefore, when policy-makers began to contract liquidity as their fears grew over the inflationary effects of then rising oil prices, financial markets sputtered, groaned and collectively collapsed as bank-after-bank raced to grab what little marginal liquidity was left. The dominoes fell, and there were an awful lot to fall.

Inflating Serial Bubbles

It is always hard to explain why policy-makers' response to this recent debt crisis has been to issue still more debt. Yet this is what they are doing. Bernanke (and increasingly Draghi in Europe) are the clearest exponents. The plain fact is that we live in credit-market economies served by financial institutions that use Central Government liabilities as their main collateral against which to lever their balance sheets. Holes in their balance sheets made by bad debts have to be made good by policy-makers. This is what is happening now, and for that matter has always happened. Debts need to be settled and the required means of settlement can come from new production; greater savings (i.e. less spending) and/or, more likely, printed as legal tender by Central Banks. Thus, previous incumbent Chairman Greenspan may be less directly to blame for the 2007/08 debacle than many still think. Certainly, he was at the Fed's helm, but the scale of the policy errors that the Fed made have their origins in the Bernanke Doctrine.

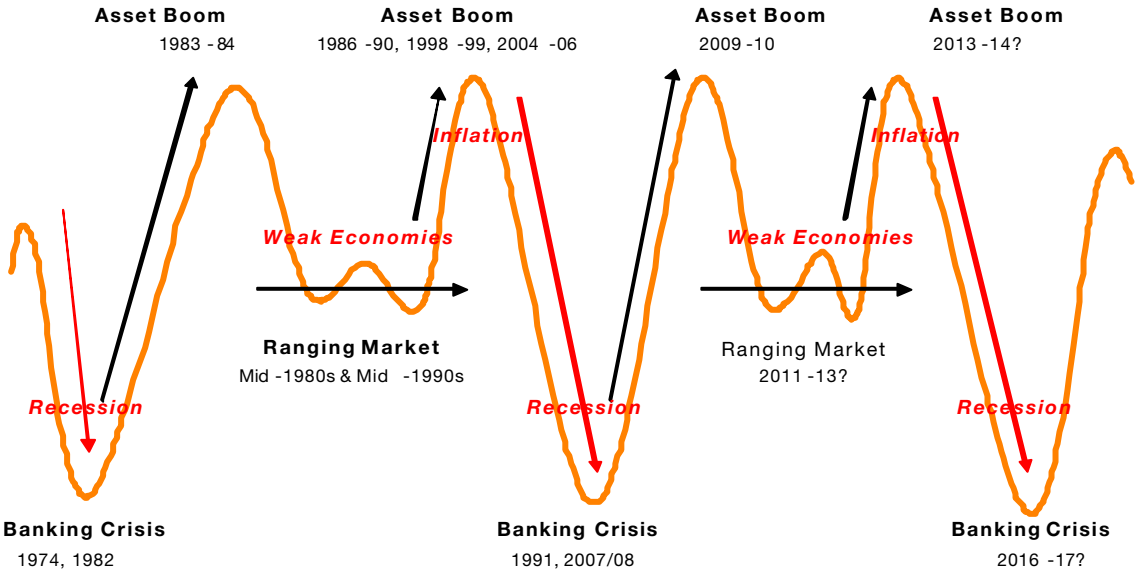


Figure 4
Road Map and Stylised Investment Cycle
Schematic
Source
CrossBorder Capital

One conclusion, reinforced by the Bernanke Doctrine, is that the business cycle has changed its nature. No longer do we see the textbook model of (1) recession—(2) policy-easing—(3) recovery—(4) growth—(5) inflation—(6) policy-tightening—(7) recession. Rather the cycle is now: (1) banking crisis—(2) 'first' QE—(3) banking system stabilization—(4) economic stagnation—(5) 'second' QE—(6) commodity boom—(7) recession. In other words, the modern cycle starts with a banking crisis and ends with a commodity boom. See the schematic chart in Figure 4. The chart describes an M-shaped cycle of liquidity, with the first policy-easing focussed on securing the integrity of the banking system and the second, typically 18-24 months later, focussed on re-igniting economic growth. Put another way, this means that investors see two asset booms per banking crisis! And, these banking crises seem to regularly recur every 8-10 years.

In other words, the 'Risk On' / 'Risk Off' sequences in financial markets owe much to the changing tempo of the liquidity cycle. Figure 5 highlights the actual swings in our Global Liquidity Index (GLI). QE policies, which fuel this cycle, have some impact on the business cycle, but do not change the underlying growth trend. In summary, QE's lead to three things:

- Rising gold & commodity prices
- Steepening Yield Curves
- Rising EM

Thus, on average, gold rose by around 55% through QE1 and QE2 and rose 35% outside of (i.e. in-between) the QE periods. Oil rose by 99% during the QEs and by less than 10% outside. Similarly, the trade-weighted US dollar was flat outside of the QEs but depreciated by over 14% through QE1 and QE2. Bernanke, in a 2012 speech, claimed that Fed QE policies taken overall reduced 10-year Treasury yields by between 80-120bp. The evidence in Figure 6 suggests the very opposite: QE1 raised yields by around 200bp at the long-end, while QE2 raised them by some 50-100bp.

Figure 7 summarises the net impact on asset prices per US$100 billion of US Fed QE. Prices are expressed in percentage changes and bond yields in basis points.

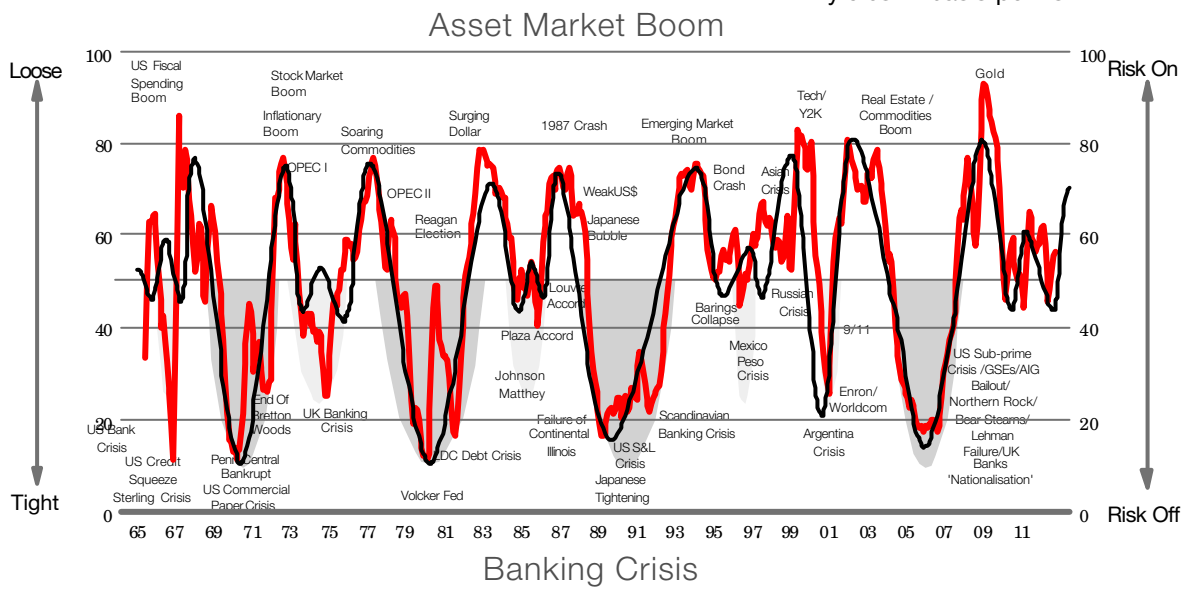


Figure 5
Global Liquidity Cycle
Index ('Normal' Range 0%-100%) 1965-2012
Source
CrossBorder Capital, US Federal Reserve, ECB, Bank of England, Bank of Japan, IMF

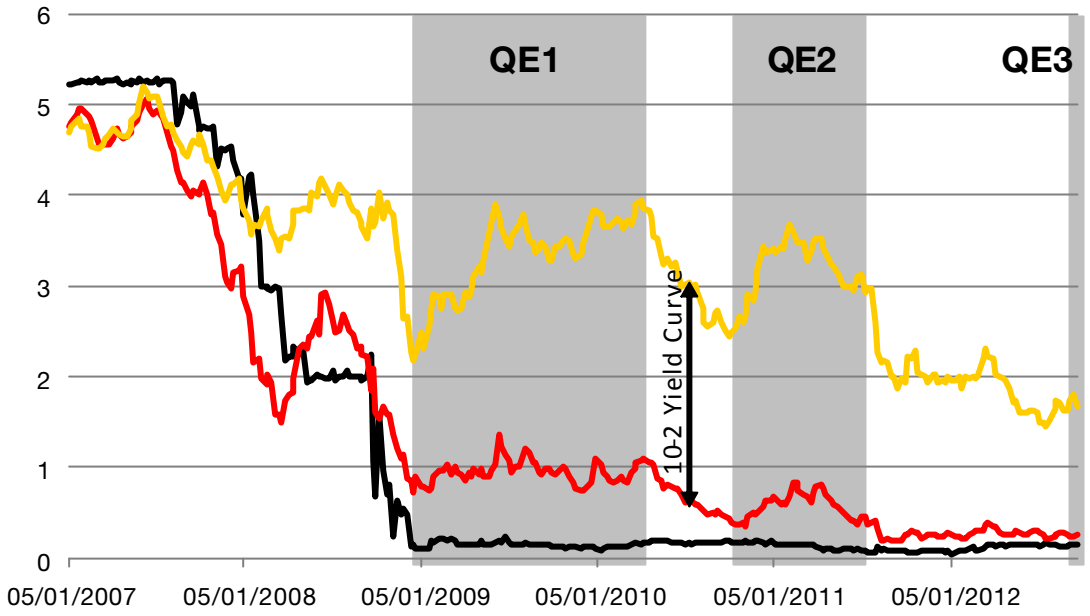


Figure 6
QE, US Fed Funds, 2-Year and 10-Year Treasury Yields
Percent Weekly 2005-2012
Source
CrossBorder Capital, US Federal Reserve

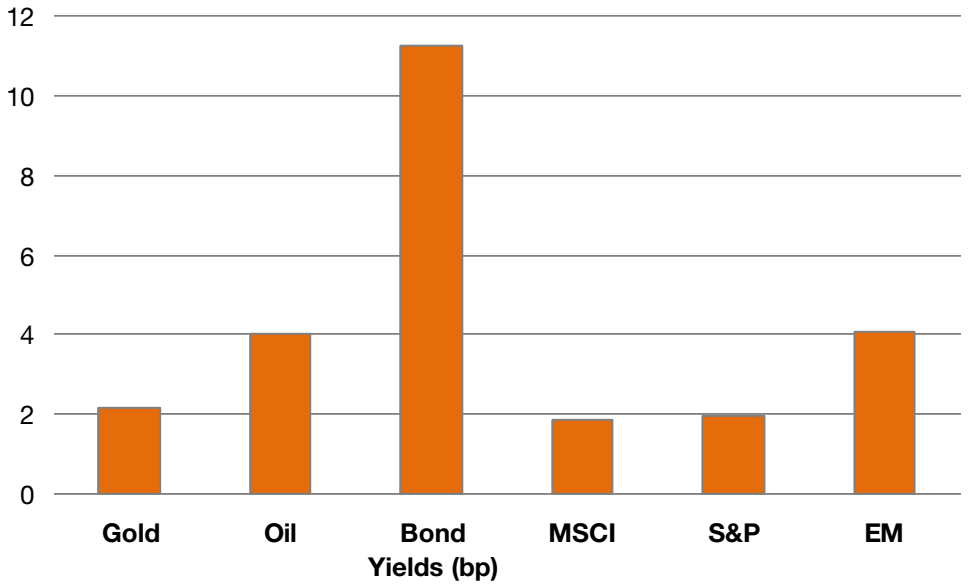


Figure 7
Impact on Various Asset Prices of US$100 billion of US Fed QE
Averages Percent and Basis Points 2008-2011
Source
CrossBorder Capital, US Federal Reserve, Datastream

We take QE1 as November 25th 2008 to March 31st 2010 and QE2 as November 3rd 2010 to 30th June 2011. QE3 was announced on September 13th 2012. Overall, both the MSCI World and S&P500 indexes rose by around 45%, while the MSCI Emerging Market index doubled. The biggest per dollar impacts are on oil and EM equities at 4% per US$100 billion. Gold bullion proves a tad better than stocks. The biggest loser is bonds, and 10-year yields rise by around 11bp per US$100 billion of QE.

Taking the Fed's projections of US$85 billion per month of QE3 and using the multipliers implied by Figure 7, suggests that oil prices and EM equities could rise by some 40% and other share prices by around 20%.

Clearly, some of this may have already been discounted. Yet bond yields are vulnerable. Again, according to the data in Figure 7, QE3 could add around 115bp at the 10-year duration.

Moreover, further evidence in Figure 8 shows that the 'on/off' QE phases had significant impact on capital inflows into EM. In short, there is a significant 'spill-over' of this liquidity. The data record a rolling 9-month moving average of all net inward financial flows (ex FDI) into the EM economies. The scale of the subsequent EM capital outflow since the end of QE2 in mid-2011 is widely misunderstood, but it neatly explains the often dramatic underperformance of the EM equity markets over the period. Now, money looks set to come back into EM.

Are Bonds Due A SkyFall?

In the final weeks of QE2, we warned that any resulting drop in US liquidity would trigger a huge 'Risk Off' rally underpinned by soaring bond prices and tumbling yields. We were in a minority and lined up against the Fed, for one, who believed the bigger risk was a small rise in yields. In the event, even we were surprised by how low Treasury yields subsequently fell.

With the Fed now focussed on another easing, dubbed QE3, and one that could easily expand their balance sheet by up to 100% by mid-2015, there could be huge risks to bond prices. In other words, we should expect a 'Risk On' rally featuring steepening yield curves and a major jump in long-dated Treasury yields.

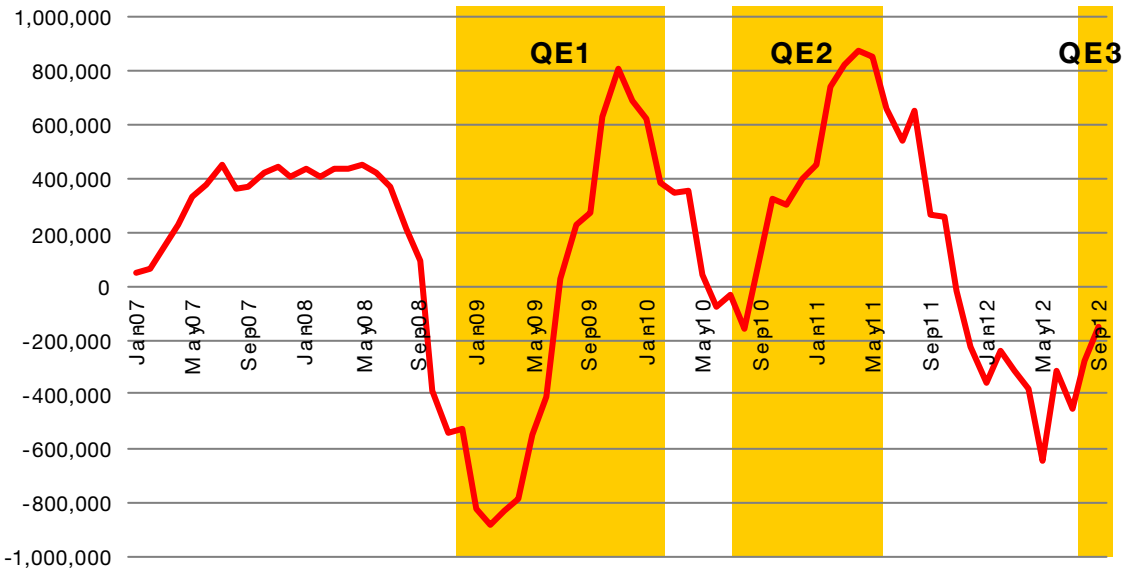


Figure 8
QE and Cross-border Capital Flows to Emerging Markets
US dollar millions Monthly Annualised 2007-2012
Source
CrossBorder Capital, IMF, OECD

Figure 9 shows the long-term relationship between US Dollar Area liquidity (i.e. USA plus parts of Asia, including China) and the 10y-2y yield curve: statistically there is strong evidence that liquidity 'causes' (Granger Causality Tests) yield curve swings. Typically, rising liquidity leads to a steepening curve as bond risk premia rise, while tighter liquidity leads to a curve flattening and falling risk premia.

However, it could be argued that the latest readings suggest that predictions of a coming curve steepening are premature because the yield curve is still in a flattening phase in response to previously tight US Dollar Area liquidity. Set against this possibility is counter-evidence from curve convexity.

As yield curves steepen and flatten, they also change their convexity as rate expectations get built into prices. A steepening curve tends to see rising convexity, i.e. it bulges in anticipation of a future flattening, whereas a flattening curve tends to see convexity disappear. Figure 10 shows that, according to the small negative convexity reading in the current US 10y-2y yield curve, the curve deserves to be much flatter than it is because the market has already built in the equivalent flattening assumptions. In short, convexity aligns with the liquidity data, whereas the yield curve slope looks anomalous. The reason for this may lie with funding, interest rate expectations and the Fed's 'forward guidance' on policy rates: even though we doubt that Bernanke is in any position to deliver the latter. In short, an unusually low Fed Funds policy rate, as now, will 'artificially' steepen the curve. Our conclusions are that current QE policies plus a near-zero Fed Funds slated until mid-2015 may add as much as 125bp to the 10y-2y yield curve slope. In short, the 10y-2y Treasury Curve is not 150bp of positive carry, but implicitly only 25bp and effectively it is already much flatter than investors think. Starting from these implied levels, the odds of the curve steepening substantially outweigh the odds of further flattening.

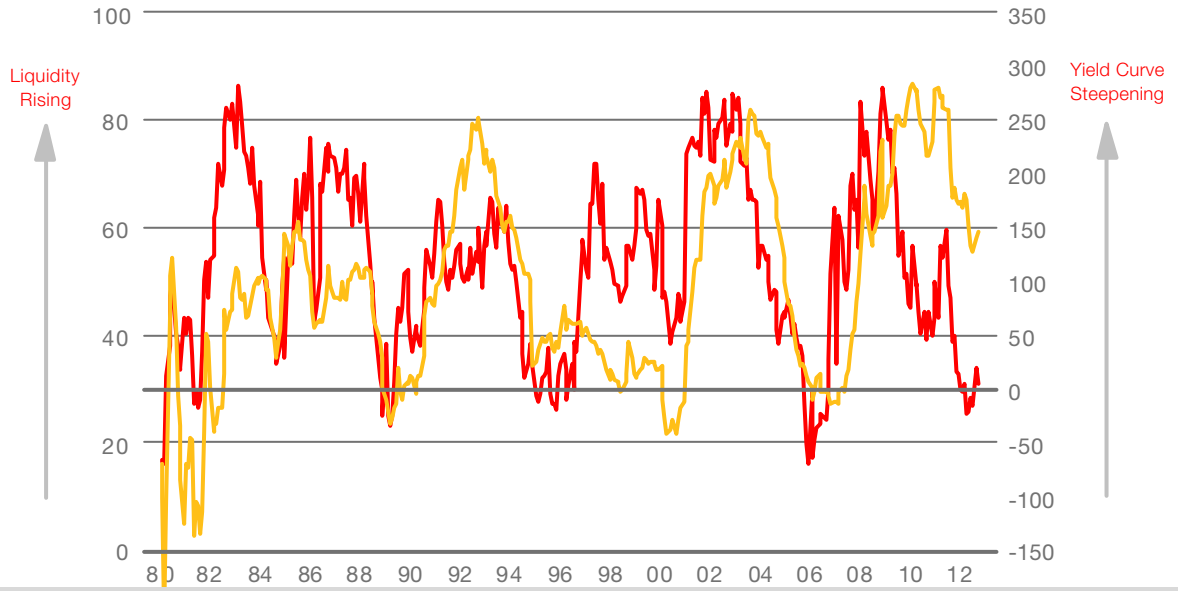


Figure 9
US 10y-2y Yield Curve and US Dollar Area Liquidity
Basis Points and Index Monthly 1980-2012
Source
CrossBorder Capital, US Federal Reserve, IMF

The net conclusion is that bonds look risky. The US Treasury curve could suffer a bearish steepening over coming months as QE3 engages. This is precisely what happened following the commencements of QE1 and QE2 earlier. Moreover, it is entirely consistent with a detailed examination of curve convexity. The risk is that bonds may see an exaggerated sell-off. We have argued elsewhere that the Eurozone bond market is seeing an equivalent curve steepening as Draghi expands the ECB balance sheet further.

But, on top, credit spreads across the Eurozone bond markets are tightening against the median benchmark, as the ECB acts as lender of last resort both for banks and increasingly for certain national governments too. The negative impact on 'safe-haven' German Bunds looks very worrying. In addition, many asset allocators have lately deployed so-called 'risk neutral' strategies that allocate more to low volatility assets. As bond volatility has progressively collapsed, so fixed income has enjoyed bumper allocations.

But bond volatility tends to move closely with an expanding liquidity cycle, a steepening yield curve and growing curve convexity.

Therefore, this could all end badly for bonds. But what is bad news here for bond investors may simply confirm a bullish 'Risk On' environment for other assets. It looks time to re-allocate to equities, EM and gold. As Figure 11 shows, most investors are positioned the other way: bond exposure looks cyclically very high and EM exposure especially low.

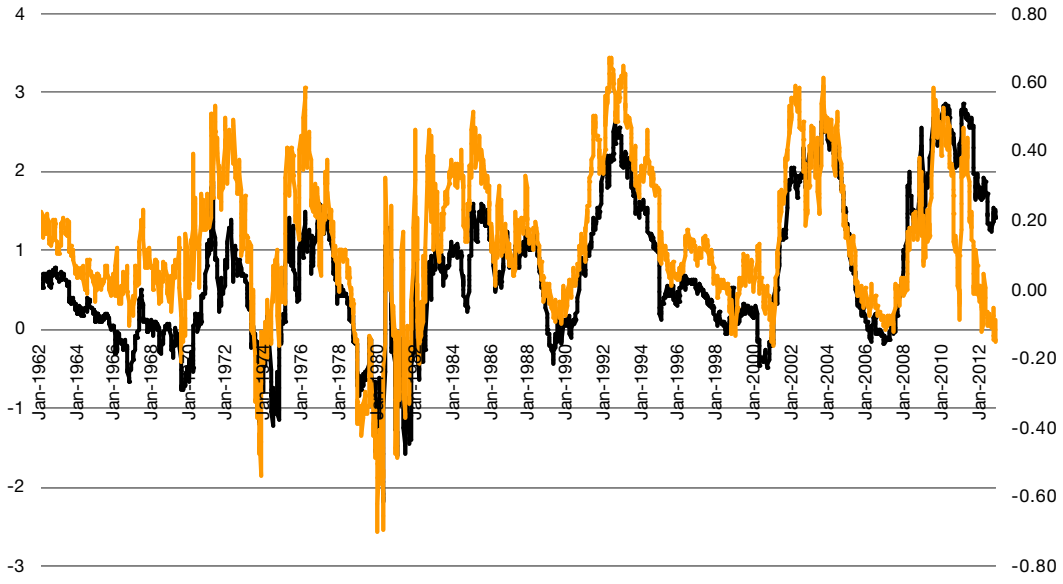


Figure 10
US 10y-2y Yield Curve and Five-Year Convexity
Basis Points and Percent Monthly 1962-2012
Source
CrossBorder Capital, US Federal Reserve

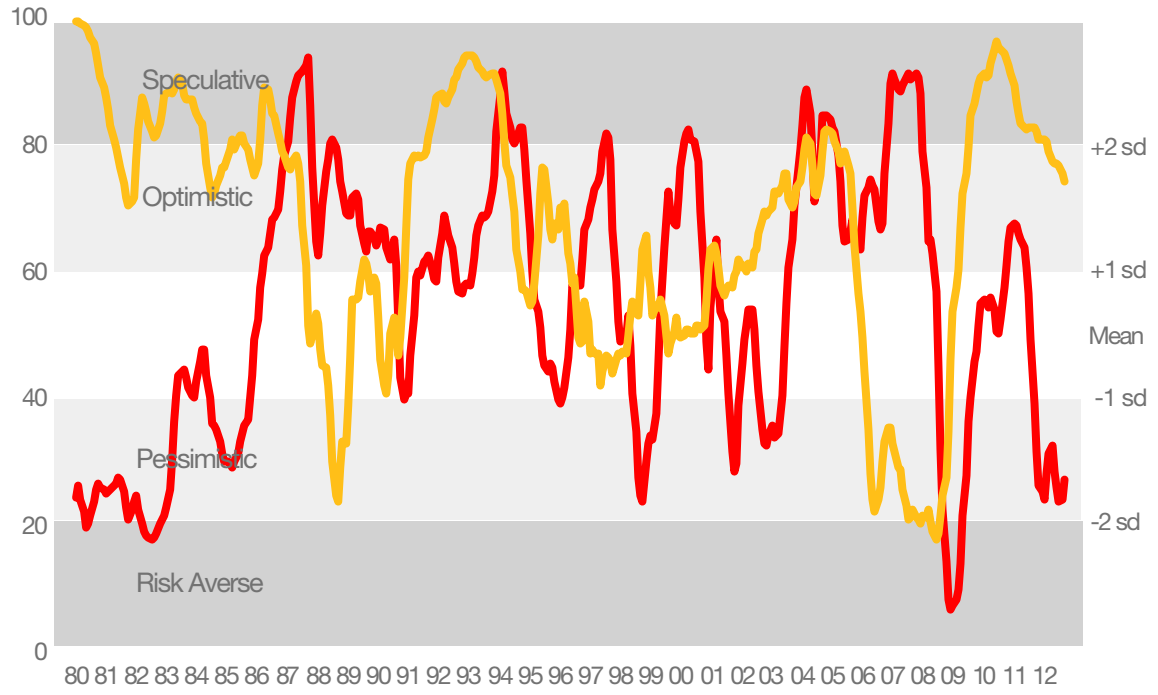


Figure 11

Investor Exposure/Sentiment : Emerging Equity and Bond Markets

Index ('Normal' Range 0%-100%) Monthly 1980-2012

Equities (Index, LHS; Standard Deviations, RHS)

Bonds (Index, LHS; Standard Deviations, RHS)

Source

CrossBorder Capital, US Federal Reserve, ECB, Bank of Japan, Bank of England, People's Bank of China, IMF, Datastream

CROSSBORDER CAPITAL LIMITED
96 BAKER STREET
LONDON W1U 6TJ
TELEPHONE 020 7908 2800 FACSIMILE 020 7908 2835

CrossBorderCapital
Implementing Insight

Global View

February 2009

Why Gold Will Keep Rising … And Oil

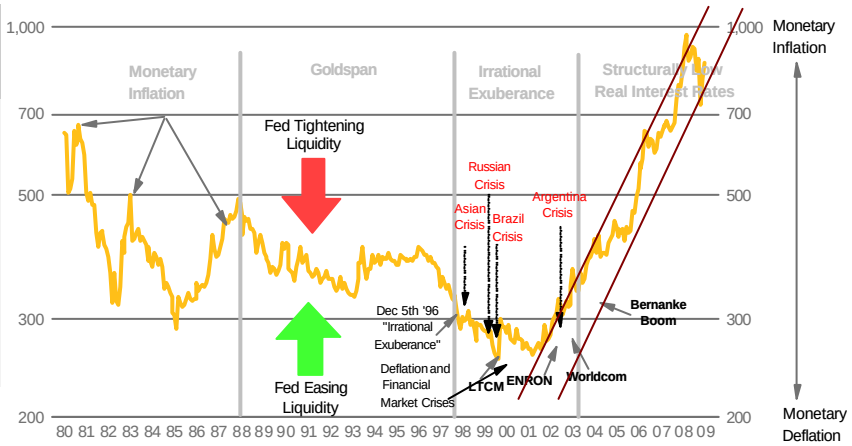
We expect the US dollar gold price to head towards US$2,000/oz., spurred by two structural forces – quantitative monetary easing in the West and overproduction in the East. Other commodity prices will follow gold upwards. Consequently, the days of US$100/bbl oil will return.

The Return of Monetary Inflation

The US dollar gold price has moved through four distinct regimes since its last major peak of US$850/oz in 1980. See Figure 1. The first phase was overseen by the tough Fed Chairman, Paul Volcker, and was broadly characterised by large cyclical swings. Phase two (1988-96) corresponded to the initial tenure of new Fed Chairman Alan Greenspan. Greenspan, a long-time gold watcher, was thought to favour targeting the gold price as a means of monetary control. For much of this period, the gold price hovered close to US$400/oz.

Frustrated by so-called 'irrational exuberance' in US financial markets during the mid-decade, Greenspan tightened monetary policy and forced the gold price lower. The resulting US dollar deflation triggered the 1997/98 Asian and Russian debt crises, and ultimately led onto the defaults of ENRON and WorldCom in 2001.

Figure 1
The Feds and Gold Price Regimes
1980-2008



Source
CrossBorder Capital, Datastream

Following the late-1990s great gold deflation, we turned bullish of gold. The gold price bottomed at US$256/oz. in April 2001 and then started to climb roughly coincident with current Fed Chairman Ben Bernanke's first tenure at the Fed (2002-05). Bernanke's promise that that the Fed would 'print money' if Japan-like deflation threatened, spooked the gold market. We figured that because *cost deflation* was an ever-present risk, given the structural overproduction coming from China and emerging Asia, policy-makers would have to create an off-setting *monetary inflation.* A rising gold price is the clearest signal of this monetary inflation, or what is increasingly now called *quantitative easing.*

Rising gold prices do not follow inflation: inflation follows rising gold prices. It is best to think of i**nflation as a process and not an event.** It starts with monetary expansion and next passes through several stages. These include precious metals, oil, base metals, intermediate goods, consumer goods, and finally consumer services. **On top, gold performs particularly strongly if real interest rates are also low because it means a 'cheap' cost-of-carry.** According to our regression analysis, the 50% point jump in our US Fed liquidity index through the second half of 2008 should add as much as 5% points to the annual change in the real gold price. If real interest rates fall to zero, our estimates suggest that the real gold price could rise at an annual clip of 17%. A move up to 1% real interest rates would trim this gain by around 5% points per annum. See Figure 2.

Twin Structural Forces underpin Gold

We believe that the financial outlook over the next few years will be coloured by two key secular developments:

- Chinese 'over production', by skimming the return on capital, has reduced real interest rates
- Structurally fragile Western financial systems are exposed to a 'funding gap' that needs to be made good by Central Bank *quantitative easing*

Chinese 'overproduction' will not disappear quickly because it stems from national employment policy, which aims to create jobs. We have previously discussed the parallel with 1920s America, where overproduction during the 1920s, led first to the Interwar Slump, before factors such as advertising, instalment credit and mail-order boosted domestic US consumer spending through the 1940s, 1950s and 1960s.

Equally, the current credit malaise will not go away for some long time. Western banks have long-term funding problems, following the demise of wholesale markets. Their problems concern bad liabilities more than bad assets. Central Banks are the only institution capable of filling this funding gap by 'printing money', but we figure that they will have to play this role for years rather than just months. Moreover, rather like the similar backdrop in the 1930s, this need not necessarily be 'inflationary' in the sense of rapidly rising consumer prices. From 1933-39, US consumer prices rose by a cumulative 8.5%, or an average of 1.2% per annum. Wholesale prices rose in aggregate by 16.7%; a commodity basket by 34.4%; cotton by 22.2%; oil by 50.4%; copper by 93% and scrap steel by 131.6%. Gold which was $26.33/oz. in 1933, had already risen from its 1931 low of $17.06/oz., but went on to almost double to $34.42/oz. by 1930. The real message is that periods of inflation (and deflation) hide sometimes huge relative price swings.

Regression Results: Monthly data 1976-2008

Annual Percentage Change in Real US$ Gold Price:

Constant trend	16.9%
• Effect of 10% point rise in US Fed Liquidity Index	0.6%
• Effect of 1% point fall in the real interest rate	5.2%
R-Squared	40.5%

Without question America's Federal Reserve is currently creating credit at the faster rate and in the shortest time that it ever has. Faced with the choice between inflation and deflation, US policy makers have opted for inflation. Writing in the journal *Foreign Affairs*[1], Fed Chairman Bernanke, then a less well-known academic, lucidly outlined his views:

"… the economic repercussions of a stock market crash depend less on the severity of the crash itself than on the response of economic policymakers, particularly central bankers. ***After the 1929 crash, the Federal Reserve mistakenly focused its policies on preserving the gold value of the dollar rather than on stabilizing the domestic economy.*** *By raising interest rates to protect the dollar, policymakers contributed to soaring unemployment and severe price deflation. The U.S. central bank only compounded its mistake by failing to counter the collapse of the country's banking system in the early 1930s; bank failures both intensified the monetary squeeze (since bank deposits were liquidated) and sparked a credit crunch that hurt consumers and small firms in particular. Without these policy blunders by the Federal Reserve, there is little reason to believe that the 1929 crash would have been followed by more than a moderate dip in U.S. economic activity.*

"The downturn following the collapse of Japan's so-called bubble economy of the 1980s was not as severe as the Great Depression. However, in some crucial aspects, Japan in the 1990s was a slow-motion replay of the U.S. experience 60 years earlier. ***After effectively precipitating the crash in stock and real estate prices through sharp increases in interest rates (in much the same way that the Fed triggered the crash of 1929), the Bank of Japan seemed in no hurry to ease monetary policy and did not cut rates significantly until 1994.*** *As a result, prices in Japan have fallen about 1 percent annually since 1992. And much like U.S. officials during the 1930s, Japanese policymakers were unconscionably slow in tackling the severe banking crisis that impaired the economy's ability to function normally."*

Bernanke's initial response was the now oft-quoted 2002 speech 'Deflation: Making Sure It Doesn't Happen Here'. His reaction to the 2007 credit crisis, while at first slow, accelerated sharply after the Lehman debacle in September 2008. In the subsequent period to end-2008, the Federal Reserve's balance sheet more than doubled. During the 1930s, the Fed's balance sheet grew by a similar 75%, but then over five years and not just five months!

We believe that the Fed must continue this aggressive quantitative policy stance because of banks' structural funding problems. Extrapolating continued low real interest rates, as well, we reckon (based on past data) that the real US dollar gold price will grow at an annual clip of at least 15%. Adding in a trend inflation figure of 2-3% (this clearly could be too low), suggests that in less than four years time, by end-2012 the price of gold could break US$1,600/oz. **Less than 18 months further on, the gold market should test the US$2,000/oz. level.**

Inflation is a Process

What does this tell us about oil and other commodity prices? We figure that commodity prices have two moving parts: (1) a currency of denomination effect, e.g. the nominal gold price, and (2) a real exchange ratio, e.g. the gold/oil ratio. Thus, commodity prices may change because of either factor.

What is true of the Fed printing money is also true for other Central Banks as well. Although the distribution of 'bad assets' among banks may well be skewed to a few, the spread of 'bad liabilities' runs both wide and deep. Therefore, expect all of the key Central Banks to undertake extensive quantitative easing. **It follows that the nominal gold price will rise substantially in all currencies.**

Yet compared to many industrial commodities, gold bullion looks expensive. This is now also true against oil following the latter's price collapse over recent months. Figure 3 shows the long-term gold/oil ratio. This has tended to converge on a ratio of around 12-15 barrels of oil per oz. of gold. However, during economic booms the ratio usually breaks below 10 times, and during financial crises it often breaks above 20 times. The current 22.5 times (900/40) looks perfectly consistent with past history.

[1] September/ October 2000

Assuming a US$1,600/oz. gold price target for end-2012, and expecting some move of the gold/oil ratio back towards its median value of 15 times, gives an oil price of over US$100/bbl. A similar rationale applies to the other commodity exchange ratios shown in Figure 4.

We conclude that the US dollar gold price will break its recent March 2008 high of US$1,011/oz. and head on towards US$2,000/oz., spurred by two structural forces – quantitative monetary easing in the West and overproduction in the East. Inflation is coming back but slowly and progressively, and stage-by-stage. The huge excess capacity existing across the consumer industries likely means that consumer prices will stay depressed for sometime. However, gold and precious metals will lead. Oil, base metals, other commodity prices, and ultimately asset prices will follow gold upwards. **Inflation is a process, not an event. Consequently, the days of US$100/bbl oil will return.**

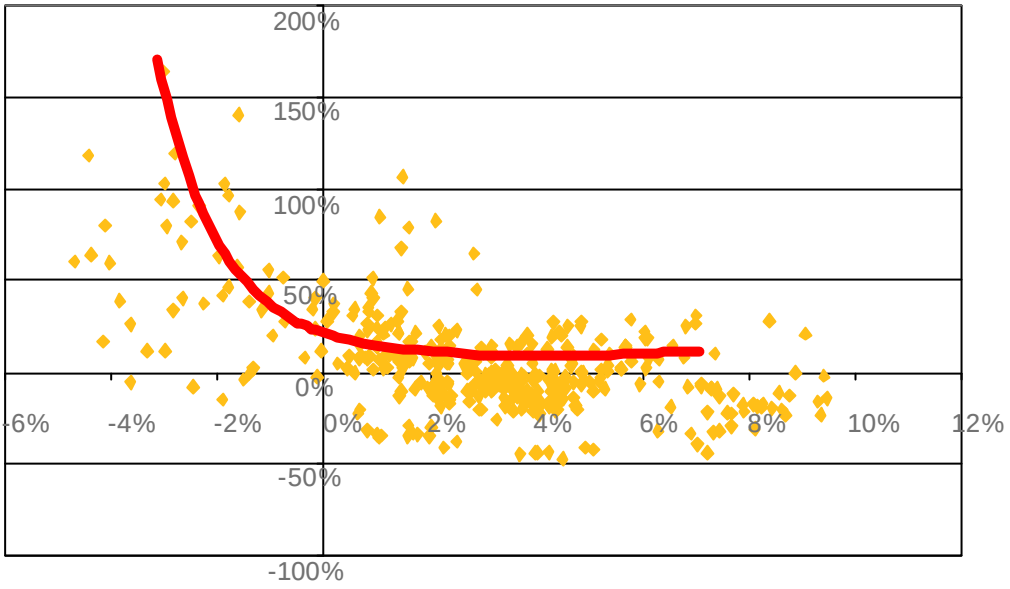


Figure 2
Real US dollar Gold Price and Real US Interest Rates
Monthly 1976-2008
Source
CrossBorder Capital, US Federal Reserve

Real US$ Gold Price (YoY % Chg.;Y axis)
Real US Interest Rates (Percent; X axis)

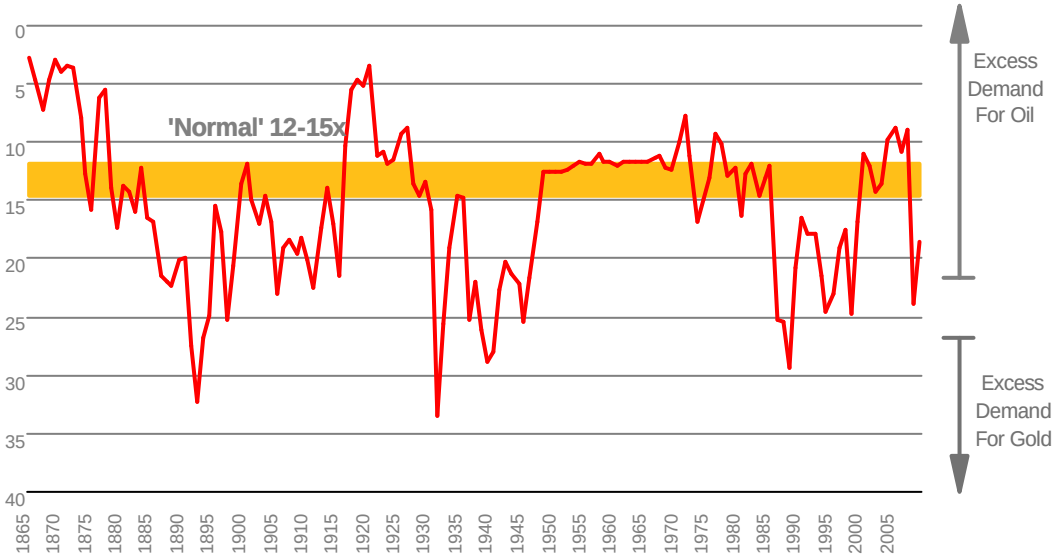
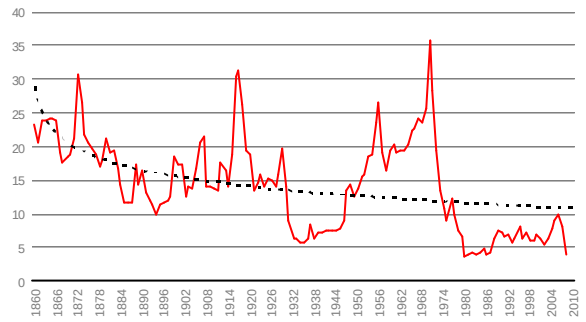
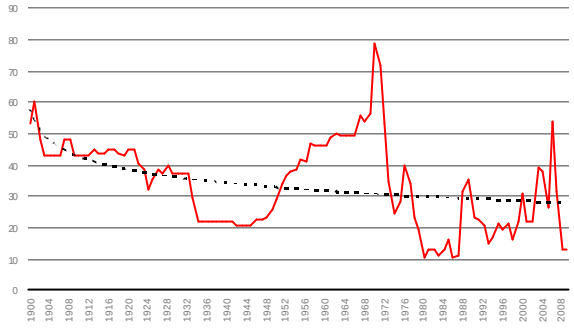


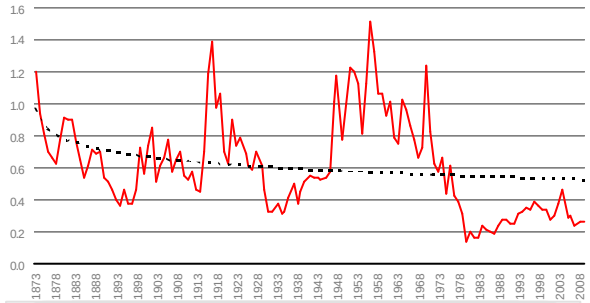
Figure 3
Gold/Oil Ratio
barrels/oz. 1850-2008
Source
CrossBorder Capital, Datastream



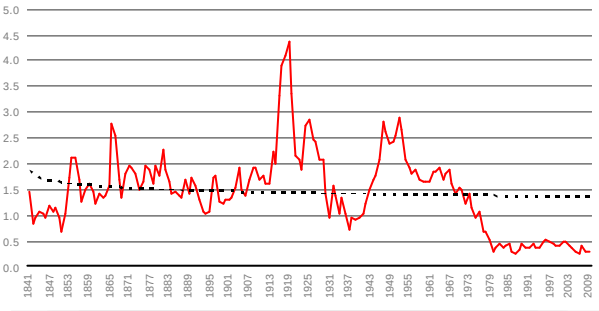
Copper/Gold
Metric tonne/ounce



Nickel/Gold
Metric tonne/ounce



Steel/Gold
Metric tonne/ounce



Wheat/Gold
Bushel/ounce

Figure 4
Long-term Commodity/Gold Ratio
Various Ranges
Source
CrossBorder Capital, Datastream

Global View

CROSSBORDER CAPITAL®

September 2006

The Quality Theory Of Money

This report has been dug out from our archives. It may help to explain to new clients how and why we use liquidity to understand asset markets. Be warned, there are no pictures.

"Far out in the uncharted backwaters of the unfashionable end of the Western Spiral arm of the Galaxy lies a small unregarded yellow sun … Orbiting this at a distance of roughly ninety-two million miles is an utterly insignificant little blue green planet whose ape-descended life forms are so amazingly primitive that they still think digital watches are a pretty neat idea. This planet has – or rather had – a problem, which was this: most people living on it were unhappy for pretty much of the time. Many solutions were suggested for this problem, but most of these were largely concerned with the movements of small green pieces of paper, which is odd because on the whole it wasn't the small green pieces of paper that were unhappy."

The Hitch Hiker's Guide to the Galaxy, Douglas Adams 1979.

Unlike other commodities, money in general has the unique feature that it is not used up; it can disappear and reappear from circulation, and its speed around the circuit changes with its value. According to the Quality Theory of Money, money has both an optimal price and an optimal jurisdiction. **Money circulates because it has value: it does not have value because it circulates.** Money's function as a means of circulation derives, first-and-foremost, from its role as the standard of value, or financial measuring rod. Its variable speed tells us that money can act as both a means of circulation and a means of non-circulation, or store or value for hoarding.

The key to understanding this variable velocity lies in recognising that money takes two forms during circulation: a *means of purchase* **to start the circuit and a** *means of settlement*[1] **to end it.** The standard of value property determines how money is distributed between these forms. As a stable standard of value, money will be used widely as a means of settlement. In turn, a means of settlement will be advanced and borrowed as a means of purchase. However, if the standard of value is depreciating, money becomes more attractive as means of purchase than as means of settlement. Equally, an appreciating standard of value favours means of settlement money over means of purchase money. This explains why credit money[2] dominates during inflations, and why cash is king during deflations.

[1] Also known as means of payment

[2] Credit gives time-limited access to means of settlement money, and it is issued at a discount known as the interest rate. The purchasing power to the borrower is thus (1-r)/p, where r denotes the interest rate and p the overall price level.

Marcol House
289-293 Regent Street
London W1B 2HJ

www.liquidity.com
Tel: (020) 7535-0400
Email: www@liquidity.com

For more than five centuries Gresham's Law has warned that: 'bad money drives out good'. But this rule only applies to money as a means of purchase. Its equivalent inversion – 'good money drives out bad' as a standard of value and means of settlement – has applied on a larger scale to monetary systems throughout history. Thus, worthless money is not accepted as payment: stable money is widely accepted. This derivative of Gresham's Law applies internationally as well as domestically. It explains why, today, the American dollar serves as world money and the old Hungarian Pengo does not.

Abundant money, whose value is declining, will (initially) circulate faster with greater momentum. Scarce money, whose value is rising, will be treasured and hoarded as a future means of settlement. **Changing monetary velocity[3], thereby, often exaggerates and sometimes prolongs the business cycle.** This is the essence of the Quality Theory of Money. In contrast to its more popular Quantity Theory cousin, the Quality Theory incorporates a variable velocity of money. Moreover, the forces embodied in changing velocity are created within the economic system – in economics-speak, they are endogenous not exogenous.

Classical Economics used a means of purchase definition of money as cash and borrowings, i.e. credit. The development of the financial system meant that credit played an increasing role. Hence, the Currency versus Banking School debates in the Nineteenth Century. **Forged in depression and hammered by repeated crises, Modern Economics evolved a means of settlement definition of money, based on cash savings[4].** As cash savings differ from credit, so means of settlement money differs from its antithesis, means of purchase money. Credit increases and prolongs a debt: savings extinguish debts. Savings have intrinsic value: credit does not.

Keynes unfairly criticised Locke for being the father of two quantity theories[5]. Yet Locke was simply recognising these two forms of domestic money. Today, the distinction between means of purchase and means of settlement money remains rare, perhaps because purchases are not distinguished from payments within the circulation process. Instead, money is largely understood from its most visible form as a means of settlement. Consequently, the price of money is taken to be the interest rate – the rental cost of means of settlement money. **The price of means of purchase money is the exchange rate and not the interest rate.** The price of money, like the price of any commodity entering circulation, is its purchasing power, or what you can buy with it[6].

So, it was that the Bank of England operated throughout much of the nineteenth century with two distinct units: the Issue Department, which controlled the fiduciary issue and hence the exchange rate, and the Banking Department, which operated in the credit markets and set the Bank Rate.

[3] Monetary velocity is sometimes known as the inverse of Marshallian 'k'

[4] We use the term cash savings to distinguish them from financial investments and unplanned inventory building.

[5] 'The great Locke was, perhaps, the first to express in abstract terms the relationship between the rate of interest and the quantity of money in his controversy with Petty. He was opposing Petty's proposal of a maximum rate of interest on the ground that it was as impractical as to fix a maximum rent for land, since "the natural Value of Money, as is apt to yield such a yearly Income by Interest, depends on the whole quantity of the then passing Money of the Kingdom, in proportion to the whole Trade of the Kingdom..." Locke explains that money has two values: (1) its value in use which is given by the rate of interest ... and (2) its value in exchange "and in this it has the Nature of a Commodity", its value in exchange "depending only on the Plenty or Scarcity of Money in proportion to the Plenty or Scarcity of those things and not on what Interest shall be." Thus Locke was the parent of twin quantity theories. In the first place he held that the rate of interest depended on the proportion of the quantity of money ... to the total value of trade. In the second place he held that the value of money in exchange depended on the proportion of money to the total volume of goods in the market ... But he never, I think, proceeds to a genuine synthesis.' J.M.Keynes, The General Theory (1936).

[6] The inverse of the general price level.

The exchange rate is, essentially, the rate at which means of purchase money can be exchanged for means of settlement money. A falling (i.e. depreciating) exchange rate shows that more means of purchase can be exchanged per unit of means of settlement; a rising (i.e. appreciating) exchange rate tells us that fewer means of purchase are obtained. Thus, a falling exchange rate encourages means of settlement to become means of purchase, and so speeds up the velocity of money. Equally, a rising exchange rate reduces velocity. **In short, velocity is positively linked to monetary inflation and negatively related to monetary deflation.**

Modern Economics focuses on money leaving the economic circuit – the uses of funds – whereas Classical Economics analyses money entering the circuit – the sources of funds. Thus, Keynesians concentrate on discretionary spending and Monetarists on cash savings. Monetarism epitomises the means of settlement view. Keynesianism is often expressed as a special case of Monetarism where public sector deposits display constant velocity but private sector deposits often suffer a very low or zero velocity. Both schools fail not because money is unimportant, but because they ignore the different forms of money; and specifically the importance and elasticity of credit, and its metamorphosis into (and out of) savings.

Modern Economics defines the so-called 'supply of money' to consist largely of bank deposits. **Bank deposits cannot be spent directly.** They must be first converted into State or private sector credit via paper money or cheques. Cheques are simply very short-term credits, e.g. lasting a few days and wholly dependent on their 'acceptability' to the drawer. In a crude and basic banking system of, say, a century or two ago, deposit receipts did physically circulate and could act like cash. Every deposit was virtually assured of serving as a credit. But, today, bank deposits are a use and not a source of purchasing power, and they are often held as an alternative to other assets. Credit is the key source of purchasing power, and credits are not automatically generated from cash deposits, even though the reverse nearly always applies[7].

Not surprisingly, Monetarism's predictions command a greater precision when the banking system's loan/deposit ratio is constant. Ironically, this coincides with periods of stable prices when the quality of money is untarnished. Thus, the heydays of accurate Monetarism were the Gold Standard (1870-1914) and Bretton Woods fixed exchange rate system (1945-72), years when inflation was largely unknown. The Quantity Theory of Money is therefore a special case of the Quality Theory of Money.

Let us term the flow of means of purchase money 'liquidity' and dub the flow of means of settlement money 'savings'. Both credit and cash serve as means of purchase money, or liquidity, but only cash is means of settlement money. The rate at which liquidity is turned into a savings surplus expresses the tempo of economic activity and, in turn, is measured by a fluctuating aggregate price level. **Monetary disequilibrium describes imbalances between the sources and uses of funds: that is between liquidity and savings, rather than between specific uses, i.e. investment and savings.** These imbalances are resolved by changes in the overall price level and not by changes in interest rates. For example, overproduction and the resulting excess supply of goods imply that a simultaneous excess demand for means of purchase money exists. Yet Modern Economics recommends a remedy of lower interest rates because it wrongly sees the problem as excessive savings, rather than as a lack of credit supply. Cutting interest rates simply worsens the imbalance by encouraging a still greater demand for means of purchase money, i.e. liquidity, without necessarily providing new sources. The result is further (and possibly cumulative) price deflation.

[7] Thus, every credit creates a deposit, but not every deposit creates a credit.

Paradoxically, one solution to overproduction is to raise (not lower) interest rates and so discourage uses of liquidity. However, this potentially weakens economic activity and destroys jobs. Another and more amenable solution is to inject greater liquidity into markets. In cases where the take-up of private sector loans is hampered by the fear of falling prices, there may be no alternative to extra Central Bank credit through open market asset purchases.

An increase in the supply of credit may ultimately raise interest rates because the concomitant increase in prices will, in turn, boost credit demand. Interest rates and prices tend to move together because credit influences both, and both influence credit. Keynes dubbed this 'well-established' relationship the Gibson Paradox. Unfortunately, it serves to perpetuate the common error of confusing the price of money with the interest rate. Thus, monetary disequilibrium and the subsequent adjustment (if any) is too often analysed in terms of the movement (or lack) of the market rate of interest away from some long-term 'norm'[8]. Modern Economics has become a theory of the 'failure of the rate of interest' to adjust.

To better understand money our focus should be on asset duration and the economy's changing capital structure. Duration measures the timing of average cash payments and receipts[9]. By combining both liquidity preference and time preference together, it describes the flow of liquidity over time. Liquidity, thus, embraces low duration – the time until means of purchase arrives or means of settlement are needed – and wide marketability – how generally accepted are the means of purchase.

The concept of duration neatly ties in with money's qualitative dimension because duration will change *pari passu* with the price of money. More means of purchase money will lengthen portfolio duration and more means of settlement will shorten it. Critics of the Quantity Theory of Money argue that an expanding credit or deposit base cannot have any real effect because, in both cases, their economic influence will be offset by an equivalent change on the other side of the balance sheet. Thus, every increase in, say, bank credits must be balanced by an equal rise in bank debits. **However, viewed in terms of duration, all increases in means of purchase must lengthen duration.** Even though assets must equal liabilities, imbalances in the sources and uses of funds (and hence between means of purchase money and means of settlement money) trigger changes in the price of money, i.e. the exchange rate, and thereby induce changes in desired portfolio duration.

Real and financial assets are reshuffled, causing their prices to change, as the new desired duration is established. Once the sources and uses of funds equate, so the value of money stabilises. A stable value will encourage the greater use of money and because money acts as a bridge between the present and the future, a stable value will promote long investment horizons. In turn, this will foster further investment, greater productivity and faster economic growth. By contrast, unstable money will force shorter horizons and less productive activities, such as hoarding and spending. Average asset duration rises if capital assets are purchased and it falls if they are scrapped, devalued or replaced by cash and consumer items. **Thus, the capitalist cycle is fundamentally a cycle of changing asset duration that is often caused by unstable money, and not a cycle of changing growth.** Uncertainty about the value of money and the appropriate asset duration will explicitly appear as a swollen risk premium and higher long-term interest rates.

Destabilising the value of money destabilises the capitalist economy, as Lenin was fond of telling us. By raising risk premia, unstable money forcibly shortens the duration of the asset structure, slashes tangible and financial investment, hastens asset sales and encour-

[8] Sometimes the return on capital in industry and at other times the long-term average rate.

[9] Frederick Macaulay (in 1938) first calculated duration as the time-weighted sum of all future cash receipts, discounted by prevailing interest rates.

ages greater cash holdings. Acquiring money for its own sake during uncertain times inevitably means an excess supply of goods, labour and assets. Asset prices collapse and unemployment soars. Liquidity, the flow of cash plus new credit, helps to determine the duration of the asset structure and, in turn, the return on capital; the pace of economic growth, and the distribution of incomes between wages and profits. **Financial crises result from pronounced imbalances between means of settlement money (i.e. savings) and means of purchase money (i.e. liquidity).** Liquidity is plainly central to the capitalist cycle.

Both shortages of savings and shortages of liquidity can halt production by interrupting the circulation process. The latter are most common and, ironically, they often follow a credit boom. So it was that the typical nineteenth century business cycle ended in price deflation and not price inflation. Even without Central Bank tightening, financial liquidity may dry up if velocity slows as a result of falling prices. Slower velocity can follow an investment-induced productivity surge or a runaway consumer boom that absorbs cash. **The corollary is that financial crises take two forms:** *crises of monetary deflation* **and** *crises of monetary inflation***.** Both drain financial markets of liquidity (i.e. cash or credit) and both force duration down. The 1987 stock market crash was a monetary inflation crisis: during the late 1990s the world suffered a monetary deflation crisis, centred on the US dollar zone. Japan's long period of decline in the 1990s started with a monetary inflation crisis in 1990, later punctuated by a monetary deflation crisis around 1995. The 1929 Wall Street crash was also a crisis of monetary inflation, but the far greater stock market slide through 1931 was a crisis of monetary deflation.

These conclusions are important because they show why interest rate targets and the blind pursuit of the Taylor Rule[10] are dangerously wrong. Setting an interest rate target, whether through historic norm or by complex formula, is unlikely to be effective. Interest rates, the cost of credit, are being asked to do too much: they may influence the price of money, but they are not the price of money and they likely distract attention away from the 'true' price. In a monetary deflation, high risk premia drive a wedge between lender and borrower. If interest rates are targeted above market clearing rates, Central Banks have to withdraw further liquidity from markets and so stiffen risk premia. This results in even more deflation, greater credit risk, less credit demand and the need for still lower levels of market clearing interest rates.

Irving Fisher once noted that low nominal interest rates often go hand-in-hand with high real interest rates because deflation devastates credit demand. Eighty more years of experience confirm that those economies that target interest rates typically suffer five traits: low liquidity, low nominal bond yields, weak economic activity, negligible credit demand, excessive demand for means of settlement, consequent strong currencies and high credit risk because of the inability to reliably settle contracts. This describes the economic turmoil in the inter-war years; it also relates to Japan in the 1990s, and surely explains much of the 2001-2003 Eurozone experience.

As the world economy has grown bigger in the last twenty years, it has become more 'financial' and financial markets can be volatile. Unstable prices lead to bad investment decisions and poor resource allocation. **To stabilise this instability, exchange rates not interest rates should be targeted.** We need more enlightened Central Banks that are not straight-jacketed by interest rate rules and that instead manage the volume of cash and borrowings to control the value of their monies. Good quality money has stable value and good quality money is more widely used. The history of wealth creation is the history of stable money. Rising currency market volatility will warn us about upcoming monetary instability. Until the prices of the world's monies are stabilised, the spectre of financial crises will still cast its unnecessary shadow over our future economic well-being.

[10] Interest rates become a linear average of the output gap and the target inflation rate.

CrossBorderCapital
Implementing Insight

Global View

April 2013

Japan's Great Experiment: The Land of Rising Asset Prices

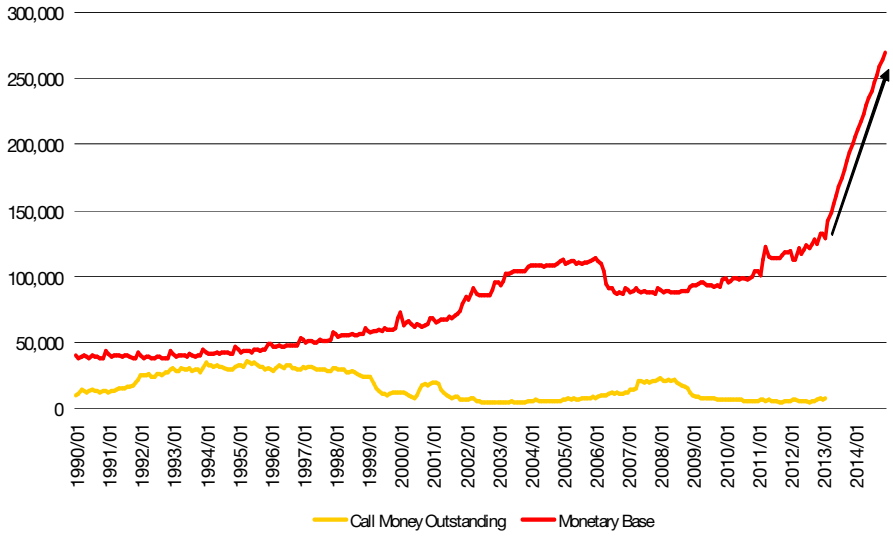
Another Central Banker converts to Bernanke'ism. Faith in large and unlimited QE is growing, but what does it all mean? **New Bank of Japan Governor Kuroda's decision to double the size of the BoJ balance sheet within two years may prove as significant for the World as for Japan herself.** The big anomaly in World markets is not low inflation, but low real interest rates: Japan may change this. For those of us who have both long believed in the power of liquidity and who have argued for more than twenty years that Japan's problems largely result from the BoJ's tight liquidity stance, the next few years will be seminal. The Yen is in secular decline; Japan looks set to return to her Mercantilist roots and to the pre-Mieno monetary policy days.

Domestic Japanese stocks and real estate will benefit, but global bond prices face big downside risks. The higher 2% inflation target matters for Japan, but rising real interest rates and bond risk premia are a more serious threat to global bonds than World inflation, which is likely to remain subdued. Higher Japanese inflation will feed through globally via a higher bond risk premium. Long-term data show that JGBs lead global bonds.

BoJ Opens the Taps... Fully

First, the facts. Figure 1 shows that the Japanese monetary base has been lately expanding rapidly, even under prior BoJ Govenor Shirakowa. The earlier 2000/03 monetary easing was offset by a simultaneous run-down in call money balances by the commercial banks, but this is not currently happening. The BoJ balance sheet currently stands at around Y164 trillion, of which the Monetary Base comprises Y142 trillion. By end-2013, these are slated to grow far more, respectively, to Y220 trillion and Y200 trillion, and by end-2014 to Y290 trillion and Y270 trillion. In other words, the monetary base will expand by roughly 40% annually in each of the next two years. This pace will leave even Bernanke breathless. Three quarters, or the bulk of this rise (Y100 trillion). comes from an increase in JGB holdings, although loan support programmes also rise by around Y15 trillion. The BoJ also foresees banks reserves jumping from around Y50 trillion to a whopping

Figure 1
Japanese Monetary Base and Call Money Balances Outstanding
Yen Trillions 1990-2014E



Source
Bank of Japan, CrossBorder Capital

Y175 trillion. **In other words, Japan's QE policy, much like the Fed's experience, expects bank liquidity to soar.**

Yet, it is ludicrous to argue, as is now the vogue, that the scale of Japan's monetary stimulus is in any way related to the size of the BoJ balance sheet as a percentage of GDP. This statistic reflects national institutional characteristics, for example the importance of bank funding of credit, the size of reserve requirements and the use of cash over money substitutes, such as credit cards. If anything, it represents an inverse measure of financial development, with a financially sophisticated economy like America enjoying a low ratio and a poor, underdeveloped one like a small African economy experiencing a very high ratio. **What really matters for markets is the pace of growth in Central Bank money.**

This degree of money-printing is likely to substantially boost our BoJ liquidity indicator. According to our internal estimates Japan's liquidity could ultimately jump to an index value of around 85-90, compared to the current 65. See Figure 2. This should prove important because this index very obviously leads Japanese business activity by several months.

The Transmission Process

Second, what do policy-makers expect? The mechanism through which QE works is far from agreed among experts. A schematic diagram shows our thinking in Figure 3. A central issue is whether it matters exactly how QE takes place? Essentially, the Central Bank has three policy choices to address dysfunctional credit markets: (1) buy 'distressed assets' directly from the banks; (2) lend additional funding to the banks via money market operations, and (3) buy general assets in the open market through, say, bond market operations. **All three channels raise economy-wide liquidity, but the impact on the banking system and any resulting credit multiplier will differ case-by-case.** Thus, some QE is more effective than others. For example, it is not necessarily true that the third channel will automatically boost the volume of base money. Worried by moral hazard issues in

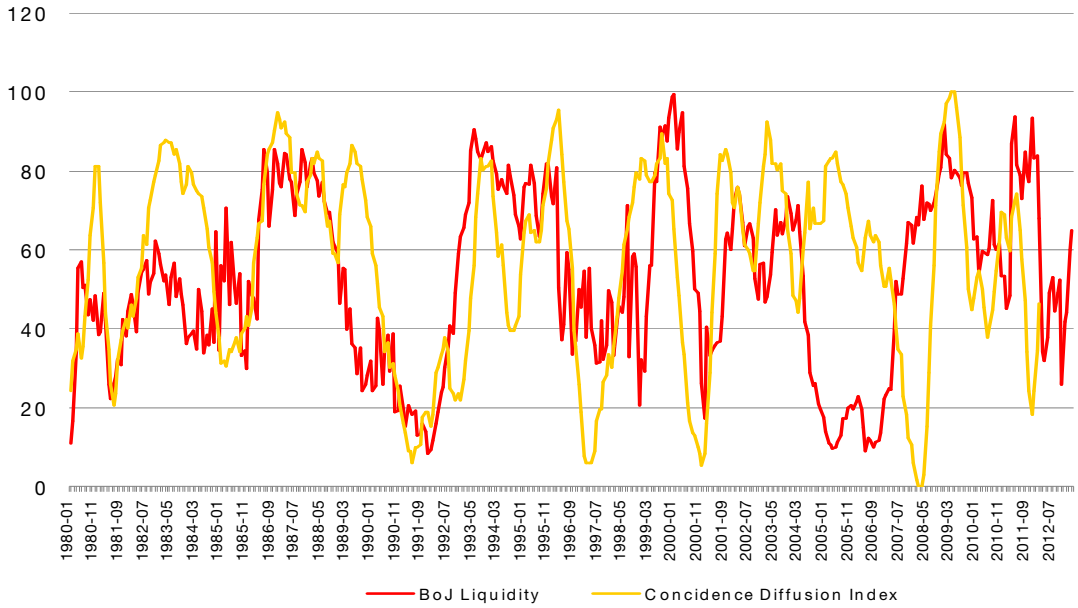


Figure 2

Japanese Central Bank Liquidity Index and Japanese Coincident Diffusion Index *(Lagged 12 Months)*
Monthly 1980-2013

Source

Japanese Ministry of Finance, CrossBorder Capital

2008/09, the Bank of England chose this third channel, preferring to buy assets in the open market than lend to banks. In other words, when buying gilts, it simply swapped 'good' collateral for 'good' collateral. Many experts, including the IMF, now believe that 'collateral chains' are an important part of the credit multiplier, so this neutral BoE 'liquidity' impact on system-wide collateral has understandably proved disappointing. But at the same time, the average duration of assets held in the UK financial system fell because of the replacement of long duration gilts with zero duration cash. ECB policy largely shunned direct purchases of distressed assets and bond purchases, preferring instead to give short-term funding help via collateralised loans (admittedly collateral was broadly defined). The Federal Reserve has followed all three routes. It has succeeded in reducing the average duration of US assets, but it has also swapped 'good' assets for 'bad' assets. In short, it embraced both 'liquidity' and 'duration' effects, which together seemed to have worked. **US banks are now less encumbered by underperforming assets compared to their European counterparts.** Admittedly, the new BoJ policy has visible similarities with the UK approach, but the large jump expected in Japanese commercial banks' reserves and the key role played by these banks in monetary transmission probably makes it more like US policy in practice.

In short, more liquidity will encourage Japanese banks to make new loans and push Japanese investors to buy more risk assets. This should operate through what we know as the *broad duration channel* (part of the *portfolio balance effect*) which simply says that all investors (not just banks) target a specific asset duration (i.e. time horizon), dictated by liabilities, and when portfolio duration is pushed below this target, they will seek to rebalance portfolios by either spending the surplus cash and/or buying more longer-dated assets. **Thus, we entirely disagree with the now widespread view that BoJ actions will flatten the Japanese yield curve: rather the opposite is true, since policy moves will more likely steepen it.** A steeper curve is also also necessary, first because the

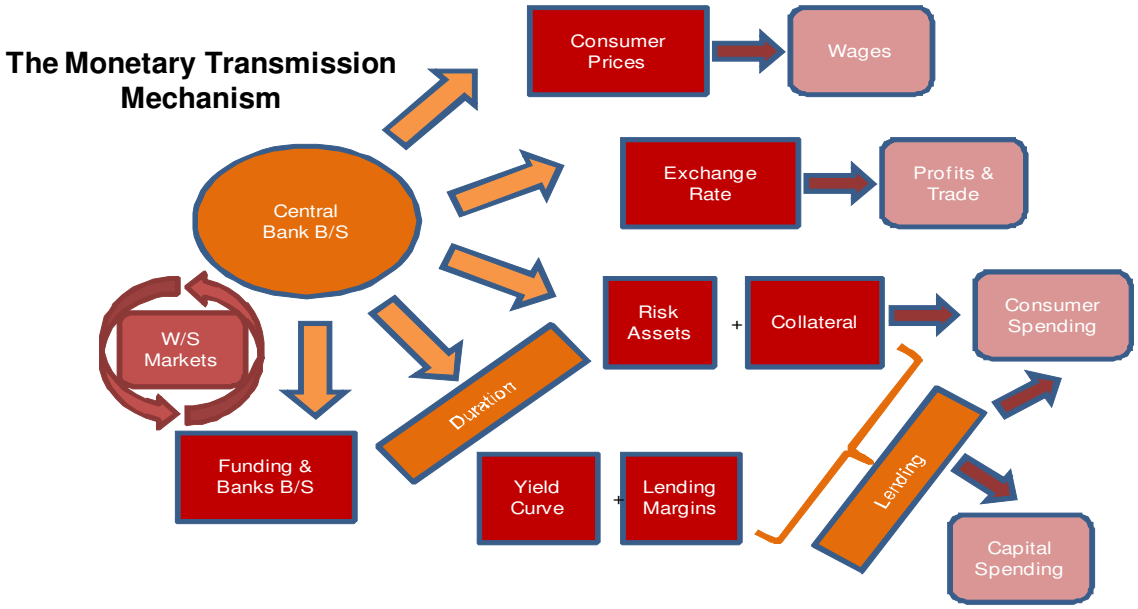


Figure 3
How Central Bank Policy Works

Source
CrossBorder Capital

risk premium on risk assets typically moves oppositely to the risk premium on 'risk-free' bonds and, second, because banks' net interest margins on new loans correlates closely and positively with the slope of the yield curve. Put another way, a flattening yield curve would tell us that the perceived risks on other assets are rising and that lending is becoming less attractive. Exactly what policy-makers do not want to see. Yield curves tend to move pro-cyclically and to slightly lead the business cycle, seeing their low points around a year before a business recession and peaks shortly after recovery commences. The widening spread confirms a return to 'good times'. In economics-speak, this tells us that in business recoveries the marginal value of consumption falls (people become less 'hungry'), so it makes less sense to pay high prices for bonds, which traditionally provide us with dependable incomes.

If the BoJ is acting like the Fed, what can US experience tell us? **Overall, that QE works and it does so by raising the risk premium on 'risk free' assets, like 10-year Treasury bonds, and lowering the risk premium on risky assets, like equities and real estate.** Moreover, it may take some years to fully feed through. Admittedly, a number of so-called event studies claim to prove the opposite that Fed buying of specific bond issues pushes down their prices. This is indisputable, but the wrong argument. It is like saying that throwing a ball in the air defeats the law of gravity. By reducing the availability of certain issues, the Fed will push up their prices, but by doing so it increases the amount of cash in the system and this is the lever that raises overall bond risk premia and lowers risk premia on other assets. In short, the BoJ buys bonds, but simultaneously other investors switch from JGBs to risk assets, confident that there is a new liquidity cushion. The US experience plainly shows that rising 10-year Treasury yields and steepening yield curves have coincided with QE, and the reverse took place with the periodic ending of QE. Figure 4 shows this. Looked at another way, a steepening yield curve is normally bullish for stocks.

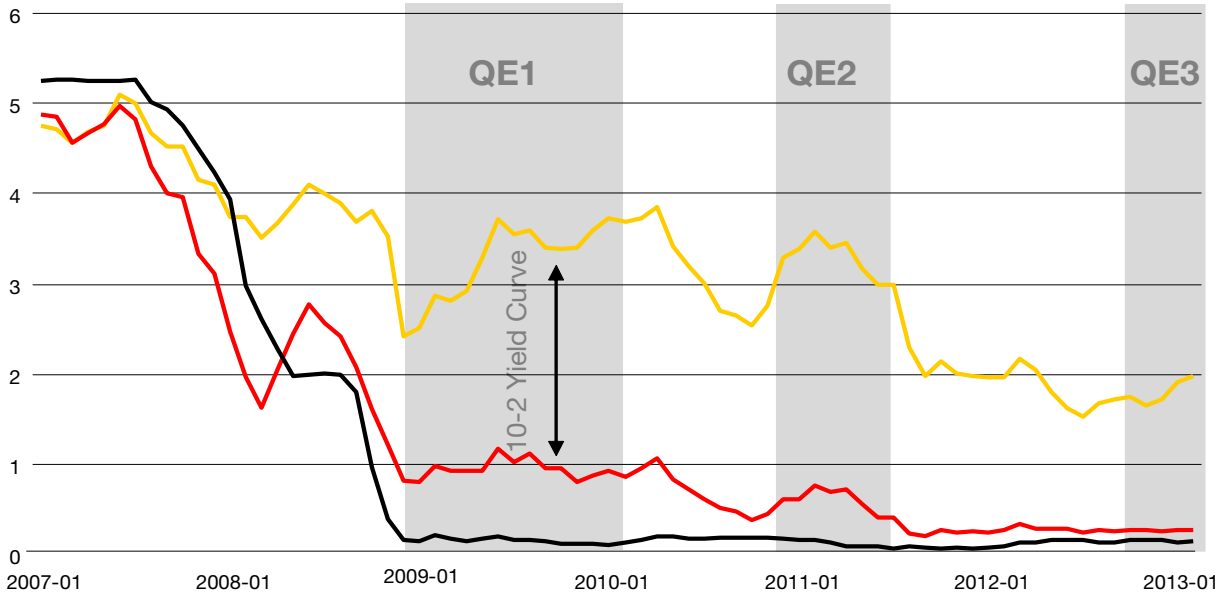


Figure 4
US Treasury Yields and Yield Curve Slope Through QE Periods
2007-2013
Source
CrossBorder Capital, US Federal Reserve

Faster inflation is becoming everyone's fear. But does the persistent low rate of consumer inflation in every economy that has, so far, engaged QE confirm that Central Bank liquidity does not affect high street prices? Recent experience certainly tells us that the inflation process is complex. **It remains our view that inflation largely depends on who owns the outstanding debt, rather than the pursuit of QE or monetisation *per se*.** There have been four major debt crises in the last century: 1920s Weimar Germany, 1930s US Depression, Britain in the 1970s and Japan in the 1990s. All four ultimately saw the same policy response – Central Bank QE – but two turned out inflationary and two deflationary. **The key difference lies in which sector – public or private – holds the debt?** A high private sector debt burden means extra liquidity is first used to pay off private debt rather than being spent. With a large public sector debt burden, liquidity increasingly finances the public deficit and is typically spent by a non-indebted private sector. High street inflation does not require a big public sector deficit, although it is not surprising that the two often coincide because in such cases public debt begins to look unsustainable. **The bottom line is that excess private debt leads to deflationary default, and excess public sector debt leads to inflationary 'default'.** In other words, the government sector serves as the proverbial monetary'helicopter'. Worryingly, some governments are increasing the size of this helicopter.

Higher Inflation Or Higher Real Interest Rates?

We acknowledge fears that inflation could be ignited, but it seems more plausible that extra BoJ liquidity, at least initially, boosts the real economy (see Figure 2) and steepens yield curves (see Figure 4). **In short, real rates and risk premia may rise more significantly than inflation expectations.** BoJ money-printing is probably certain to end deflation in the high street and Abe's 'Electoral promise' of moderate 2% inflation seems

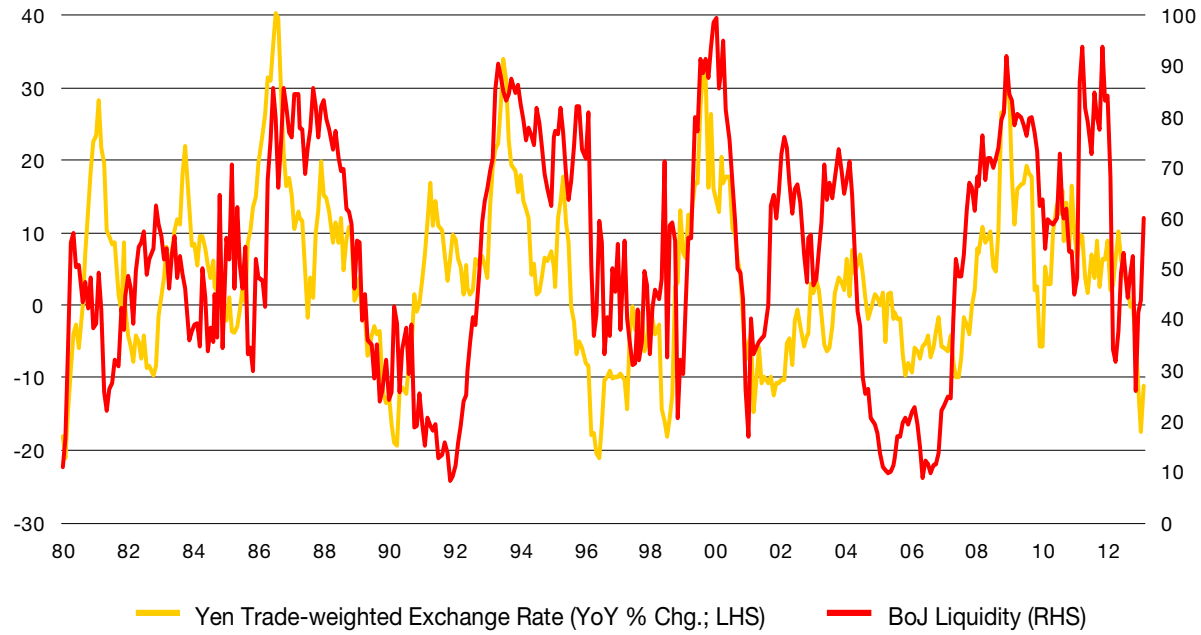


Figure 5
BoJ Liquidity Injections and Movements in Trade-weighted Yen

Source
Bank of England, CrossBorder Capital

attainable, although even this may take some time because consumer prices tend to be sticky and determined by costs. The risk of much higher domestic inflation, thereafter, will depend on the integrity of the credit multiplier and on the scale of Japanese public sector debt. At over 150% (net) of GDP, Japan's prevailing large public sector debt burden plainly poses a threat, particularly once the relative size of private sector debts diminish. Even accepting a potential rise in interest payments on government debt, this may still be some way off. Equally, if the old-fashioned money multiplier linking base money to the quantity of broad money is undiminished, then QE might be expected to expand the money supply dramatically, and so drive inflation higher. However, the multiplier in most economies is broken. First, money supply is today a concept wider than the commercial banks and comprises lending undertaken by an array of OFIs. Second, the source of funding is no longer exclusively bank deposits, but (lately) comes from wholesale funds and many of these pools have been provided by cash-rich corporations, who now prefer to sit on cash rather than invest it. Third, indebted, capital-short Western banks likely plan to de-lever their balance sheets further.

The fragility in the supply of wholesale funds has punched a hole through credit provision, causing wholesale markets to collapse in many economies and Central Banks to expand their balance sheets in order to plug the gaps. Admittedly, this description applies more accurately to the US and Europe than Japan, but in essence all Central Banks are taking dysfunctional domestic wholesale money markets on to their balance sheets. Moreover, unlike Western banks, their Japanese counterparts already have a twenty-year head-start in de-levering balance sheets, and most large Japanese banks are able to fulfil latest Basel III capital requirements. **Therefore, Japan has a financial sector that is <u>less</u> vulnerable to further credit declines. To the extent that the traditional money multiplier still works, the more Japan could face a strong near-term jump in business activity and a future**

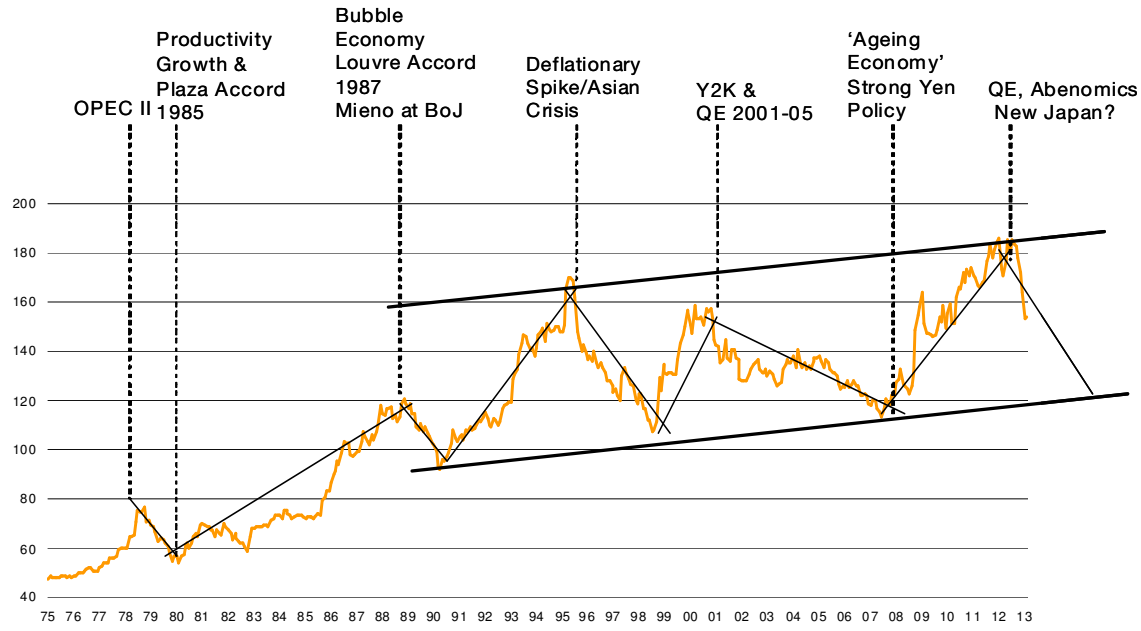
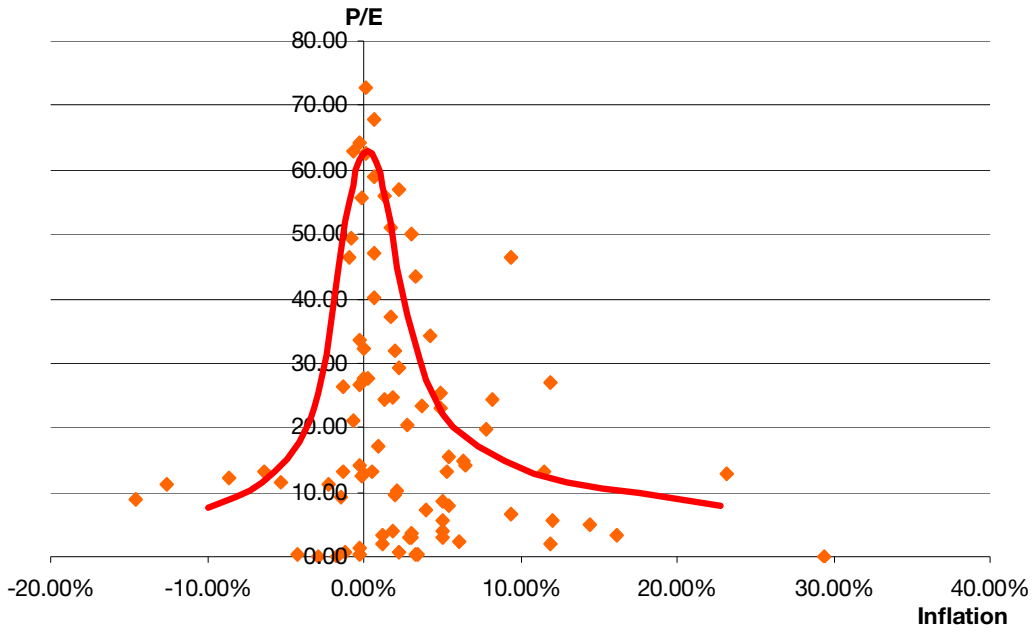


Figure 6
Trade-Weighted Yen
1975-2013

Source
Bank of England, CrossBorder Capital



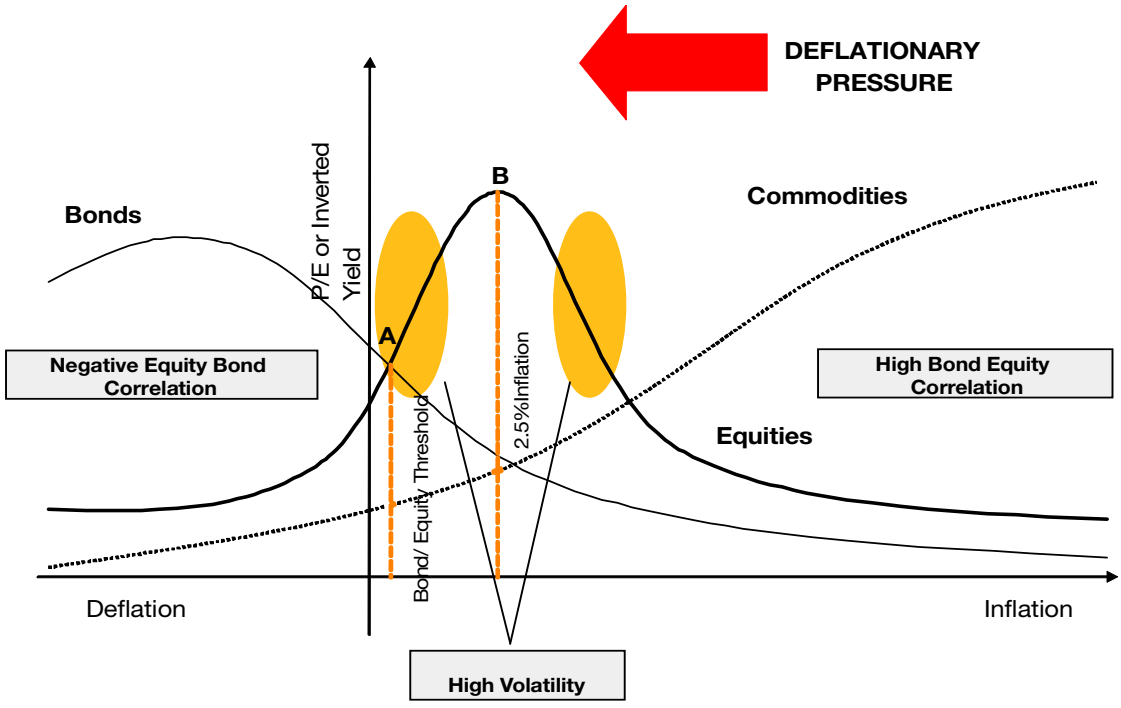


Figure 7
Japanese Equity P/E Multiples and CPI Inflation
1921-2012 (Annual)
Source
CrossBorder Capital

domestic high street inflation problem.

We know that rising asset markets and stronger real economies usually lead inflation. What does BoJ activity mean for future asset prices? **In our view, Central Banks more likely can create asset price inflation than high street inflation.** The main monetary transmission is not through high street inflation but via changing risk premia and duration effects. **High street inflation is largely a cost phenomenon, whereas asset inflation comes from monetary inflation, which is unquestionably in the gift of policy-makers. Lower risk premia and the demand for more duration will support risk assets:**

JGB (Bond) Market

Japanese bond yields, for example, comprise three components: (1) inflation expectations, (2) real yields and (3) a risk premium. The BoJ, like the Fed, wants to permanently raise inflation expectations moderately. The BoJ has a 2% inflation target and it seems likely that they consider this as an average rather than a ceiling. Real yields are determined by the marginal return on capital. These latter returns remain depressed, but they are pro-cyclical and will move up with a stronger economy. The bond risk premium is closely-linked to the slope of the yield curve, and the steeper the curve the greater the premium. More liquidity unambiguously causes yield curves to steepen. **Adding these factors together, JGB yields must rise over the medium term.** Thus, their recent fall looks bizarre and should be short-lived. Assuming at least 2% medium-term inflation and a real rate plus bond risk premium of only 0-½%, JGB yields could still test 2½%, or a whopping jump compared to current 10-year yields of 50bp.

The Yen

The outlook for the Yen remains negative. We have argued before that Japanese exchange rate policy for decades focussed on maintaining a firm-to-strong Yen, easing when the Yen became too strong and tightening when it was not strong enough. This mould

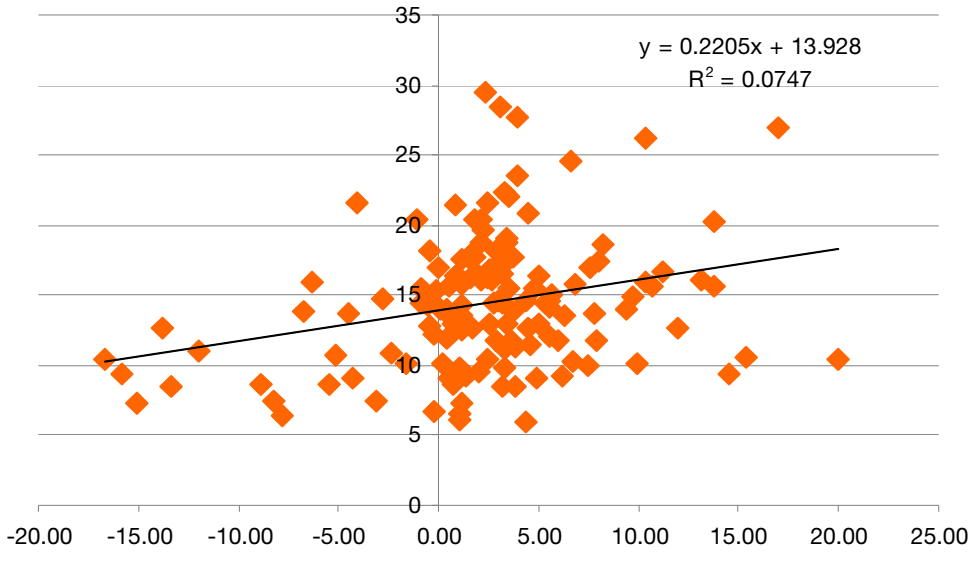


Figure 8
US Real Interest Rates and Equity Valuations (PEs)
Annual Data 1882-2012
Source
CrossBorder Capital

has lately been broken because policy-makers are now easing in the face of a weak Yen. Figure 5 demonstrates this. As a guide, we reproduce the long-term trade-weighted Yen chart in Figure 6 to restate our prediction that we are still looking for a further 15-20% slide in the Yen over the medium term. Japan looks to be returning to its earlier and highly successful Mercantilist model.

Japanese Equities

Stocks should benefit significantly. Equity markets, in general, being a quasi-real asset are largely priced off inflation. Peak equity valuations occur when the inflation rate is low, circa 2-3%, but either side of this threshold, PE multiples trace out a bell-curve where both high and low inflation rates are associated with lower valuations. In short, the slated move from price deflation in Japan to mild inflation is very bullish for stocks. Figure 7 shows the long-term relationship between Japanese PEs and inflation. The theoretical relationship is drawn below. **A faster inflation rate looks unambiguously bad for bonds but good for stocks.**

The move away from deflation on the extreme left of the lower chart causes bond valuations to drop, but should allow stock PEs to expand back towards their peak. In addition, if BoJ monetary actions successfully create GDP growth and so force Japanese real bond yields to rise, this would be further bad news for bonds but potentially better news for stocks. **Rising real interest rates coincide with faster real economic growth and, hence, higher PE multiples.** The long-term data for the US market shown in Figure 8 tells us that positive real interest rates are normally associated with higher equity valuations.

The Bigger Issues: Global Asset Prices

Let us put Japan in a global context. **The impact of these shifts on non-Japan asset prices will be largely negative, but overall stocks come out better than bonds.** The weaker Yen must pose competitiveness

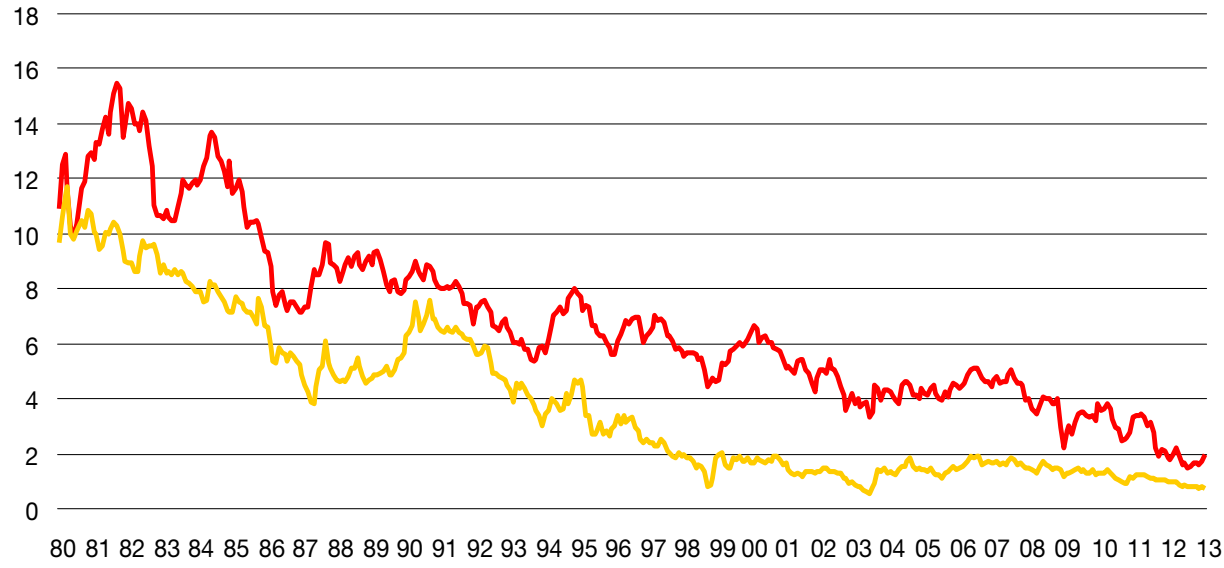


Figure 9
10 Year JGB and US Treasury Yields
1980-2013
Source
Bank of Japan, US Federal Reserve, CrossBorder Capital

problems for other economies, particularly in EM. Higher Japanese inflation may have a minimal direct effect elsewhere, but indirectly via arbitrage across the global bond markets, the impact of rising JGB yields could prove huge. Global bond markets are highly correlated. US and Japanese yields show a 0.866 monthly correlation since the mid-1980s and Granger Causality statistical tests reveal that JGB yields 'cause' movements in US 10-year yields some five months ahead, with the direction of causation seemingly one-way. Figure 9 posts a warning since JGB yields have provided a consistent floor beneath equivalent US Treasury yields for more than two decades now. Therefore, the prospective or planned rise in Japanese inflation and the potential rise in JGB yields could be key factors that drive global bond yields higher.

Many investors seem to worry that Japan may be creating too much inflation, which could be exported to others. Our main fear is different. Extreme monetary actions by the BoJ seem certain to end-deflation domestically, and, because of this, they will trigger an asset allocation switch from JGBs to Japanese stocks. One result will be a rise in the risk premium on JGBs, expressed through a steepening of the yield curve and exported to Global bond markets. But, second, by stimulating business activity and, more importantly, the lending mechanism, the BoJ may help to push up real interest rates in Japan and, maybe, globally, too.

Figure 10 and Figure 11, respectively, show 'World' real interest rates and inflation, using long-term data from the UK and US markets. The post-1990 decline in 'World' interest rates has largely mirrored Japan's slump, with real interest rates sliding and inflation expectations dropping back from around the same date. In the late-1980s, medium-term real interest rates stood at circa 4% and annual inflation expectations sat at around 4-5%. Both components slid over the following two decades, with real rates touching negative territory and expected inflation settling around 2½-3½%. Latest World inflation, using this

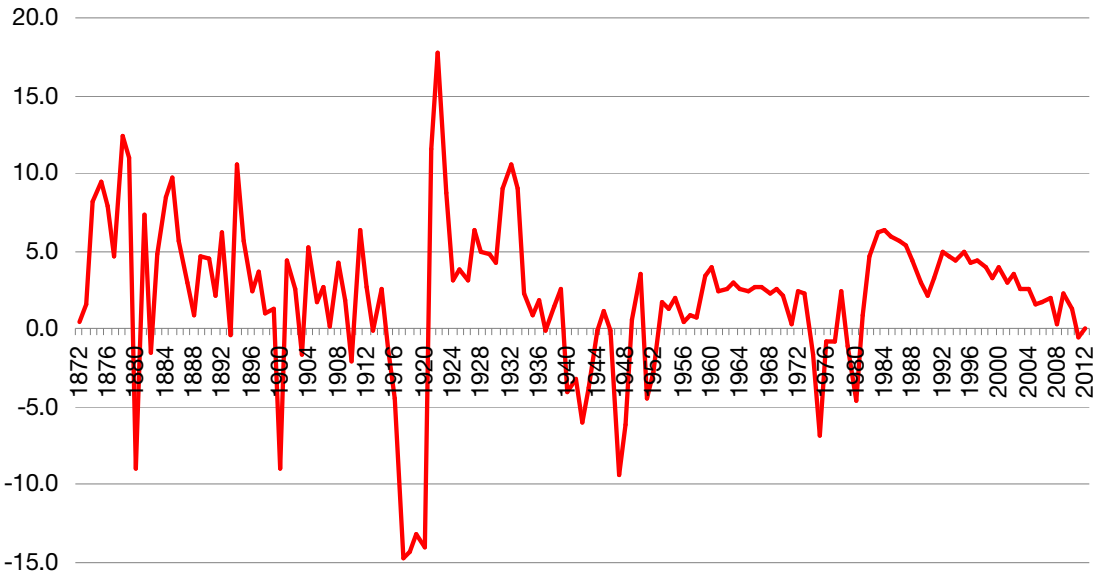


Figure 10
World Real Interest Rates
Percent 1872-2012

Source
CrossBorder Capital

simple measure, is 2.8% against a long-term (1972-2012) average of 2.5%. In other words, it looks in-line with history. **On the other hand, World real interest rates at 0.1% are significantly below their long-term average of 2.1%.** If mean-reversion does occur, then by pushing up real interest rates it is likely to adversely affect global bonds, but will more probably help stocks. **Although higher inflation also matters for Japan, rising real interest rates and bond risk premia pose a more serious threat to global bonds than rising World inflation.**

It very much remains our view that equity markets are bifurcated between understanding the marginal and average returns on capital. A low marginal return is behind currently depressed new capital expenditure levels across the G20 and reflected in low real interest rates. A high profit share in GDP is not an anomaly, rather it reflects sizeable average rates of profitability on existing capital. This difference is ultimately unsustainable, but while it persists it favours large over small companies. The latter depend more for growth on new investments, whereas the former can sit-back and cut their costs. We agree that Japan is no longer the World's marginal producer and so alone she may not much affect World real interest rates, but Japan's possible renaissance is coinciding with widespread QE and it may just be also coinciding with decline elsewhere?

The gap between the marginal and average returns on capital reflects, we summise, the impact of China. China is at best a *quasi-capitalist* economy that produces for employment more than for profit. Consequently, it is eating its own lunch because resources are being inefficiently deployed and ultimately will constrain GDP growth. In short, China is a low productivity growth but (formerly) high input growth economy. When the latter slows, which it must, overall output growth will falter. Indeed, rising wage rates in China could suggest the economy is now at this point. This turning point is important because it may allow other more efficient producers, like the US,

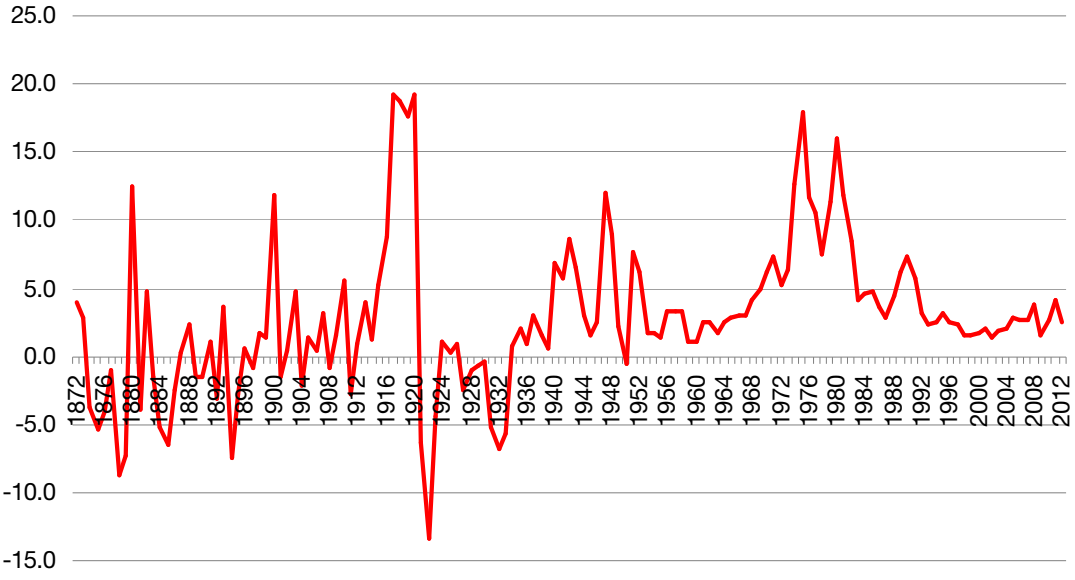


Figure 11
World Inflation
Percent 1872-2012

Source
CrossBorder Capital

Japan and Germany, to take back market share from China.

Looked at another way, there are rarely any unrelated events in World markets. Japan's long decline from the peak of 1989 coincided with the rise of China. Japanese industry was further hampered by the strong appreciation of the Yen against the US dollar and Chinese RMB. Now, the pendulum threatens to swing back a little. The Yen has collapsed, Chinese growth is faltering, Chinese costs are rising and Japanese monetary policy is set to ignite.

We argued, perhaps wrongly, last September that Bernanke's QE3 and the explicit targeting of industrial growth by policy-makers was the equivalent of previous Chairman Volcker's celebrated tight monetary policies in the early 1980s that killed inflation and boosted bonds. Our error lay in not waiting and giving this accolade to Kuroda instead. He is copying Bernanke, but, unlike his American counterpart, he is doing so within a banking system that is well-capitalised and ready and able to re-lever itself. **Japan, not America, is the real monetary experiment.**

CROSSBORDER CAPITAL LIMITED
96 BAKER STREET
LONDON W1U 6TJ
TELEPHONE 020 7908 2800 FACSIMILE 020 7908 2835

Section 2
(Liquidity and the Shadow Banking Surge)

- Money, Credit and 'Global' Liquidity - *February 2014*
- 21st Century Schizoid Banks – *December 2007*
- New York Slides, Washington Wakes, Chicago Dreams – *March 2008*
- The Nikkei, NASDAQ & ….Noting Hill! – *July 2007*
- Dissent Inside the Fed? – *April 2008*
- The Message from a Previous 'Low' - *February 2009 and May 2011*
- Odds of QE3….100% - *August 2011*
- Asian Liquidity – No Tiger in the Tank – *February 2012*
- Japan is the New France – *February 2009*
- Chinese Liquidity and China's Shadow Banking Sector – *March 2014*

CrossBorderCapital
Implementing Insight

Money, Credit and 'Global' Liquidity

Financial de-regulation and the rapid growth in financial assets has made credit a far more important statistic to watch than traditional money supply, and has elevated non-banks to a par and even above banks as credit providers. Yet greater financial sophistication and the appearance of derivatives and securitisations – MBS (mortgage-backed securities) and CDOs (collateralised debt obligations), also make the task of monitoring credit much harder. This note examines how our liquidity indexes do the job.

Liquidity can be defined as the flow of money into markets. Deregulation and financial innovation means that money exists in an increasing number of different forms which are best measured from Flow of Funds statistics. It is easy to demonstrate from published data that the credit pool is far bigger and has grown much more rapidly than traditional money supply measures. We concentrate in this report on the US because its financial system has the largest, most developed and most sophisticated markets and institutions. Some 70% of US non-bank funding of the non-financial corporate sector comes from capital and money markets compared to 30% in the Eurozone.

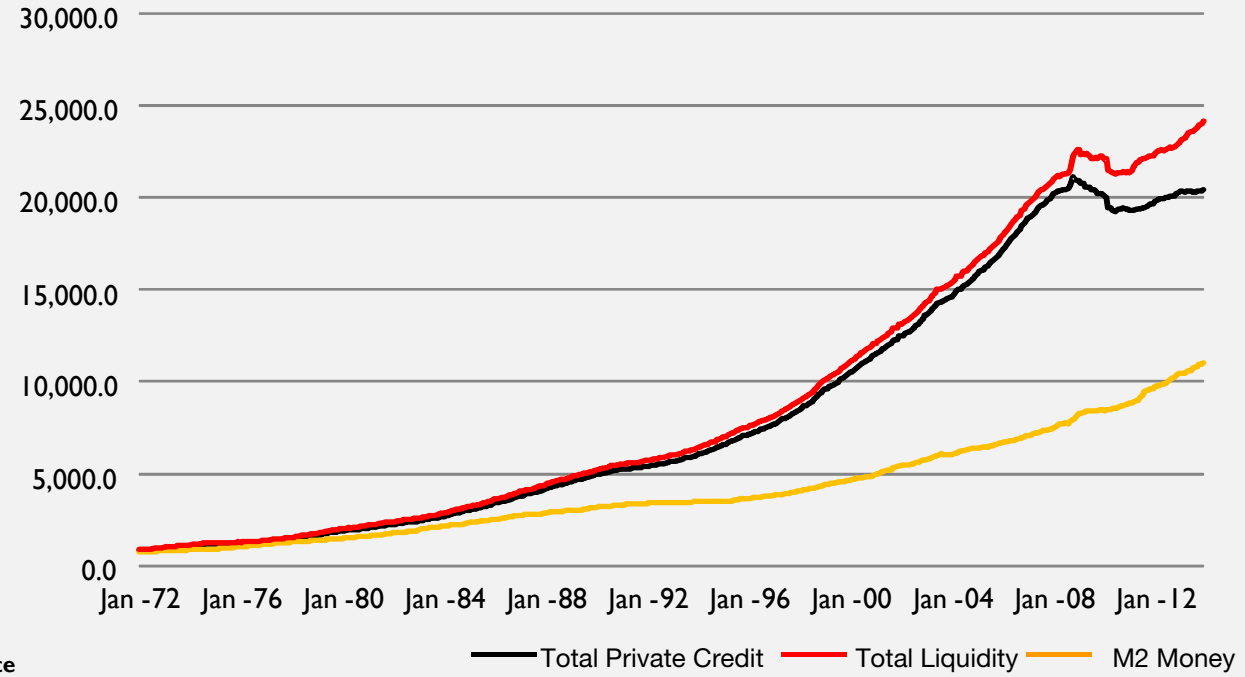
Our definition of private sector credit in Figure 1 covers banks and non-banks and includes, where possible, traditional loans as well as securitised credits. Money supply is shown alongside. We have used M2, the broadest available aggregate, although even if we had estimated the now defunct M3 statistic it too would have been outpaced by credit growth. In other words, credit here is nearly two-and-a-half times greater than money. Liquidity is bigger still because it includes cash savings as well as private sector credit. For the majority of economies, liquidity can be measured as the monetary base (Central Bank credit) plus the credit extended by private sector financial institutions. In a simple, textbook financial world consisting entirely of conventional banks, credit is straightforward to define as total bank loans. But structural change has rendered once useful money supply measurement out-dated: (1) financial de-regulation from the early 1980s and (2) the recent rapid innovation of new financial products blur these traditional definitions.

CrossBorder Capital Ltd
Marble Arch Tower, 55 Bryanston Street
London W1H 7AA
Tel (44) 20 7868 4104
www.liquidity.com

In this report, we explain in detail how 'liquidity' is defined and why it is essential to take a heterodox flow-of-funds approach to macro-investing rather than focussing on conventional money supply and National Income Accounts (NIA). National Income Accounts, e.g. GDP, consumer spending, etc, show how money is spent, but these standard tools do not explain how spending is financed and therefore they cannot show whether or not it is sustainable. Money supply may tell us a bit more about financing, but it only focuses on high street banks and then only one part of their balance sheets, i.e. deposits. A quick counter-example may help? In 2013, US stock prices rose by nearly 30%; American corporations bought back lots of their own shares and new orders for capital goods surged, and yet traditional measures of US money supply increased by barely 6%, while bank credit was essentially flat and the economy only picked up a bit of speed through the year to average 2% GDP growth; The evidence from the markets suggests that liquidity was abundant, but this strength was not obvious from these standard macro measures. In this case, the missing element was surging corporate savings. This perception gap probably explains why many economists mistakenly forecast 'double dip' recessions at the start of 2013. Troublingly, if these traditional economic indicators cannot guide investment performance, they could prove disastrous when used to access risk.

Money supply and National Income Accounts are not entirely useless. Rather they simply give an incomplete picture of the modern economic system, largely because, as time has moved on, massive amounts of capital have been accumulated by industry, and the financial sector has become larger and

Figure 1 - US Money, Private Sector Credit and Liquidity (US$ in Billions)
Monthly 1972-2013



Source
CrossBorder Capital, US Federal Reserve

vastly more complex. **In short, the modern economy now operates as a huge re-financing mechanism.** 'Liquidity' increasingly reflects financial intermediation beyond the traditional banking system. **To understand how today's economy works, we dig deeper into Flow of Funds statistics to find the roots of these new sources of 'liquidity' among the shadow banks, wholesale money markets and Central Bank balance sheets.** Flow of Funds statistics show a far more comprehensive picture of financing activity by measuring the net acquisition of financial assets by each economic sector. Unlike spending flows, which once spent disappear, financial flows accumulate and they are ultimately reflected in swelling stocks of financial assets and liabilities in sectoral balance sheets. High debt and leverage ratios may consequently curtail further new flows. See Figure 2.

Traditional money supply measures missed the 2013 US liquidity surge partly because the leap in corporate cash flows was used to pay-off existing loans and/ or left to accumulate in wholesale markets. In short, it by-passed the high street banks. This has become an increasing issue over the past decade and ever since industrial corporations slashed capital spending and became net free cash flow generative. Rather than borrowing from banks, these firms paid back bank loans and instead deposited surplus funds in the wholesale money markets.

Figure 2 - Flow of Funds Accounting (Schematic)

	Households	Corporate Current A/C	Corporate Capital A/C	Finance
Consumption	-C	+C		
Investment		+I	-I	
Incomes	+W	-GDP	+P	
Capital Mkts	-If		+If	If = If
Money Mks			-MM	+MM
Lending	-ΔBD			+ΔBD
Borrowing			+ΔBL	-ΔBL
TOTAL	HHS = If+ΔBD	GDP = C+I	CS+ΔBL = If+MM	ΔBL+If = ΔBD+MM+If

Money Supply e.g. M2 is defined as bank deposits

Liquidity = HHS+CS+ ΔBL+MM = I+If+MM+ΔBD

Flow of Funds identity defines 'Liquidity'

KEY

GDP denotes National Income

BD is bank deposits

P represents profits

HHS is household savings

W is wage bill

BL is bank lending

If is financial asset purchases

CS denotes corporate savings

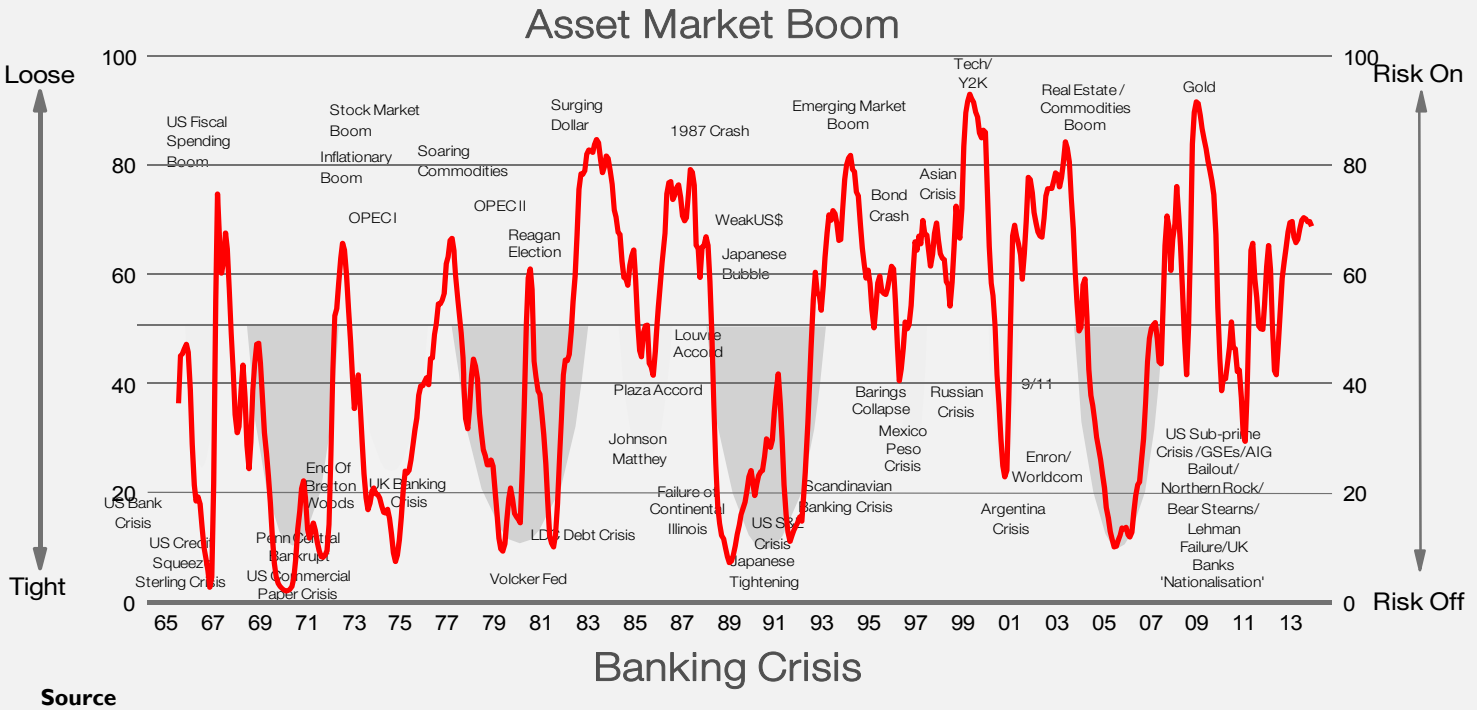
Source
CrossBorder Capital

In the last decade, these later funding markets have taken on huge importance. According to the New York Fed: "*.... we saw during the recent financial crisis [that] the tri-party repo market was overly reliant on massive extensions of intraday credit, driven by the timing between the daily unwind and renewal of repo transactions. Estimates suggest that by 2007, the repo market had grown to $10 trillion—the same order of magnitude as the total assets in the U.S. commercial banking sector—and intraday credit to any particular broker/dealer might approach $100 billion. And ... risk was underpriced with low repo "haircuts"— a haircut being a demand by a depositor for collateral valued higher than the value of the deposit.*" *NY Federal Reserve, Feb 2014*

Money is Credit

One reason why money is an ambiguous measure of activity in *credit-based* economies is because it exists in two qualitatively different forms: (1) money as *means of purchase*, which starts the financial circuit, and (2) money as *means of settlement*, which closes it. In between, a lot goes on! When economists talk of 'money supply', they usually mean the latter. However, it is only half the story. 'Means of purchase money', that starts the economic circuit, is equally and perhaps more important, but how is it measured? The flow of 'means of purchase money' theoretically defines 'liquidity'. Liquidity enables new transactions and tends to extend debts rather than extinguish them. It is a far broader measure than money and a far better measure than interest rates. We often think of it as money in all its forms.

Figure 3 - Global Liquidity Index (GLI), Developed World ex Emerging Markets
Monthly, 0-100 1965-2013



Source
CrossBorder Capital, US Federal Reserve, ECB, Bank of England, Bank of Japan, IMF

Definition 1 (Theoretical): *liquidity is a quantitative measure of 'funding sources' made up of pure means of purchase such as credit, and means of settlement that can be used as means of purchase such as cash.*

Definition 2 (Practical): *liquidity is measured by adding together the sizes of credit providers' balance sheets i.e. all forms of bank and shadow bank credit available to financial markets, including the credit transactions of the Central Bank (which largely represent the supply of cash).*

Credit is Money

But what defines credit? Balance sheets must balance, and credit (an asset) has to equal funding (a liability). Credit gives access to means of settlement. Credit can be cross-checked from the sum of funding sources on the liabilities side of credit providers' balance sheets: (1) cash; (2) commercial banks' deposits, assuming that these are insured by the Central Banks; (3) loans and outright securities purchases by the Central Bank; (4) deposits in wholesale money markets that can be turned into short-term cash, such as commercial paper; (5) assets that can be repo'ed for cash directly by the Central Bank, or indirectly by commercial banks and by security lenders who can receive large amounts of temporary cash from short sellers and derivative-players, and (6) capital that can be raised from either the public and/or private sectors.

Money supply or M2, measures the stock of means of settlement money based only on deposits at high street banks. See item (2) above. It is only part of the answer. In addition, the associated deposit multiplier is a familiar textbook ratio that shows by how much commercial banks can expand means of settlement from a narrow cash base. The Central Bank underwrites this multiplier process when it acts as 'lender of the last resort'. The equivalent action and ratio for shadow banks is, respectively, the 'buyer of the last resort', and the collateral multiplier. The latter has become much more important and it gauges how much cash can be raised from a given collateral. The so-called asset 'haircut' is the equivalent of the reserve requirement that governs the standard deposit multiplier. Another reason we focus on liquidity is that credit providers typically lend first and then attempt to gather funding. Thus, deposits are sometimes dwarfed by other sources of funding and liquidity frequently exceeds the flow of deposit money.

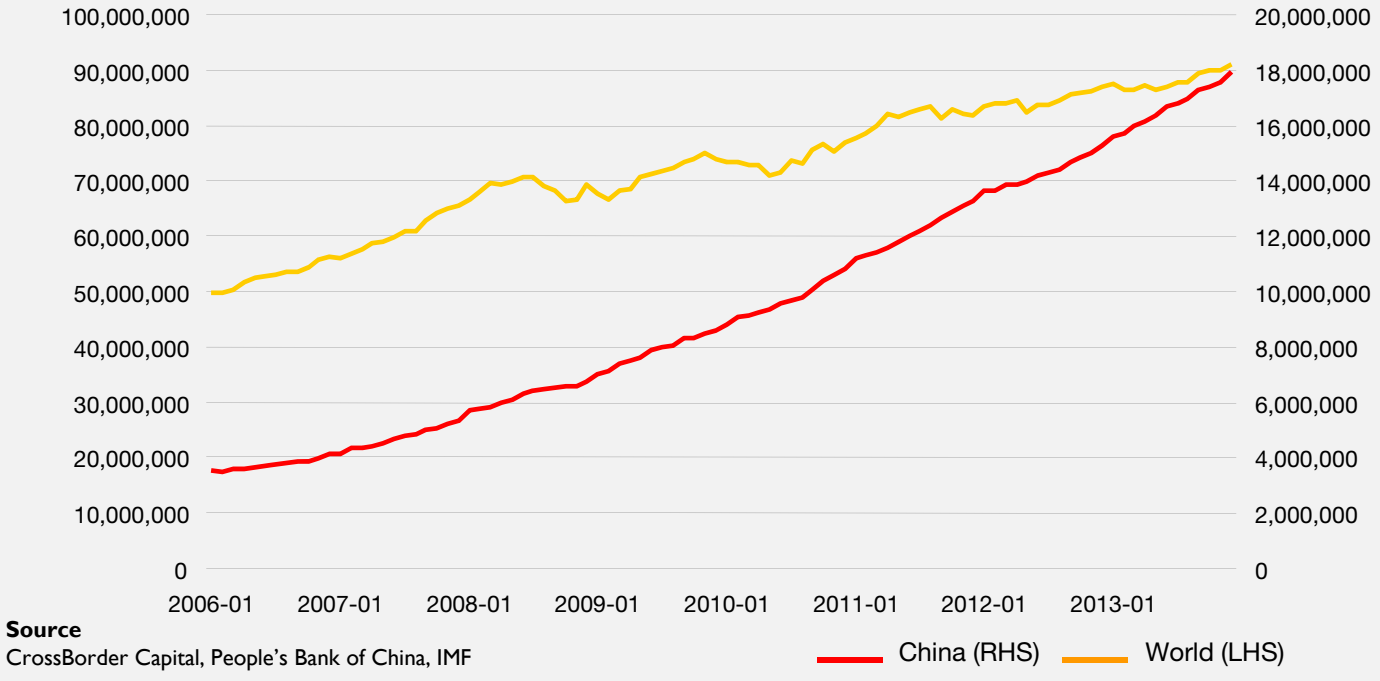
There are a number of other fundamental problems with this traditional money supply definition: (1) strictly one cannot spend a bank deposit. It is illiquid and only made liquid by including the credit of the bank. Hence, if I have a deposit in the Bank of Timbuktu I cannot simply write a cheque and present it to a New York store in order to purchase goods. In contrast an equivalent deposit held in Citibank is liquid because the Citibank credit is more acceptable. This shows why credit and cash, or the flow of 'means of purchase', are most important. (2) Although my Citibank and Barclays bank deposits are considered 'legal tender' domestically, Western commercial banks no longer monopolise global money and credit. (3) Financial

deregulation has allowed many investors to become banks and many banks to become investors, thereby blurring what we traditionally think of as 'bank deposits' and 'bank loans'. Thus, you can hold spare cash in many different vehicles, not just a high street bank deposit account. (4) High street banks are no longer the only providers of credit, nor do they obtain all their funding from retail deposits.

Domestic 'shadow banks', for example, have become very important alternative providers. Moreover, a 'loan' can just as easily take the form of a purchase of a tradable security, i.e. 'securitization'. And, (5) international money must be monitored since swings in the Chinese credit cycle, for example, are becoming as (or even more) important globally than the more prosaic movements in US money and credit. Indeed, Figure 4 shows the recent relative movement in Chinese and Global Liquidity, in US dollar terms. Since 2006 Chinese liquidity has jumped by 430% compared to an 80% rise in nominal Global Liquidity. Figure 5 illustrates the growth of Chinese shadow banking and highlights that it now contributes around one third of Chinese liquidity outside of the PBoC.

Figure 6 summarises the theoretical differences between money, bank credit and liquidity. We noted earlier that a workable definition of liquidity is the sum total of all available cash and credit. To measure this, we combine the balance sheets of the Central Bank and the entire Financial System. Money largely represents the upper right hand panels of the Central Bank and commercial banks' balance sheet. Bank credit is the bulk of the left hand panel of banks' balance sheets. But liquidity is essentially the entire left hand panels of the

Figure 4 - The Chinese Liquidity Boom
Total Liquidity US$ millions Monthly 2006-2013

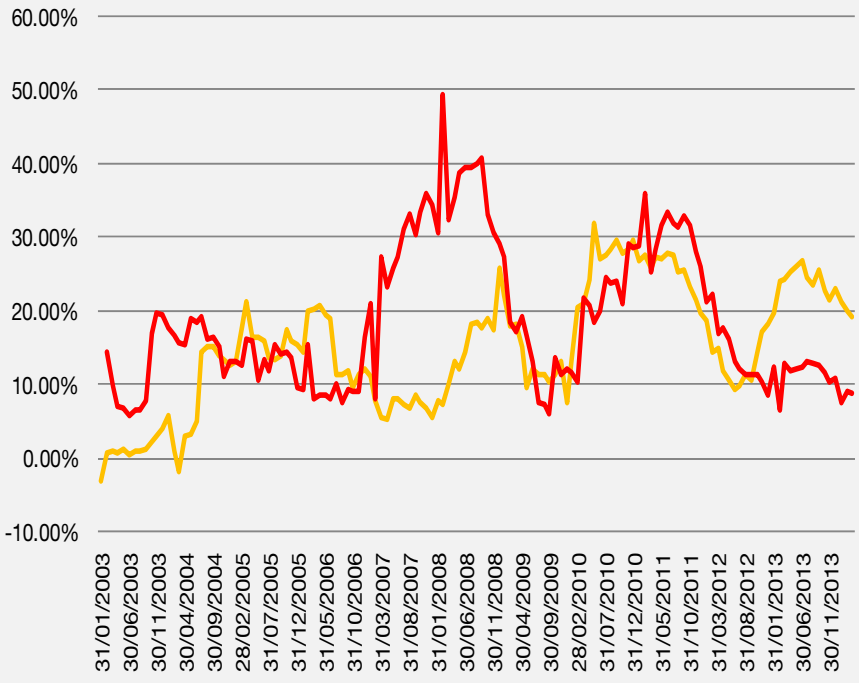


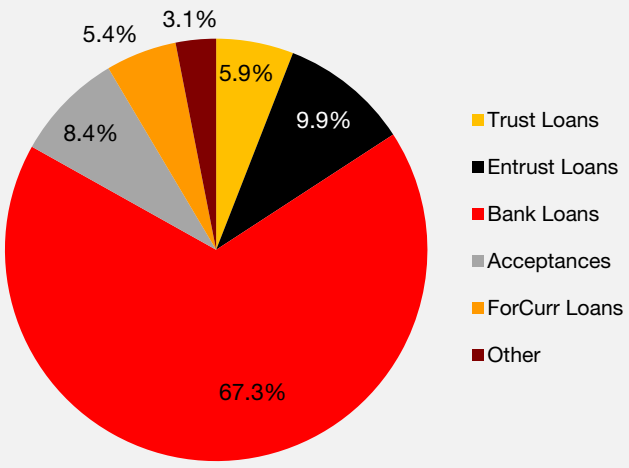
Source
CrossBorder Capital, People's Bank of China, IMF

combined balance sheets of the Central Bank, the high street banks and the shadow banks. We focus on the left-hand, or assets side, of this aggregate balance sheet, making a few adjustments such as excluding reserves held at the Central Bank and 'other assets', such as operating real estate. Assets include loans extended to the private sector as well as securities purchased from the private sector, whether by Central Bank, a commercial bank, an insurance company or a money market fund. However, since we are interested in the supply of liquid assets, the issuance of debt (over three months maturity) and equity by industrial corporations or by governments is excluded because it constitutes a use or absorption of funds. In contrast, a bond or equity issue by a credit provider, represents a potential expansion of liquidity.

Figure 7 shows the size breakdown of US liquidity by source at end-2013. Aggregate US cash and credit, or 'liquidity', currently totals around US$24 trillion, or nearly two-thirds bigger than M2 money supply. We can see from Figures 6 and 7 that M2 money supply is likely to be only a small part of the financial sector balance sheet and may or may not move with it. In other words, credit can expand but M2 could fall, and vice versa. The picture may be muddied by: (a) non-deposit funding by banks, e.g. issuance of long-term debt and commercial paper, and (b) credit extended by non-banks, e.g. credit card companies, mortgage lenders, repo markets, or what we collectively call 'shadow banks'. Focussing on cash and credit flows and particularly on the net access to

Figure 5
Growth in Chinese Shadow Banking and PBoC Balance Sheet
Annual % Change Monthly 2003-2014



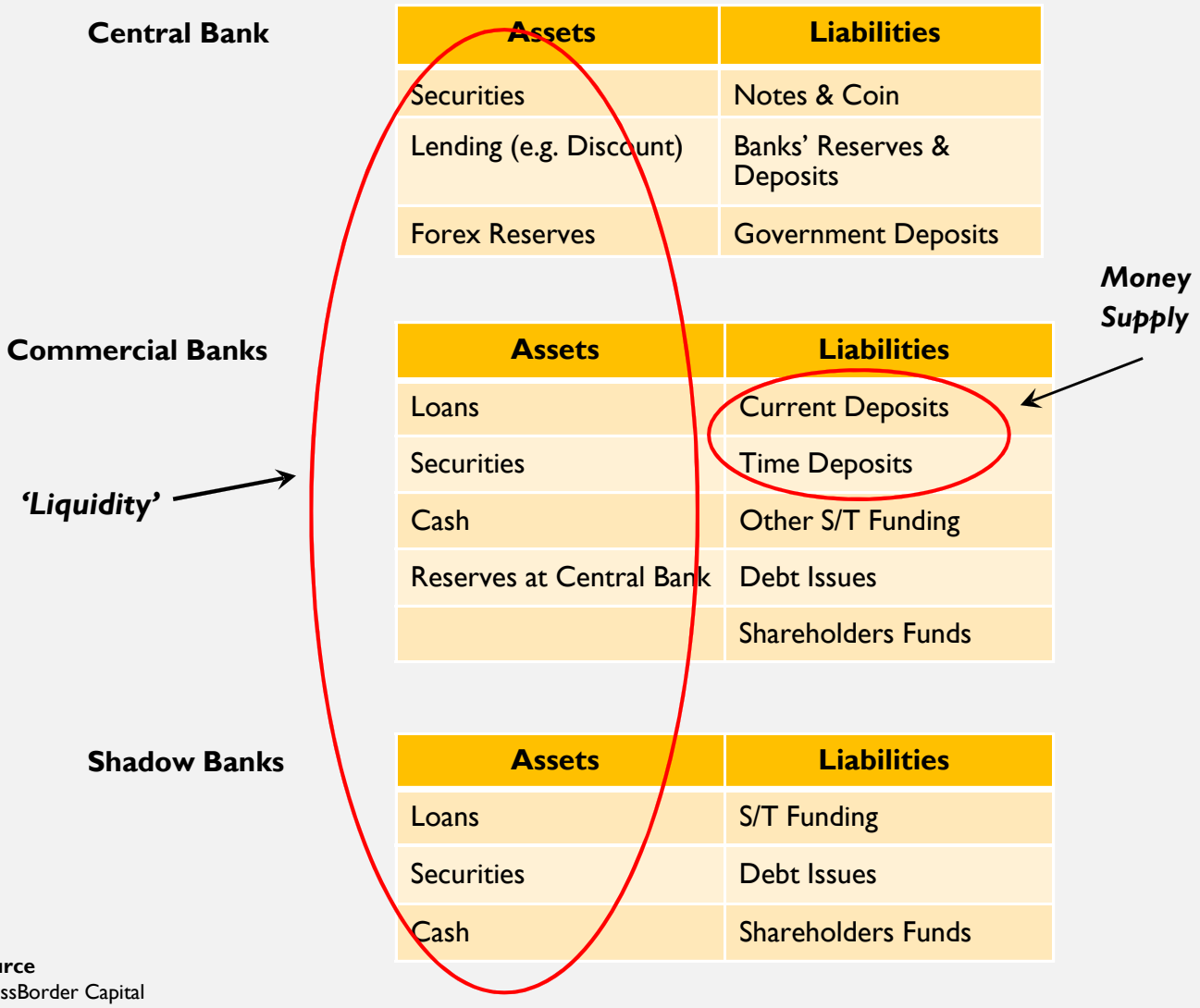


Source
CrossBorder Capital, Bloomberg, People's Bank of China

liquidity by the private sector gives a better insight into future economic activity. For example, Figure 8 shows the close correlation between our index measure of US Private Sector Liquidity and the growth rate of US Corporate Sector Credit Market Debt from the Flow of Funds statistics (Z1). Credit Market Debt is a wide definition of credit monitored by the Federal Reserve, but unlike our data, only available quarterly in arrears.

Admittedly, liquidity can sometimes be hard to measure accurately because timely and reliable international statistics are not always available. Therefore, we also calculate in parallel 'normalised' monthly indexes, separately for both the Central Bank and the Private Sector, that use a multi-factor approach, incorporating savings, broad credit flows and measures of available funding. These indexes are based on rolling 41-month averages and standard deviations, and they are calibrated to range between 0-100, with a 50 point mean see: Global Liquidity Indexes 2014 edition.

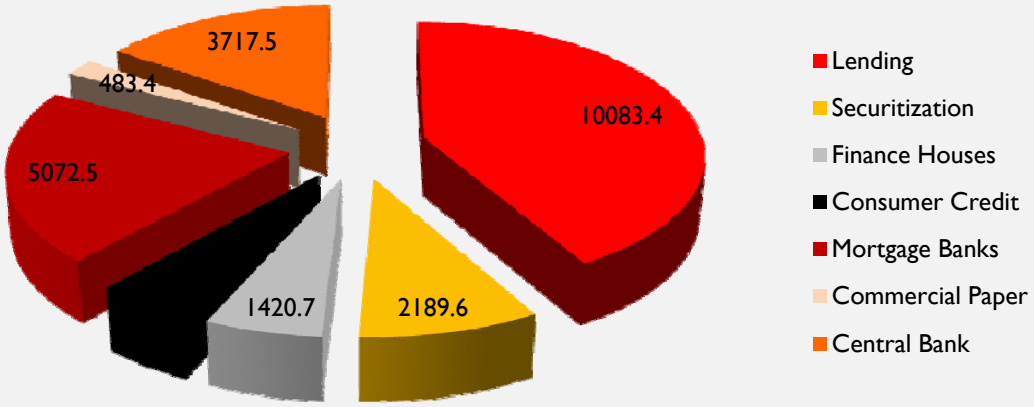
Figure 6 - Defining Liquidity (Schematic)



Source
CrossBorder Capital

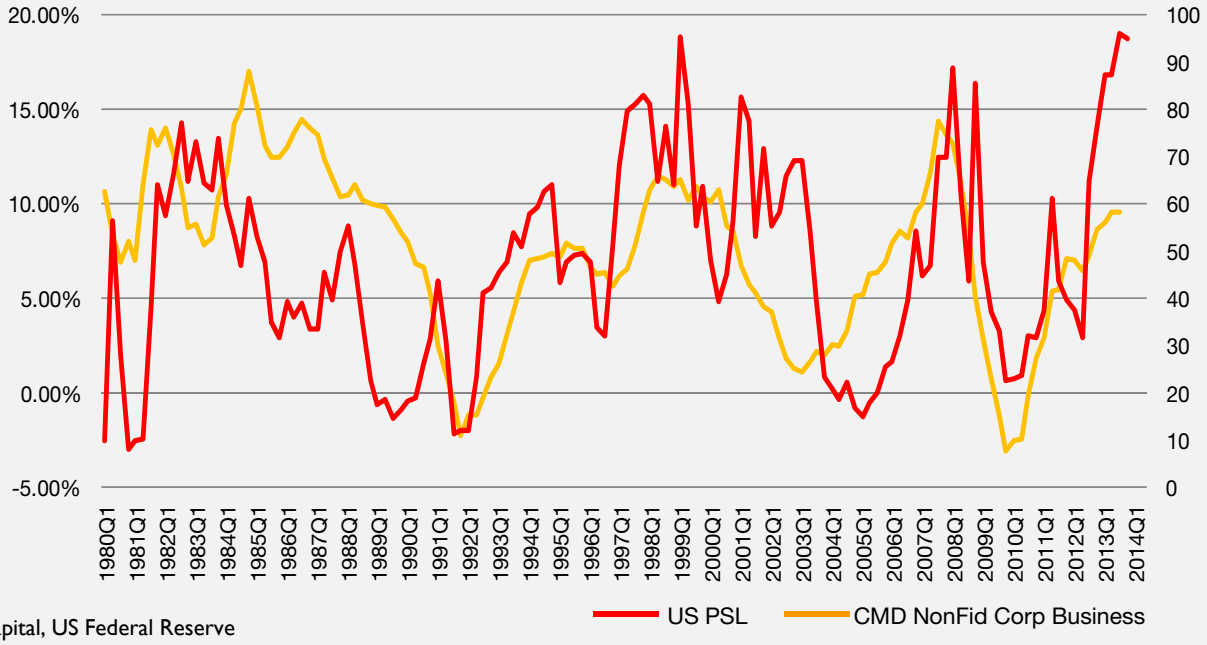
Another difference that we can incorporate in these indexes is to give a fuller weight to Central Bank Liquidity, much like the Divisia approach. See Figure 3 which charts, as an example, our index of Global Liquidity excluding Emerging Markets. Even acknowledging recent quantitative easing policies, the nominal value of Central Bank money is still only 10-15% of total liquidity. However, Central Bank cash provides absolute collateral. Most assets can be collateralized and re-hypothecated, but some more than others. This adds a subtle collateral multiple to liquidity creation that plainly was not (and is not) well understood, even by the US Fed in 2008. Here the size of 'haircuts' in repo markets can be significant. Consequently, Central Banks can exercise huge leverage on private sector liquidity.

Figure 7
Breakdown of US Liquidity (US$ Billions)
End 2013



Source
CrossBorder Capital, US Federal Reserve,
Bank of Japan, ECB, Bank of England

Figure 8
US Private Sector Liquidity Index and Annual Growth US Corporate Sector Credit Market Debt
Quarterly 1980 -2013



Source
CrossBorder Capital, US Federal Reserve

Conclusion: Liquidity Makes The Modern World Go Round

In summary, **Liquidity not money supply drives the World economy** but liquidity is easier to define than it is to measure. One of the lessons of the 2008 Financial Crisis and our subsequent experiences, associated with the decline in importance of traditional Western banking, is that it is critical to watch Flow of Funds data.

To better explain the liquidity framework, we can to recast it in terms of the standard quantity theory of money. We often refer to liquidity analysis as the 'quality theory' simply because the velocity of money is always changing, either because of regulation, innovation or because of changes in the value of money. Money (M) times its velocity (v) must equal the value of transactions, i.e. price (T) times volume (T):

$$M \cdot v = P \cdot T$$

In terms of changes:

$$\Delta(M \cdot v) = \Delta(P \cdot T)$$

Expanding the right-hand side:

$$\Delta(P \cdot T) = \Delta GDP + A \cdot \Delta P_f + \Delta BD$$

where *GDP* is economic activity; *A* is the stock of assets; P_f asset prices and *BD* bank deposits. Since *ΔGDP = I-S*, where *I* denotes capital spending and *S* is savings, this can be rewritten as:

$$\Delta(P \cdot T) = I - S + A \cdot \Delta P_f + \Delta BD$$

The left-hand side can be expanded into:

$$\Delta(M \cdot v) = v \cdot \Delta M + M \cdot \Delta v$$

Re-arranging the expression gives our definition of Liquidity (L):

$$S + v \cdot \Delta M + M \cdot \Delta v = I + A \cdot \Delta P_f + \Delta BD$$

We can also measure 'Financial Liquidity' as the left-hand side (L) minus real investment (I). This quantifies money going into the financial asset economy. It comprises savings (e.g. household savings and corporate profits) changes in the supply of 'money' and changes in the velocity of this money. Changes in velocity effectively measure the impact of credit. Velocity is not constant. Rather it fluctuates significantly, and typically sees a strong upward trend. Moreover, the asset economy tends to absorb much of these swings in liquidity.

This asset market liquidity transmission channel is now accepted by Central Banks, such as the ECB[1]:

"*...obtaining a higher valuation of assets can be seen to be the implicit, if not explicit, rationale for large-scale asset purchases/quantitative easing by some major central banks and can contribute to addressing the 'paradox of leverage'* ...[These] *measures providing liquidity to the financial system via collateralised lending as in the case of the ECB might also indirectly support asset valuation by helping to avoid disorderly deleveraging and fire sales by banks.*"

"*The focus on the size and composition of central bank balance sheets obviously contrasts with the irrelevance proposition on non-standard policy measures put forward in the neo-Wicksellian tradition. Such measures would be seen as irrelevant even when the zero lower bound has been reached, to the extent that they do not change the future expected path of interest rates (Eggertson and Woodford, 2003). However, interest rates and associated risk premia, while disregarding quantity variables, would not appear sufficient to capture the way monetary policy operates when the efficiency of financial markets and financial intermediation are impaired amidst deleveraging pressures and heightened uncertainty and risk aversion. In such circumstances the role of the central bank as the issuer of the ultimate safe and liquid asset – money – and its capacity as intermediary and risk absorber of last resort come to the fore. This has been the case for the Eurosystem and the US Federal Reserve alike.*"

[1]ECB Working Paper no. 1528 / April 2013: The ECB'S non-standard monetary policy measures: The role of institutional factors and financial structure, by Philippine Cour-Thimann and Bernhard Winkler

CROSSBORDER CAPITAL®

Global View

December 2007

21st Century Schizoid Banks

Central Banks have set course to over-stimulate the Global Liquidity Cycle, spurred by financial market concerns. The World's Banking and Financial system is allegedly enervated by a deep and widespread credit crunch, and so unable to fight-off prospective recession in the real economy. Short-term interest rate spreads certainly support this popular story; longer-term credit spreads are more equivocal, but credit flow data give a big thumbs down. Disregarding past unreliable surveys of loan officers' intentions, data measuring new credit extended unambiguously show continuing growth in both America and outside. What's more, credit flows are strong outside of the USA and when compared to this pool of global credit, the sub-prime losses look small.

I See No ... Credit

Blame the grey-suits! Fixated by interest rate management, Central Banks have badly misread the cycle. They tightened sharply – and probably by too much through 2005 and 2006, and now they are being encouraged to ease aggressively – probably at the wrong time? Investors are not helping by exaggerating the scale of the current problems. Consequently, we fear that policy-makers will plough back funds at the time that they are least needed. In short, future inflation problems are being primed. The Cycle is back.

To gain perspective, three things should be remembered: (1) the scale of the recent turnaround in the US trade accounts is remarkable, with net exports rising so fast (in volume terms) that America's entire trade deficit could vanish in two years. The flow-of-funds counterpart to this is strong private sector liquidity; (2) signalling better liquidity, the US yield curve is beginning to steepen sharply, much as it did in the early 1990s, the last time that US banks needed re-capitalising, and (3) investors seem to be unwisely betting on the 'end of America', or at least 'the end of the US dollar'. But exports are four times more important to the US economy than housing.

The causes of the current liquidity crisis should be distinguished from the trigger. The causes lie in the secular loss of control (a.k.a. the relinquishing of control) over credit by Central Bankers, combined with their virtually now universal focus on interest rate/ inflation targeting. The trigger is Central Bankers' misreading of the credit cycle. By removing the constraints on private sector credit expansion from the early 1980s onwards, policy-makers allowed a problem to build. By narrowly focussing on the consequence of too much credit solely for the consumer price level, they effectively turned away from the real problem and consequently forced financial markets to suffer wilder swings. We are reminded of British Admiral Nelson's famous retort. Raising his telescope to his blind eye, he counselled: "I see no ships?"

This decade's asset price inflation rests on two productivity miracles – Chinese labour and Wall Street financiers. The greater these two 'productive' forces, the more that 'monetary inflation' is expressed through: (1) rising asset prices; (2)

Marcol House
289-293 Regent Street
London W1B 2HJ

www.liquidity.com
Tel: (020) 7535-0400
Email: www@liquidity.com

deteriorating credit quality, and (3) swelling trade deficits. Fuelled by increasing dollops of new credit, rising asset prices, deteriorating credit quality and widening trade deficits can continue for years. They need a trigger to reverse. The trigger is often a reversal in the short-term credit cycle that temporarily curtails inflows of the hallucinatory credit drug; this is usually spurred by consumer inflation fears.

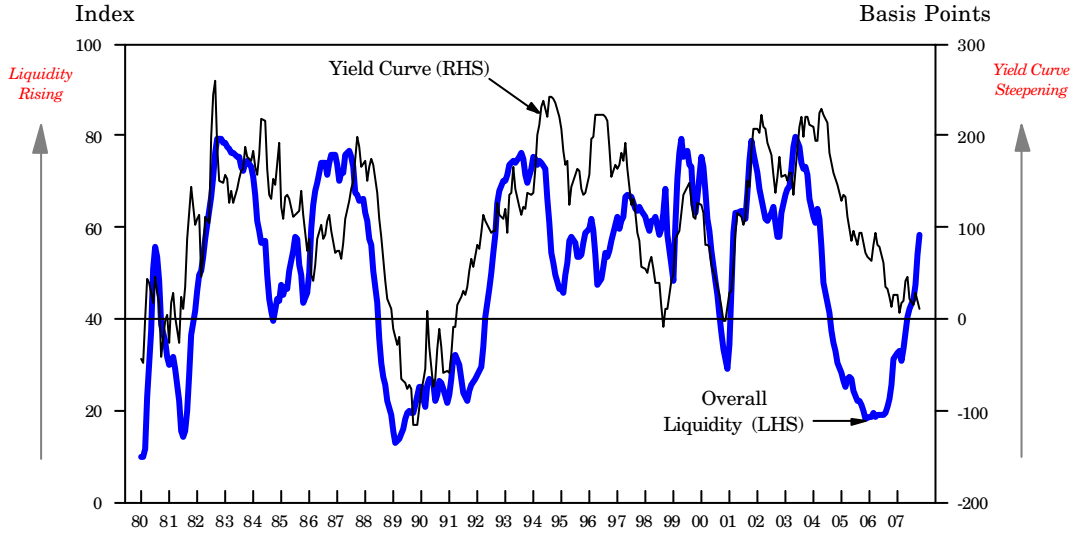
But in a World where prices are structurally held down by: (1) low cost Chinese labour, and (2) a stable exchange rate regime, which allows the mass import of cheap goods into the West and particularly into America, monetary excess in the real economy is instead channelled through trade imbalances NOT faster consumer price inflation. So, with their main economic compass impaired, policy-makers found it difficult to steer. **They often misread the monetary currents: tightening when they should have been easing and easing when they should have been tightening.**

The 5-Year Credit/Liquidity Cycle

So it was that by late 2006/early 2007, the once surging net flow of World credit had slowed to a trickle: credit quality problems typically follow around 6-12 months later. Worried that inflation was rising, Central Bankers, and notably the US Federal Reserve, significantly tightened liquidity through 2005 and 2006. Yield curves flattened and ultimately inverted. After inflation pressures proved benign, policy-makers were slow to ease. Sadly, they ignored the wiser counsel of bond markets, the warnings from already skidding house prices, and the stark facts from liquidity data. Figure 1 shows that the *Global Liquidity Cycle* leads the yield curve by around six months, with a steep curve (large term premium) correlated with abundant liquidity and an inverted curve indicating tight liquidity. Instead, they set course for the economic rocks steered by their new *Taylor Rule* compasses. Markets listed badly in July and August, and came close to disaster this November.

The US Fed is always quick to remind us that: *"… a healthy economy requires a healthy financial system."* **Moreover, in recent years, and particularly the current period, when *capital ratios* rather than *reserve requirements* have been used to control the growth of the financial sector, policy-makers have followed the principal that a lot of good Central Bank money is often required to off-set a little bad debt in the private sector.** Consequently, Central Banks have become *reactive*, particularly post-1994, acting both with alacrity and in size. They have typically shelved other policy objectives while they restore the jangled nerves of the credit markets.

Figure 1. Global Liquidity Cycle And G7 Yield Curve (10-Year Less Three-Month), 1980-2007



Source: CrossBorder Capital, Bank of Japan, ECB, US Federal Reserve, IMF

Elsewhere we have examined in more detail the dynamics of the modern financial system and warned both of:

(1) its increasing pro-cyclical leverage, and
(2) the structural decline in its liquidity. US banks, for example have less than 2% of their assets invested in cash and Treasury bonds (it was over 55% in the 1950s) and deposits make up barely 50% of their funding (almost 90% in the 1950s).

We also argue:

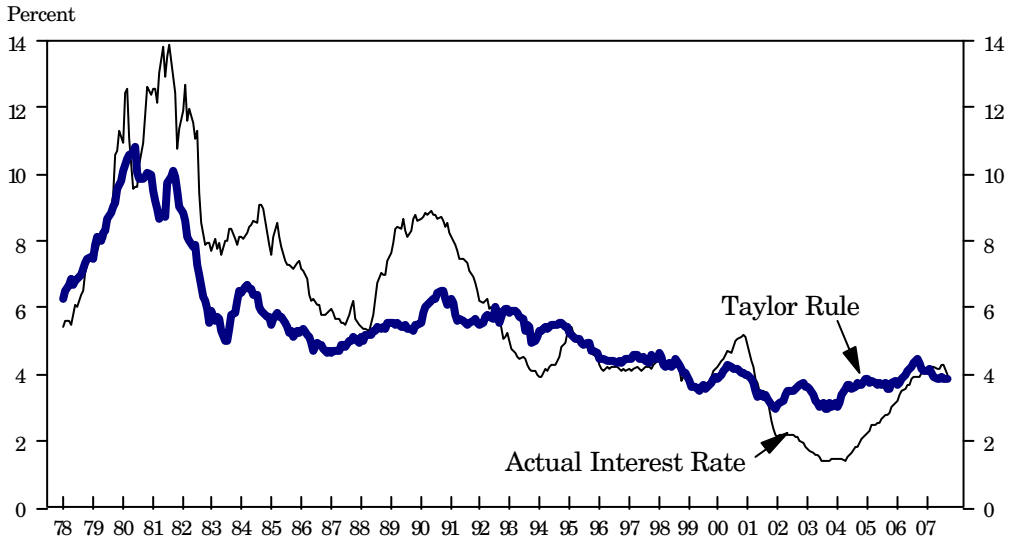
(3) against the suggestion that Central Banks have lost control of markets. Yet it may be true that they have lost traction.

As Figure 2 highlights, the path of short-term interest rates around the so-called *Taylor Rule* target path is becoming more wobbly: policy rates have to be jacked higher and slashed more aggressively to turn markets. However, we draw the important distinction between policy-makers' control over *liquidity* and their control over *credit*. They still influence credit, but given their comparatively small size (e.g. the US Fed is roughly one twenty-fifth the size of America's liquid credit markets and one sixtieth the size when bonds are included), they can neither determine the overall growth of credit with ease, nor set the level of interest rates, i.e. the *cost of credit*. These are largely under private sector control, which is after all what the current hiatus in short-term credit markets highlights, e.g. the spread between US$ 3-month LIBOR and 91-day Treasury Bills stands at 200bps against the 'normal' 40-50bps.

Instant Liquidity Gonna Save You

But Central Banks still retain control over liquidity. This sounds like a fussy distinction because surely liquidity includes credit? Liquidity measures the ability to alter the duration of our assets. In other words, to seamlessly shift out of investments with long pay-backs into cash instruments, without disturbing prices. Liquidity consists of *means of purchase* money, e.g. credit, but also includes *means of settlement* that can also be used as means of purchase, e.g. cash. In times of uncertain credit, means of settlement make up a larger part of liquidity because they are of higher quality, i.e. their value is more certain. The importance of Central Banks is that the credit, i.e. means of purchase, they issue is by

Figure 2. Losing Traction? G7 Interest Rates Versus Taylor Rule Target, 1978-2007



Source: CrossBorder Capital, Datastream

definition *legal tender*, that is official means of settlement, at least within their monetary jurisdictions. Thus, when credit markets are gummed up, say, because of fears that insufficient future means of settlement (i.e. profits and savings) will be produced by the private sector to cover the, perhaps, excessive volumes of means of purchase (i.e. credit) already issued, then Central Banks can come to the rescue by 'printing' more means of settlement to restore balance and so *complete the monetary circuit*. **They are the only institution that can instantly create new means of settlement.** In times of crisis, the cash (i.e Central Bank credit) component of liquidity consequently jumps. **Central Banks are monopoly suppliers of currency, but only one among several providers of credit.**

Given these monopoly powers, it follows that under 'normal' circumstances Central Banks can control the value of their currencies, i.e. exchange rates. However, they become compromised during financial crises because the need to print means of settlement forces them to yield control of their exchange rates. Not surprisingly, financial crises nearly always feature concurrent mini-currency crises. Today is no exception, as the recent plight of the US dollar attests.

But just how 'reactive' should Central Bankers be? Looking at the past couple of decades, markets have a habit of frequently crying out 'wolf'. Fears over credit crunch may be realistic? On the other hand, nasty tales make good headlines and sell newspapers. We are cynical. Not only have investors heard more about 'credit crunch' from journalists than from bankers themselves, but if the consensus of financial market economists is right in correctly ascribing 40% odds to a US recession in 2008, this would be the first time ever they had correctly predicted such a sharp downturn! **In our view, investors are misreading the cycle.** Central Banks caused this mid-year illiquidity by over-tightening in 2005-06. The credit system has consequently taken a body-blow, but it is far from being floored. **In short, this is a typical cyclical dip and not a secular break.** So, let's consider the facts:

Credit data can be split into three types:

(1) interest rate spreads
(2) survey of loan officers' intentions
(3) new credit extended to borrowers.

At the end of the day, it is the third category that is the most important, i.e. the proof of the credit is in the lending! However, the former two have lately been in the limelight, probably because they are easy to measure, and so they deserve closer examination.

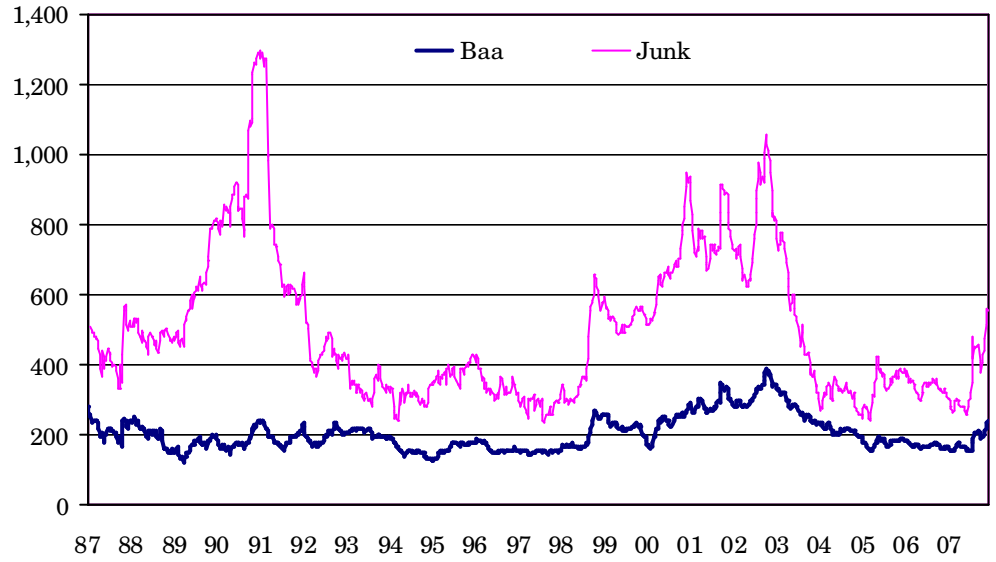
Figures 3 and 4 show two sets of interest rate spreads. The first measures the gap between longer-term yields on two quality-types of corporate bonds (Baa and Junk) and US Treasuries; the second shows the difference between 3-month Eurodollar (LIBOR) and rates offered on 'risk free' 3-month US Treasury Bills (the 'TED spread'). The latter is a crude measure of the short-term cost of funds for banks, and the former is an equivalent measure of the premium industry has to pay for long-term funding.

Junk yields stood at 9.46% in early December. This was a tad below their late-July 2007 highs. Spreads against 10-year Treasuries moved out to 549bps. Baa (lowest quality investment grade) yields hit 6.53% at the same time, or a tad below earlier 2007 highs, although spreads against Treasuries hit a 256bps high for the year. These data are unhelpful rather than disastrous. In past crises, Junk spreads have blown-out through 1,000bps and Baa spreads have typically tested 350bps over. To put this into context, we estimate that these spreads imply that the future default rate on US corporate bonds (Moody's series) will rise to around 2.5% from a current level of 0.45%. In June 1991, the default rate hit

4.89% (speculative grade 12.05%); and in January 2002, it reached 5.07% (speculative grade 11.18%). In other words, this financing backdrop for industry is consistent with an economic slowdown but NOT a recession.

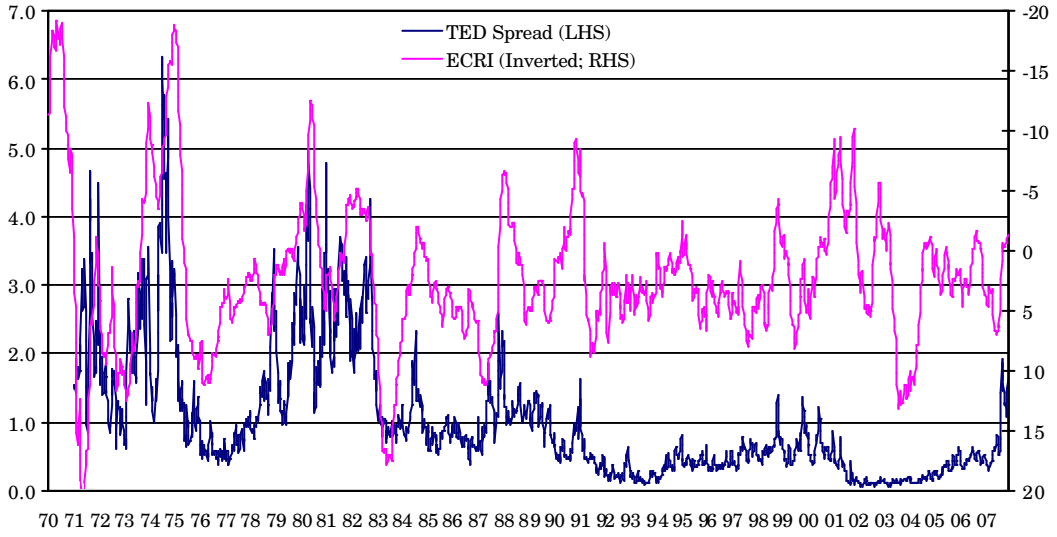
The yawning gap between US$ LIBOR and 91-day US Treasury yields is a comparatively new phenomenon. Both rates have seemingly de-coupled from Fed Funds, which has somehow managed to steer a downward path between. At first sight, this shows that Central Banks have limited control over interest rates – a point we have long suggested – and it belies the existence of a single 'money market' as frequently described by the Media. The spread roughly measures the premium being paid by banks for funds. It shows that liquidity is 'tight' between credit institutions as more-and-more sit on precious funds to safeguard against future contingencies in an environment where few want to be spotted at the discount window asking Central Banks for help. Corporations operating in the real economy enjoy above-average levels of cash, and if America's surging net export figures continue they will enjoy still more. In short, our travails remain largely financial and not yet industrial.

Figure 3. Baa And Junk Spreads Versus US Treasuries, 1987-2007 (Weekly)



Source: *CrossBorder Capital, US Federal Reserve*

Figure 4. TED Spread And ECRI US Leading Economic Growth Indicator, 1970-2007 (Weekly)



Source: *CrossBorder Capital, Economic Cycle Research Institute,US Federal Reserve*

Computer Says 'No' Err … 'Yes'

The second set of data consists of lending surveys. Although most of us probably believe that complex and impersonal computers now decide all loans, the US Fed, ECB and BoJ still regularly collect information from 'senior loan officers' about the demand and conditions attached to the supply of funds.

Latest survey data show a general deterioration, i.e. tightening, in lending standards, but alongside there are fewer signs that credit demand is faltering. We focus on commercial and industrial lending, rather than consumer and home lending, because the former is anyway more important for the general economy and the latter is more likely distorted by the emotion associated with the July/August market hiatus. These lending conditions tightened across all three regions, according to the latest (October) surveys. The net balance of US loan officers admitting to tighter standards jumped from 7.5% to 19.2%; Japan's balance edged from -5% to -2%, but the biggest rise came in Eurozone which soared from -5% to 31%. Overall, our (calendar-adjusted) Global Index moved from 14.3% to 20.2%. In the previous two cycles, this index peaked at 56.9% (1990) and 44.1% (2001). See Figure 5.

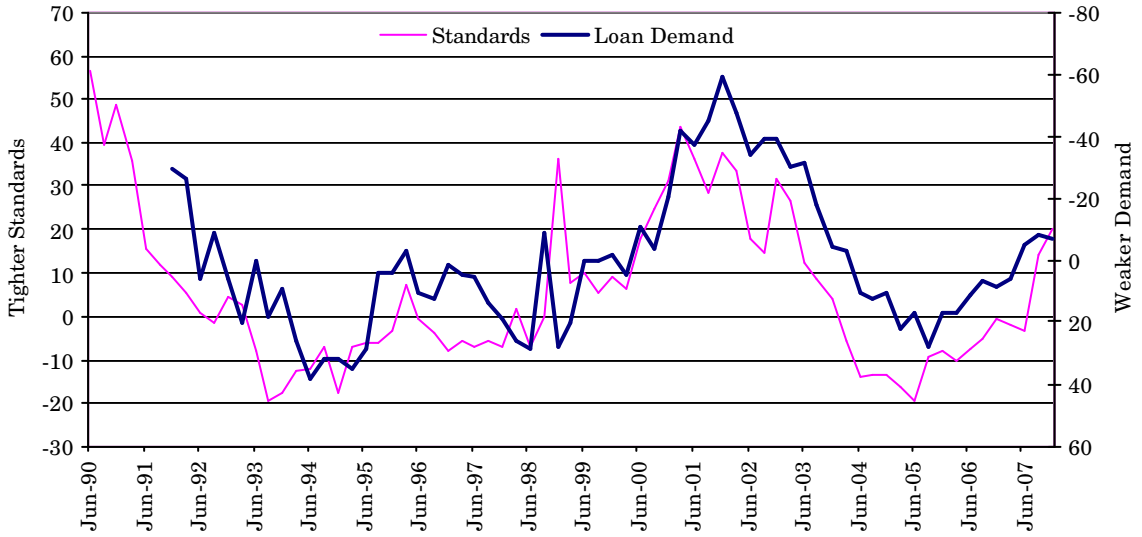
Our overall index of loan demand moved from -7.9% to -6.9%. A high negative figure shows weak demand. In America, the index fell from -19.2% to -17.3%, whereas in Eurozone it moved from 18% to 5%. The index previously bottomed at -29.7% (1991) and -59.8% (2001).

Rising New Loan Data

We argued at the start of 2007 that Global Liquidity conditions were tight not loose, as was then popularly acclaimed. That is what our data reveal; and, moreover, it is supported by the behaviour of international fixed income markets (viz. widespread flat and sometimes inverted yield curves) and by the on-going collapse of the US (and now other) housing markets.

However, we strongly feel that the worst of the credit cycle may be behind us. Solvency problems are usually highlighted (almost by definition) around the lower inflexion point

Figure 5. Global Loan Officers' Lending Survey – US Fed, ECB, BoJ (Weighted Average), 1990-2007



Source: *CrossBorder Capital, Bank of Japan, ECB, US Federal Reserve*

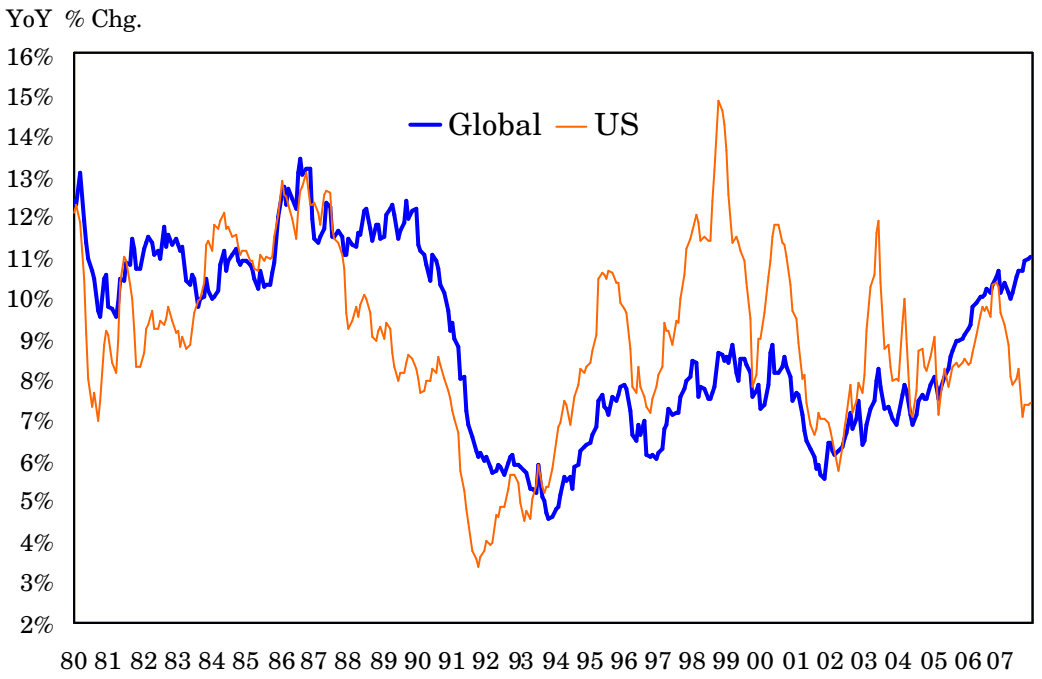
of the cycle. Moreover, the credit cycle leads and does not follow the cycle of wider business activity. Looking ahead, we expect to see credit expanding (certainly taken relative to the needs of the real economy), and therefore we are encouraged to see overall robust credit data since the July/August 2007 panic.

Thus, despite the media hype, the world's credit mechanism is still pumping out loans and not yet spitting out bolts. For example, Total US Credit (broad definition[1]) looks on course to grow by US$114.1 billion in December, following a US$146.9 billion jump in November 2007 and US$204.4 billion rise in October. Admittedly, August suffered an absolute drop of US$51.7 billion. Yet, it is ahead by 9.5% annualised over three months and up 7.3% on a year ago. Over the past 12 months, US credit has increased by an average of US$121.8 billion each month. **Surprisingly, this represents only 15% of the growth of World credit over the period.**

Global credit growth is being largely driven by the emerging economies. Latest data show a 37.9% annualised rise in emerging market loans in the three months to end-November 2007 and an 11.9% annualised gain in global credit, measured in local currency terms. Emerging market credit comprises 19.0% of the World total, compared to 32.6% for the US.

The mix of credit gains also looks well-balanced. Banks, which comprise around 45% of overall credit supply, grew their balance sheets by 17.4% annualised over the three months to end-November 2007, or by US$361.7 billion. Even the infamous securitisation, largely held off-balance sheet, managed a US$9.7 billion rise over the period. Non asset-backed commercial paper issuance jumped US$70.1 billion and the GSEs, e.g. Fannie Mae and Freddie Mac, stepped up lending by US$186.3 billion. Moreover, as Figure 7 highlights, Fannie Mae and Freddie Mac have been actively 'used' by the US authorities to lend anti-cyclically, and so support overall credit growth since the mid-1990s.

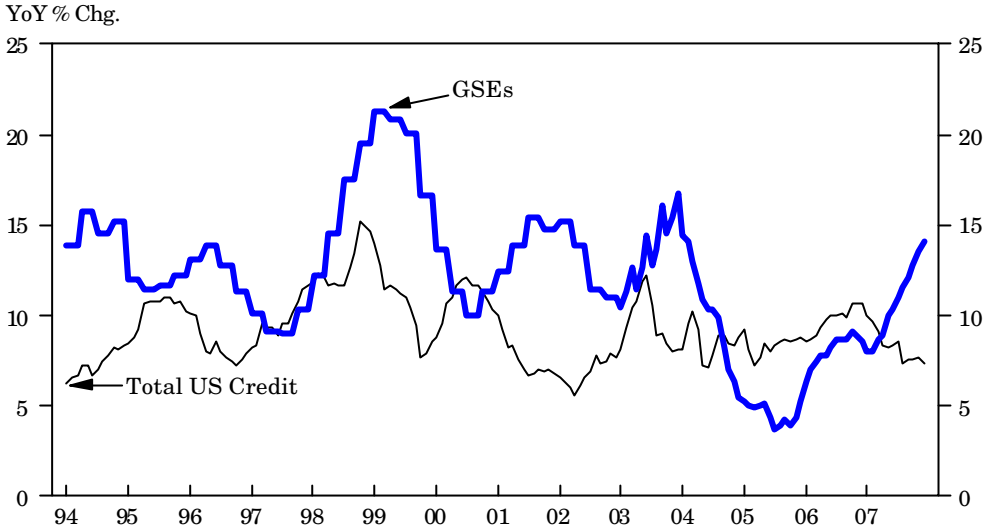
Figure 6. Global And US Credit Growth, 1980-2007



Source: *CrossBorder Capital, Bank of Japan, ECB, US Federal Reserve, IMF*

[1] Our broad measure of US credit totals around US$21 trillion, compared to some US$7 trillion for US M2 money supply. We include lending by the GSEs (e.g. Fannie Mae and Freddie Mac) and by finance houses (e.g. car loans and credit card loans), as well as on-balance and off-balance sheet securitisation by banks.

Figure 7. GSE And Overall Lending Growth, 1994-2007



Source: *CrossBorder Capital, US Federal Reserve*

Figure 8. Breakdown Of US (US Dollars) And International Lending (Local Currency Basis), 2006-2007 (3-Month Annualised % Change)

	US Total	*MoM Change (US$bn)*	US Banks	Securitisation	GSEs	Credit Cards, Auto Loans, etc	Commercial Paper
D06	10.5	*159.8*	14.4	2.6	8.4	0.4	21.5
J07	8.5	*107.3*	9.2	3.7	8.7	0.7	21.4
F	9.5	*170.1*	10.3	8.1	9.8	1.5	15.5
M	7.1	*55.2*	5.4	5.0	11.8	2.9	11.0
A	6.1	*65.0*	5.6	-4.9	12.0	4.1	13.2
M	6.4	*187.1*	4.7	-9.4	14.4	2.4	24.0
J	7.4	*100.4*	8.2	-10.3	13.7	-1.3	24.7
J	10.0	*185.5*	8.4	-2.2	14.3	2.8	31.7
A	4.8	*-51.7*	11.9	0.4	13.2	5.8	-30.6
S	5.4	*132.2*	15.7	4.7	14.6	6.6	-42.4
O	5.8	*204.4*	18.1	2.2	16.0	2.9	-43.2
N	10.0	*146.9*	17.4	1.5	16.8	1.8	-16.2
D(E)	9.5	*114.1*	12.3	3.4	16.0	6.7	-5.9

	US*	UK	Eurozone	Japan	Emerging Markets	China	World
D06	10.2	11.4	8.2	6.8	34.0	22.6	12.0
J07	8.3	14.7	9.8	6.3	28.1	25.6	11.8
F	9.1	14.2	7.9	0.5	28.6	37.1	11.6
M	6.8	15.2	10.2	-3.7	22.2	21.8	9.8
A	5.9	11.4	11.2	-1.1	31.0	22.9	10.3
M	6.3	14.9	12.8	-0.8	27.6	9.5	9.8
J	7.2	13.8	12.1	-1.4	30.7	25.0	10.9
J	9.6	15.6	10.2	-1.1	29.2	22.8	11.3
A	4.8	14.2	8.5	2.3	27.7	28.0	10.6
S	5.4	19.4	8.3	1.7	34.3	19.5	10.9
O	5.8	17.1	8.1	-1.1	34.9	16.1	10.4
N	10.0	15.0	10.1	1.3	37.9	15.1	11.9
D(E)	9.5	NA	NA	NA	NA	NA	NA

* Includes US Federal Reserve. E Estimate. NA Not available.

Source: *CrossBorder Capital, Bank of Japan, ECB, US Federal Reserve, IMF*

Of course we can dig up bad news. Figure 9 shows the 21st Century version of the historic bank run, where investors shun asset-backed commercial paper, which in turn forces banks to hoard precious funds in order to cover securitised assets that are brought back onto balance sheets. Asset-backed commercial paper cratered by US$140.8 billion, or 48.1% annualised over the same three months. However, the overall lending total has still risen each month since August 2007. **No evidence, so far, of any 'crunch'?**

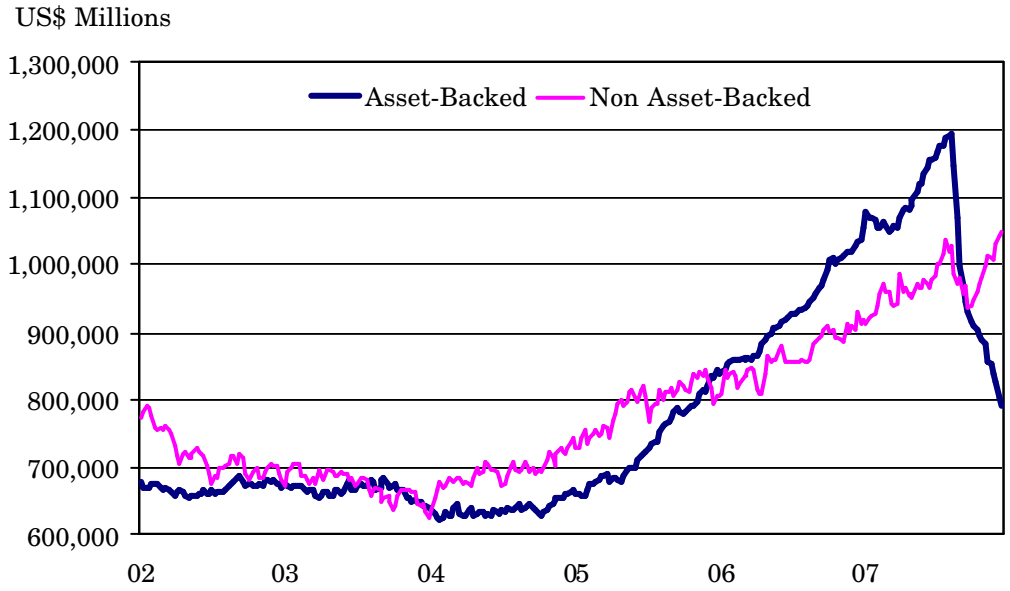
Estimates from the US Fed scale bad sub-prime loans at around US$150 billion, or as much as 12% of the end-2006 stock of sub-prime debt. The more conservative estimate from the Bank of England is US$200 billion (i.e. 16% default), but some pundits raise this to nearer US$300 billion (i.e. 25% default)[2]. **Set against total worldwide credit of US$65 trillion, the prospective losses (0.4%) still look small.** Moreover, losses are tax deductible and will be spread over more than one year. Also US banks, which are currently in the eye of the storm, may only hold one-third of the sub-prime debt, suggesting potential losses to them of US$100 billion. This compares to the US$1.4 trillion that US banks hold in equity capital; the US$81 billion they have squirreled away in loan loss reserves, and the US$30 billion they typically allow annually for 'write offs'. No big deal?

Preparing The Next Mistake?

Investors are often counselled never to 'bet on the end of the World'. In other words, like euphoria on the upside, pessimism is often overdone. So it probably is for the credit markets in 2007-08. The implied level of defaults; the forecast by one prominent American investment bank that US credit may dive by US$2 trillion (i.e. 10%), and the clamour among financial market economists to predict an American recession in 2008, all look too extreme.

Yet Central Banks are apparently listening to these cries for help. They are actively easing again and will likely ease far more. Privately, the US Fed has acknowledged that their major concern is the housing market and their fear that a further down-leg in prices and sales could hasten foreclosures, and thus spike-up mortgage default rates. Banking worries

Figure 9. Asset-Backed And Non Asset-Backed Commercial Paper Outstanding, 2002-2007 (Weekly, US Dollar Millions)



Source: *CrossBorder Capital, US Federal Reserve*

[2] The 1980s US S&L Crisis cost the American taxpayer alone US$153 billion, or US$245 billion in current (2007) dollars.

will not go away until the American housing market shows signs of bottoming. This we argue is within the Fed's gift. Inflation is not yet a serious problem and is unlikely to blindside them for sometime. Judged by the Taylor Rule target shown in Figure 2, US interest rates have scope on 'fundamentals' to fall by another 25-50bps, but on top history shows that they often skid by a further 150bps below this fundamental path. Thus, circa-3% Fed Funds are possible. Serious US easing has yet to begin. See Figure 10.

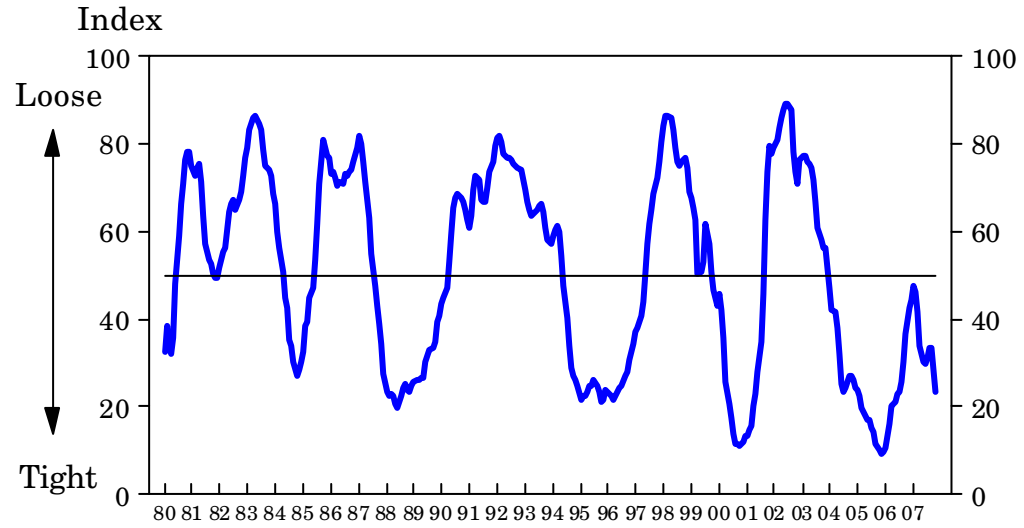
Cynically put, the weaker the US housing market, the weaker the US dollar, the stronger the gold price and the better the prospects for Asian markets. In short, Central Banks face a roller-coaster ride as they inflate serial bubbles from equity markets to housing markets to commodity markets.

Many forget that America no longer goes it alone: this decade above all others has revealed a new list of large, fast-growing economies, headed by China but also including India, Brazil, Russia and the Gulf states. These countries are the ones enjoying fast, uninterrupted credit growth; and that is seemingly undented by US sub-prime worries. These are the economies with rising, wealthy middle-classes eager to copy Western consumer patterns. These economies are the future. China, the largest and strongest of this group, is struggling to rein-back its already heady rate of economic growth: the Chinese economy may also prove surprisingly strong in 2008.

On top, fuelled by a super-competitive US dollar, the conditions are in place for a US turnaround. Already our liquidity data show that the US private sector has upped its pace of cash generation. See Figure 11. Taken by itself, this probably guarantees a short-term economic slowdown as spending falls, but looking ahead it will help to shrink the still whopping trade deficit and ultimately re-ignite US profitability. Yet investors remain ever-sceptical judging from their current historically low exposure to American equities.

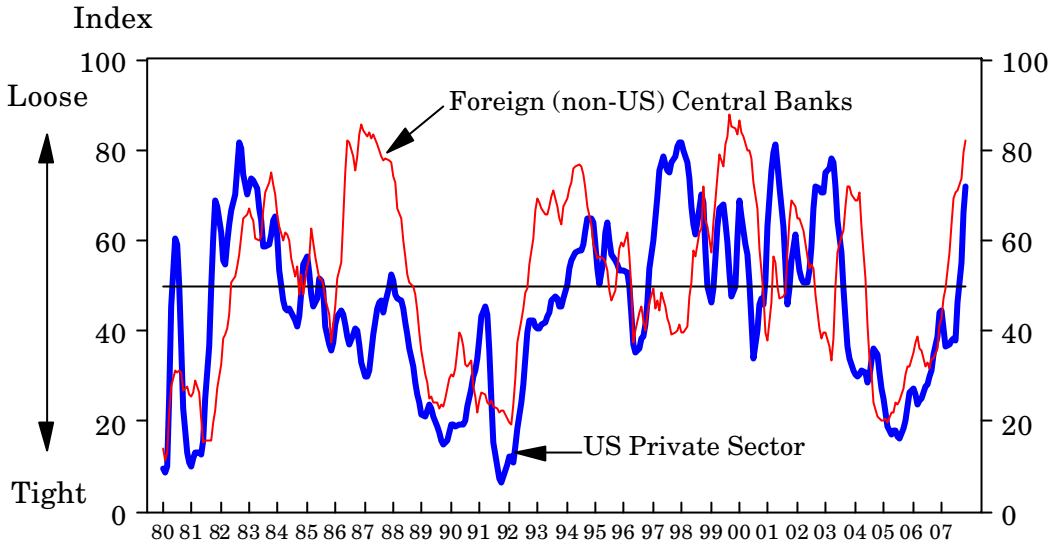
In short, the Cycle is back. **The private sector may be blamed for the run-away trends in credit, but Central Banks are responsible for the Cycle.** They wrongly believe they can set interest rates and use the flawed Taylor Rule to steer policy. Consequently, they tighten and ease at the wrong points, causing more violent swings in financial markets. They are easing again now to extinguish a liquidity crisis they originally created, but in the act they will inflate yet another new bubble. **Although the inter-bank market has virtually dried up, the underlying global credit situation is not as bad as financial markets claim.**

Figure 10. The Old World – US Federal Reserve Liquidity, 1980-2007



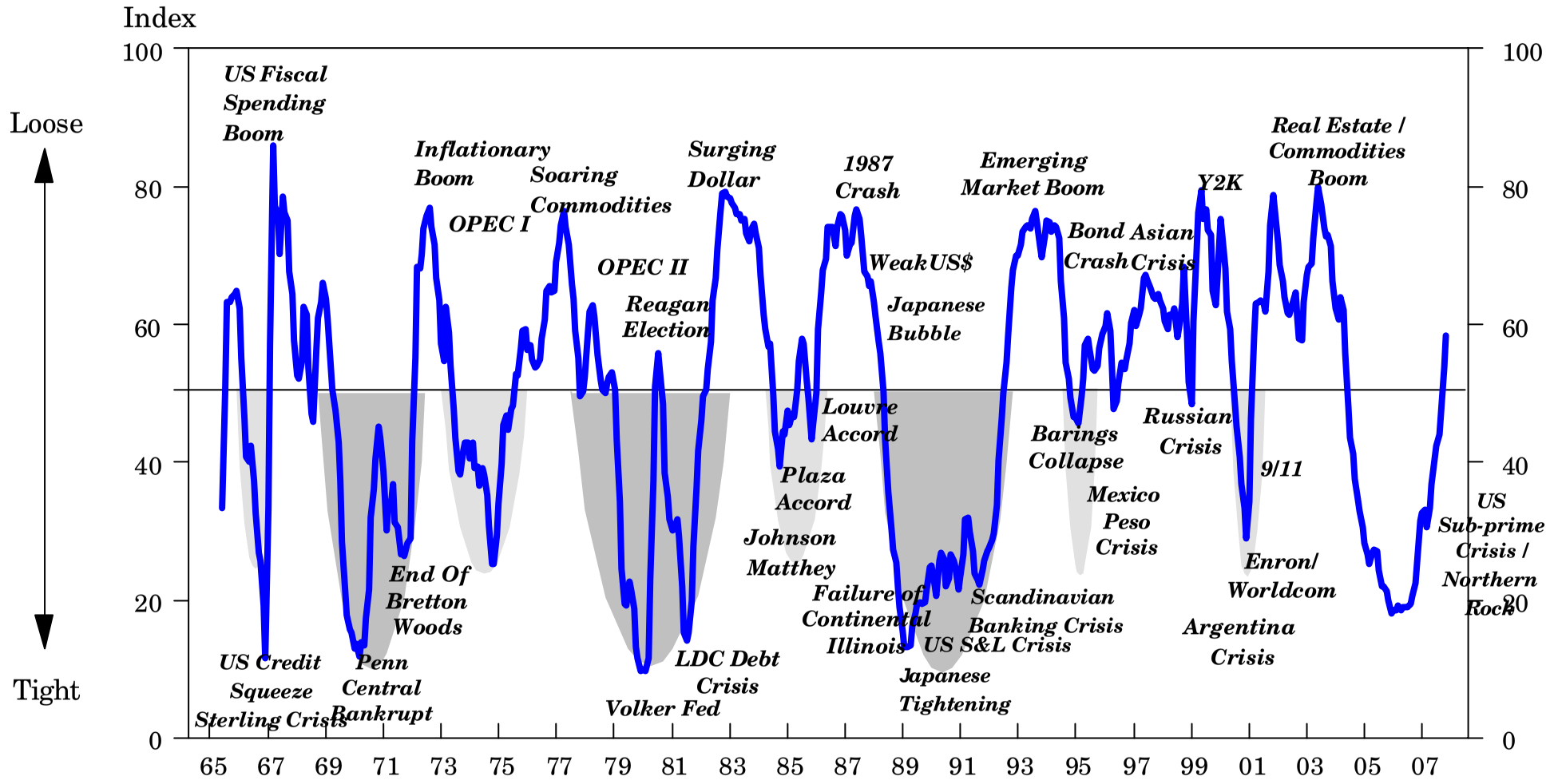
Source: *CrossBorder Capital, US Federal Reserve*

Figure 11. The New World – US Private Sector And Foreign Central Bank Liquidity, 1980-2007



Source: *CrossBorder Capital, Bank of Japan, ECB, US Federal Reserve, IMF*

Appendix A. The Global Liquidity Cycle, 1965-2007



Source: *CrossBorder Capital*

CROSSBORDER CAPITAL®

Global View
March 2008

New York Slides, Washington Wakes, Chicago Dreams

The past nine months confirm that interest rates don't matter: liquidity and re-financing matter a lot. The re-financing of private sector lending institutions largely occurs through the repo markets, which in turn dance to the Central Bankers' tune. Policy-makers' mismanagement of repo market liquidity triggered this re-financing crisis. It is in their gift to dig us out. Could Friday March 7th finally mark the start?

Repo Man Versus The Reaper

March 7th 2008 may prove an auspicious date in the annals of monetary policy. Last Friday, with New York's stock and credit markets lurching closer to the abyss, the Fed publicly signalled their frustration with the failure of the traditional interest rate lever to reverse the slide, and turned to the chequebook. Another U$40 billion per month in TAF (Treasury Auction Facility) was gifted to markets (making a new monthly run-rate of US$100 billion), as well as the announced likely more-than-doubling in temporary open market operations from prevailing levels of circa US$40-50 billion to a target of around another US$100 billion. (Note: the US Treasury probably adds the same again through its stepped-up TIO auctions, although these funds are not strictly new money).

On Tuesday March 11th, the Federal Reserve further clarified its intentions by offering to lend an additional US$200 billion for 28 days against wider collateral. This may not yet be the much conjectured 'bailout' of banks *per se*, but it effectively 'bails out' the more important repo market. Underscoring this move, global policy-makers held their hands together (collectively, as well as together in hope and prayer) and chanted the same monetary runes. Thus, other key Central Banks, among them the ECB, BoJ, Swiss National Bank and Bank of England, also injected funds and increased swap facilities. You have just witnessed the Central Banking equivalent of the 'New Deal'.

At last, policy-makers seem to have recognised that the problem is about the supply of liquidity, not its price or (as they have also argued) its distribution. Hopefully, these actions will be both sustained and not sterilised by actions elsewhere in the system. In short, if they are to work they must represent a long-term net boost to market liquidity. Fingers-crossed!

Our commentary last month argued that the wider US and Global real economies are not yet suffering a credit crunch, despite Press claims. Thus, broad US credit growth jumped by an annualised 7.7% in the three months to end-February, while credit growth across the now infamous shadow banks rebounded by 8.5%. In contrast, Fed credit skidded to a barely positive 0.1% annualised growth rate over the same period. Global credit growth touched 11.6%, spurred by 24.1% growth in emerging market lending. Figure 1 shows the annual growth of broad US credit alongside the growth of the Fed's balance sheet. A credit crunch does exist between the Central Banks and the banks and shadow banking system, but not between these latter credit institutions and the real economy. The January 2008 twin ISM surveys found that only an average 11% of US businesses claimed to have been adversely affected by the post-August credit turmoil. So far it remains just a re-financing or liquidity problem.

Marcol House
289-293 Regent Street
London W1B 2HJ

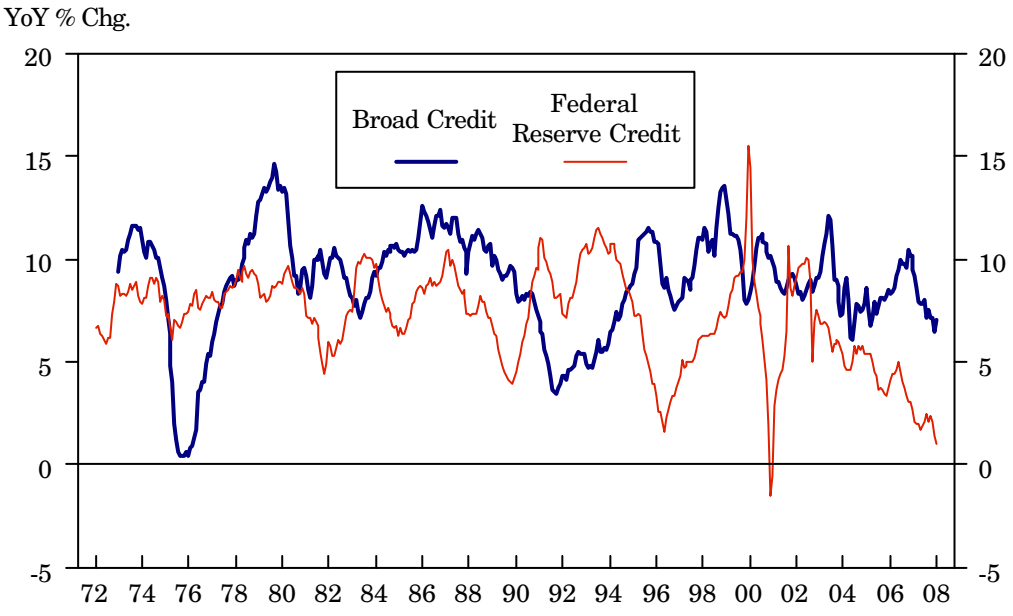
www.liquidity.com
Tel: (020) 7535-0400
Email: www@liquidity.com

Yet we fail to understand why, when the market's problem is so obviously an inability to source new liquidity, policymakers try to further worsen the imbalance by cutting interest rates? Lower interest rates heighten the supply deficiency by further increasing the demand for funds, and so widening the supply-demand gap. This crisis has been all about the net lack of liquidity supply, not any lack of demand!

Lying at the heart of today's problem is a change in the way that our major credit institutions are funded. For example, a large proportion of banks' funding now comes from the short-term markets, e.g. commercial paper and repos, rather than from traditional deposits. The (net) size of America's repo market has grown by a whopping more than ten-fold since 1985, compared to the still impressive five-fold rise in the size of the commercial paper market. Bank funding now involves a greater 'financial stretch', and hence a bigger risk, because not only has the average lending period lengthened but the term over which funds are secured has dropped radically, probably from months (possibly years) to just days. To make matters worse, the quality of the loans on which the banks get collateral to secure their borrowings now varies minute-by-minute because credits are priced in the market. Paradoxically, today's worry is not just deteriorating loan quality, e.g. rising defaults in the sub-prime mortgage market. Rather it is a self-feeding illiquidity caused by an initial inability to fund, which creates a forced seller of credits, e.g. MBSs. This, in turn, pushes down security prices, undermines general loan collateral and so amplifies the problem.

Both risks – illiquidity and default – may well be captured by interest rate spreads, but they are unlikely to be reflected in the primary or base interest rates on liquid, high-quality credit instruments, such as Fed Funds. Thus, over the past nine months many Central Banks have fallen into the trap of trying to lend against already liquid instruments! But this gap between liquidity and illiquidity matters. For years we have tried to scotch the idea that interest rates are the best or only guide to monetary conditions. For example, why are the policy actions of the US Treasury always measured in dollars, whereas the sister actions of the Federal Reserve are only gauged from its interest rate target? Looking back, the experience of the 2007/08 Credit Crisis has probably educated policy-makers better than any theory ever could, although at great cost. Starting last August in the US, financial markets suffered a serious liquidity crisis

Figure 1. Broad US Credit And Federal Reserve Credit, 1972-2008 (Annual Percentage Change



Source: CrossBorder Capital, US Federal Reserve

centering on the inability of the lending institutions to get re-financed. In recent years, re-financing has increasingly been undertaken in the short-term repo markets, or at the very point where the Central Banks meet the private sector. Since Central Banks provide critical liquidity to lubricate the repo markets, the pre-crisis plunge in repo activity can be traced back to poor liquidity management by policy-makers. In short, they got us into this mess, and they should now get us out.

The repo market, the commercial paper market, and the Fed Funds and inter-bank markets are what generically comprise the 'money market'. (We might quibble that in a monetary economy every market is a market for money). In the US, the repo market supplies around US$2.5 trillion and the commercial paper market a further US$2 trillion. Money market funds are the main buyers of both instruments. Primary dealers in US Treasury and other fixed income securities lie at the centre of the repo market. Their net positions, according to the New York Fed, stand at around US$1.5 trillion, comprising nearly US$4.5 trillion of repos with some US$3 trillion of reverses netted off. Banks provide around US$350 billion of repo loans and the US Federal Reserve supplies a further US$40-50 billion.

Fluctuations in the combined activity of the repo market, the commercial paper market and the Fed Funds market can be taken as a reasonable guide to movements in the US financial system's net liquidity. The commercial paper market, and especially the asset-backed CP market, often stands as a substitute for the repo market, and vice versa. Repos, or sale and repurchase agreements, are effectively very short-term loans, usually for spans of one to around 14 days, collateralised against securities, mostly US Treasuries and Agencies but sometimes also mortgage-backed securities (MBSs). The very short span of repo loans obviously demands frequent, on-going re-financing. The 'credibility' of this credit is maintained by a *Law of Re-Finance* that parallels the Classical *Law of Re-Flux* under the Gold Standard. Signs of a breakdown in re-finance may be highlighted by rising interest rate volatility. Re-financing risk is defined by the gap between desired duration and actual duration.

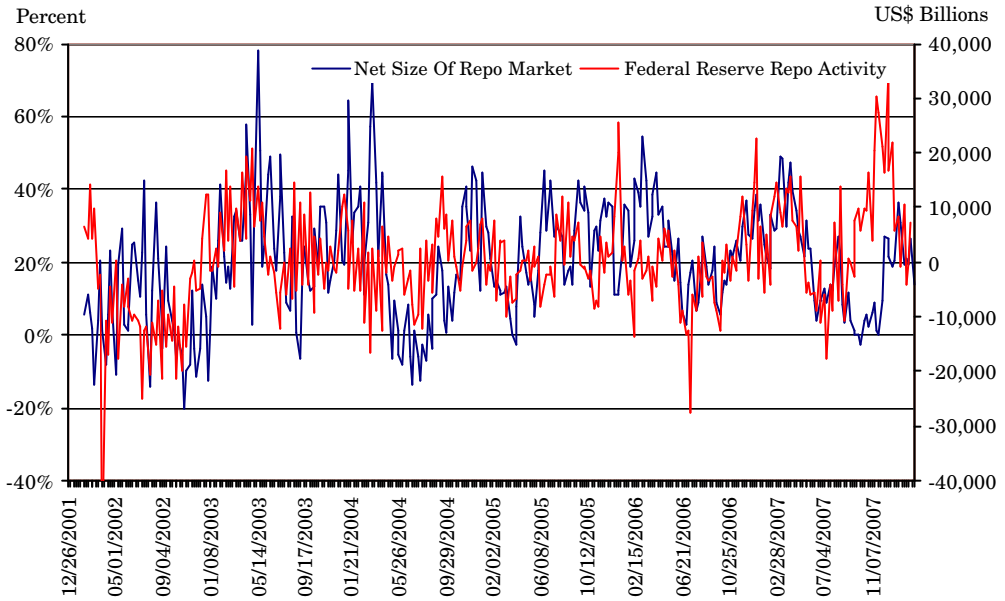
More-and-more financial institutions are exposed to a widening duration gap, i.e. increasingly they have to borrow very short and lend very long, requiring a steep yield curve. Alongside the phenomenal growth of the repo market, the attractions of securitization have pushed banks into providing more-and-more longer-term lending, often via mortgages that end up in off-balance sheet vehicles, such as SIVs. This may be a symptom of mature Capitalist production together with ageing populations. Tensions arise between the duration and liquidity of assets because the fading of productivity demands that more capital be tied up in longer duration projects, while an older population facing more immediate liabilities will demand shorter-term cash flows. Over time, economic and financial stability may itself become destabilising since duration lengthens as more risky financing regimes are established, thereby raising the odds of a shortfall between liability duration and asset duration. This shortfall requires liquidity.

The Federal Reserve, through its relationship with the Primary Dealers in Treasury securities, tends to control liquidity in both the repo market and the Fed Funds market. The Fed is not the largest participant (e.g. 1/30th of the total), but it plays a critical role at the margin in lubricating the market and facilitating re-financing as Figure 2 suggests. This chart shows changes over a rolling six-month period in the net size of the repo market and Federal Reserve repo activity. The close correlation between the overall market and Fed activity suggests a casual role exists from the monetary authority to the 'money market'. Consequently, Federal Reserve repo operations are the key to understanding both financial market liquidity and the smoothness of the economy's wider re-financing process.

Figure 3 shows a 14-day rolling total of outstanding repos undertaken by the US Federal Reserve. As a guide, if this total is divided by about 2½ it equals the circa US$40-50 billion of temporary open market operations reported by the Fed in its bi-weekly balance sheet statement. Our series is higher because for computational ease we use a fixed 14-day rolling total, rather than trawl through each repo announcement, which can vary in term between 1 and 14 days. (Thus, the average term today must be around 5.6 days, i.e. 14/5.6 = 2½).

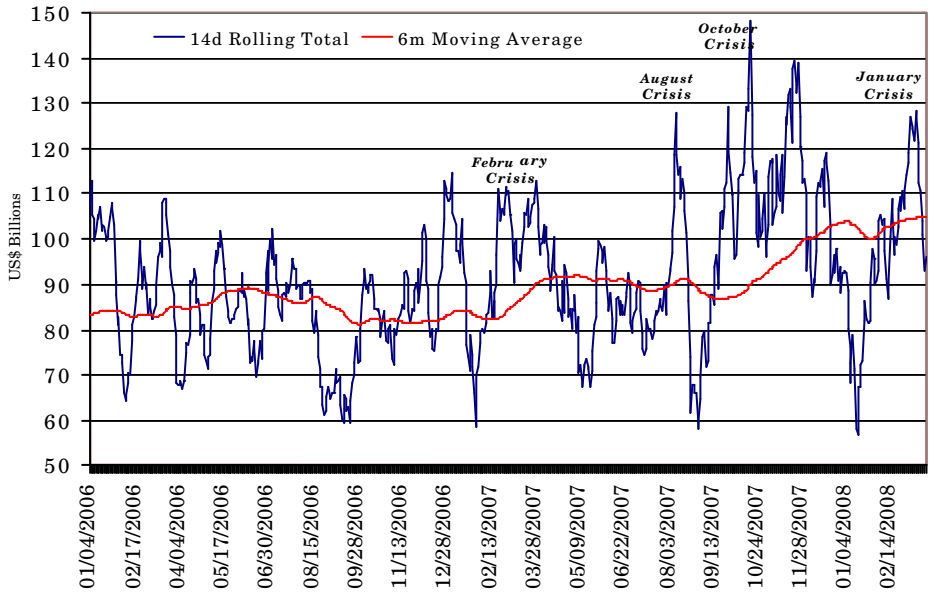
The plain fact is that heading into last August's crisis (and also ahead of the mini-crisis the previous February), Fed repo activity was sub-par. More worryingly, after each time the monetary authorities addressed the illiquidity problem by stepping up repo activity, they let liquidity quickly drain away again – actions we earlier dubbed as 'fire-fighting'.

Figure 2. Net Size Of US Repo Market (Annualised Six-Month Percent Change) And Federal Reserve Repo Activity (Change Over Six Months), 2001-2008 (Weekly)



Source: *CrossBorder Capital, US Federal Reserve*

Figure 3. Federal Reserve Temporary Open Market Operations (Repo Activity), 2006-2008 (Rolling 14-Day Totals; US Dollar Billions)



Source: *CrossBorder Capital, US Federal Reserve*

On top, their systemic commitment to supplying more liquidity must be questioned because at the same time that temporary repos increased, discount window lending jumped and the new TAF engaged, the Fed simultaneously cutback on its long-term holdings of 'Treasuries Held Outright'. A Fed-Watcher operating in the 1970s and 1980s would almost certainly have read this as a subtle tightening signal. Today, there is no subtlety about the net result, already spied in Figure 1, that up to now the Fed's balance sheet is barely growing – a bizarre response to a major credit crisis.

Markets Need Constant Lubrication

Modern Capitalism is a process of capital accumulation with a complex financial system at its centre. Industry and finance are increasingly inseparable. Future economic growth requires capital to be tied up in industrial projects of longer-and-longer duration, and the vast scale of these projects demands specialist finance. The raising of new capital and the re-distribution of existing capital occur in financial markets. The aggregate financial system is subject to two budget constraints: total assets have to match total liabilities to satisfy solvency, and overall surpluses must offset overall deficits to maintain liquidity.

Although liquidity can be thought of as measuring the *ex post* change in the size of aggregate balance sheets (i.e. a 'use' of funds), both by volume and price changes, we prefer to think of it as an *ex ante* source of funds. The process of balancing individual surpluses and deficits requires a flow of funds between sectors of the economy. This short-term re-financing process, or what we dub 'liquidity creation', is critical to business survival. Plainly, liquidity is different from, and potentially far larger, than conventional money supply. Money supply, as defined by bank deposits, is a subset of aggregate balance sheets. It excludes both non-bank deposits and all types of securities and physical assets.

We measure 'liquidity' by the flow of cash savings and new credit extended by the financial system. Our focus is on the creation of new spending power. Therefore, the issuance of long-term debt and equity securities is excluded since it represents the 'uses' rather than the 'sources' of new purchasing power. Liquidity finds its way into real investments and financial investments, as well as into cash deposits and money market funds. Since the two latter pockets can, in turn, become sources of new credit, the net change in liquidity strictly comprises the financing of real and financial investments.

Using some algebraic symbols, liquidity (L) can be described as:

L	=	$S + \triangle FC$	*Sources of Funds*
L	=	$\triangle (p_a . A) + \triangle FD$	*Aggregate Change in Balance Sheets …*
	=	$p_a . \triangle A + A . \triangle p_a + \triangle FD$	*…split by volume and price change*
	=	$I + I_f + \triangle FD$	*Uses of Funds*

where L is liquidity; S savings; FC financial sector credit; FD financial sector deposits; p_a asset prices; A assets; I real investment and If capital gains. $\triangle$ denotes the difference operator.

Thus, the US Fed's Flow of Funds data report a figure of US$47.9 trillion for *Total Credit Market Debt*. This can be better expressed as a net take-up of debt by the US Domestic Non-Financial Sector of US$25.1 trillion, of which a net US$19.9 trillion comes from the US financial system and the remaining US$5.2 trillion is provided by overseas investors. Our separate monthly estimate for US broad credit supply of US$21 trillion is very close to this comprehensive quarterly survey of the financial sector's supply of funds.

It is probably fair to assume that movements in the liabilities side of the real economy balance sheet roughly match the changes in the assets side of the financial sector balance sheet. Therefore, a key question is what allows the financial sector to expand its balance sheet? Work[1] by Tobias Adrian and Hyun Song Shin show that the ebb and flow of US financial institutions' balance sheets are themselves largely 'financed' at the margin through the repo markets. Hence the importance of the Fed.

Ultimately, every national financial system is underwritten by the State, and when policy-makers attempt bail-outs they simply issue more government paper. To head-off such crises, Central banks operate daily, and either influence the volume of available liquidity or its cost. Fifty years ago when banks invested heavily in short-term Treasury bills these financing constraints rarely bit.

But, increasingly over the years, as new credit instruments have evolved, Central Banks have struggled to maintain control of the re-financing process. Consequently, they have often followed a dangerous policy of 'brinkmanship' by withholding liquidity at critical times. In perfect capital markets, this might not seem to matter that much because finance is (in theory) available for all projects with a net present value, but in imperfect capital markets access to any finance is not guaranteed because normal intermediary channels may be disrupted and/or because doubts arise over balance sheet quality. In short, disproportional effects are possible, perhaps even likely. The collapse of LTCM in 1998 and the 2007 sub-prime problems are clear examples of re-financing problems. Inappropriate Central Bank actions will inevitably hobble the re-financing process, particularly during crises, forcing those entities that cannot roll-over their debts into bankruptcy but also raising risk premiums for all. In turn, higher risk premia and scarce funds further limit new investment, and this ultimately pinches the pace of economic growth. Given the importance of re-financing, the pursuit of an orthogonal "monetary policy" that requires "brinkmanship" must be considered madness.

Historic Cost Versus Suicidal Cost

On top, the legacy of the *Chicago Boys* (i.e. academics from the University of Chicago who influence policy-makers) still haunts investors in two important respects, both connected by the false notion of *perfect capital markets* that is embedded in Modern Finance: (1) value and price are synonymous, and (2) any project with a net positive present value is assured of finance. The latter notion has greatly influenced policy-makers. It suggests that liquidity is endogenous to the financial system, and this dangerous idea lies behind the ill-conceived *Taylor Rule* that sets an optimal path for policy interest rates.

We have argued over the years that liquidity is endogenous or, more correctly put, passive at certain times in the business cycle. However, there are key periods, usually dubbed crises, when it does not flow and these occasions are often associated with Central Bank meddling. For example, the chart below shows the so-called Taylor Rule 'gap' for the US alongside our measure of US financial liquidity.

[1] 'Liquidity, Monetary Policy, and Financial Cycles', Federal Reserve Bank of New York, *Current Issues* Jan/Feb 2008.

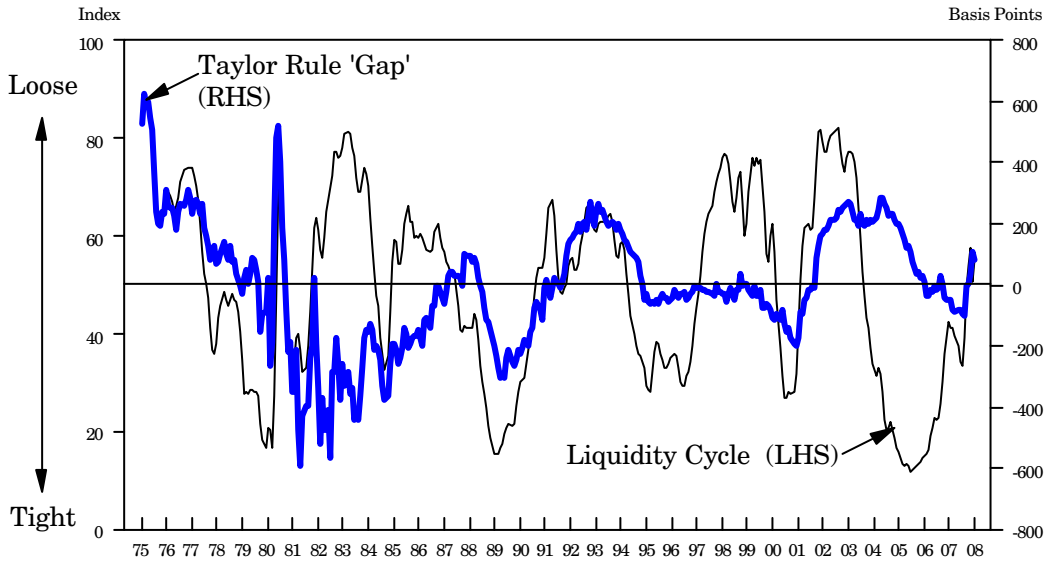
Figure 4 shows an increasing dislocation between actual liquidity conditions and where policy-makers believe liquidity conditions are, based on the difference between the Taylor Rule and the Fed Funds rate. In other words, a 'loose' policy would be signalled when Fed Funds fell below the Taylor Rule. However, in recent years this has rarely coincided with liquidity. The gap has been especially pronounced during the 2004-07 period, when market liquidity on our measures was tighter than US policy-makers recognised. We have argued before against the Taylor Rule, which we consider both naïve and inaccurate. Admittedly, today both measures are more aligned. However, three earlier years of excessively tight policy may already have wrought their damage.

The adoption of marking-to-market, or 'fair value', accounting instead of historic cost accounting is Chicago's second legacy. If there is genuinely no difference between price and value, the market will always provide the 'best' estimate of true value! Therefore, illiquidity (which of course they deny) in certain instruments that causes prices to temporarily slump can have a widespread effect on overall asset values, and hence collateral, under this regime. Although professional investors fully acknowledge that liquidity only truly exists in a few market areas, such as 'on-the-run' Treasuries and Wall Street's major blue chip stocks, this suicidal notion of marking-to-market is increasingly being adopted by credit institutions. In fact, it is perhaps the natural corollary of banks obtaining large parts of their funding from the capital markets.

The contrast between the 1990/91 Savings and Loan Crisis, and the current Sub-Prime Crisis largely rests on this accounting distinction. In the earlier crisis, banks did not (and probably could not) reveal the true value of their loan and security assets. Today, banks are both expected to and required to estimate a current market value. This may be a reasonable guide to the immediate liquidation value of the asset, but it offers few clues to the ultimate recovery value. Even if risk officers are obliged to look at the former, it is the latter figure that matters more to shareholders.

The second-round implications of this accounting change are catastrophic. Credit institutions rely increasingly on the capital markets to fund their balance sheets. For example, the asset-backed commercial paper market has featured prominently as a source of funding for MBSs. However, a plunge in the value of the underlying asset because of

Figure 4. US Implied Taylor Rule Gap And US Liquidity, 1975-2008



Source: *CrossBorder Capital*

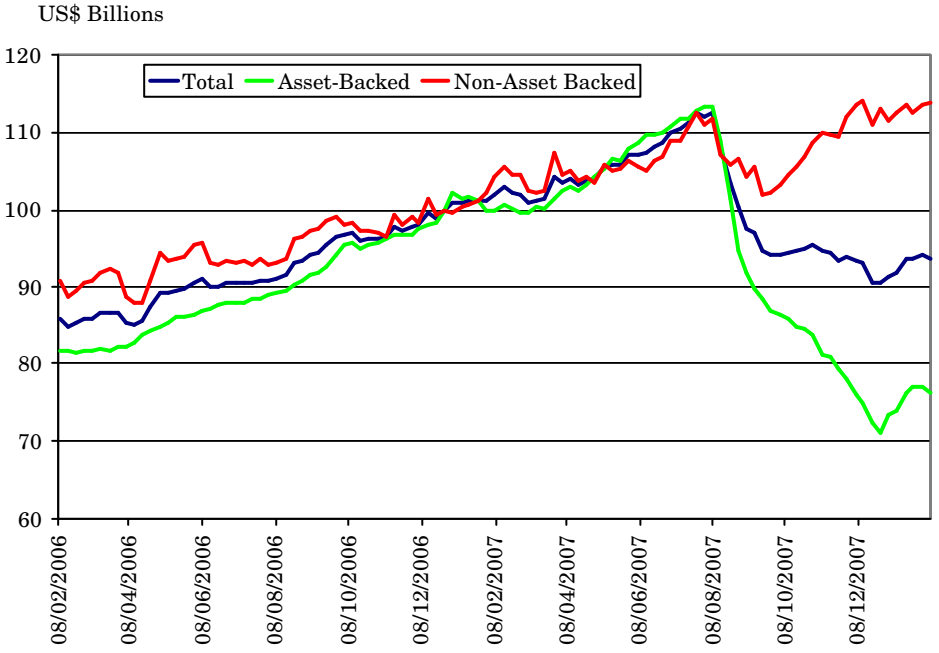
fears over sub-prime debt can seriously threaten re-financing. The short duration of this funding source means that collateral is tested and tested again during this on-going re-financing process. Avoiding a vicious debt/default circle may therefore be difficult. See Figure 5.

Conclusion: Think 'Liquidity' And Duration

The importance of liquidity must be quickly recognised by policy-makers. It will take longer for liquidity's importance to filter down to academics and displace, or at least correct, Modern Finance theory, but hopefully recent events will prove a catalyst. The Fed's March 7th announcement – followed up a few days later by similar, co-ordinated moves with other key Central Banks – not only takes emphasis away from the interest rate lever but also acknowledges that the problem has been a lack of liquidity. It is not just poor distribution of liquidity, as many Central Bankers have until recently been claiming.

The whopping scale of the liquidity injection may this time prove sufficient. We have noted in previous reports that the 'normal' liquidity response to financial crises ultimately results in a circa 15% jump in Central Bank credit. So, how will the latest infusion measure up? Figure 6 runs through the math. In new money terms, the US Fed's March 2008 announcements add up to an additional US$300 billion of 'new money', or perhaps as much as an additional US$½ trillion if we count the US Treasury's TIO programme too. This compares with existing 'fine-tuning' operations of US$18.6 billion prior to the crisis, and with the extra US$125 billion that had been committed by last December, albeit offset somewhat by lower 'permanent' holdings of Treasuries. It also compares to the prevailing and still realistic US$300 billion estimates of losses from the sub-prime debacle. Scaled by the size of the Fed's balance sheet, this injection represents a 50% boost. What's more, the lending term has jumped from a pre-crisis average of 3.8 days to an estimated 16.2 days following these new measures, and at an interest rate significantly below 3%[2].

Figure 5. US Asset-Backed Commercial Paper Market, 2002-2008 (US Dollar Millions, Weekly)



Source: *CrossBorder Capital, US Federal Reserve*

[2] Latest 2.84% for MBS collateral versus 2.99% Fed Funds!

The 2007/08 credit crisis highlights problems at the heart of Modern Finance theory and Central Bank practice. It reveals how far policy-makers have been hood-winked by certain academics. Paradoxically, the existence of the very institutions that comprise financial markets denies Modern Finance theory because in the real world markets are not 'perfect'. Modern Finance ignores liquidity, or strictly always assumes perfect liquidity, where duration automatically matches desired duration. Arbitrage possibilities are assumed to beget the required liquidity they need and, in turn, the resulting transactions create an efficient market where risk-adjusted values equal prices. Modern Finance consequently focuses on *time preference* not *liquidity preference*. In reality, liquidity comes first: it permits arbitrage, which in turn establishes market efficiency. Thus, hedge funds need to take liquidity from the market, they do not give liquidity as is the popular assertion. At the other extreme, Keynesians focus on liquidity preference and ignore time preference. Both facets are important, and both define duration. Duration bridges economics and finance by combining together *liquidity preference* and *time preference* into a concept we dub 'liquidity over time'.

Liquidity preference, by itself, cannot explain why the prices of long duration assets fall more than shorter duration assets. In other words, in a financial crisis, why not sell a five-year Government security to raise cash rather than a 10-year corporate bond? Equally, selling more long-duration assets rather than curtailing the supply of short-term liquidity can probably halt an asset bubble. Looked at another way, liquidity preference describes a process of *maturity transformation* not *liquidity transformation*: the latter is explained by duration. However, Central Bankers act as if the former is always the problem, i.e. they often ignore the possibility of credit deadlock …the story of 2007/08.

Figure 6. Measuring The Federal Reserve's Liquidity Support Operations, 2007-08 (US Dollar Billions)

	Gross (Mar 08)	Net (Mar 08)	Net (Dec 07)	Net (Jun 07)	Term (Days)
Repos	100	100	56.8	18.4	6.2
Discount Window	0.2	0.2	3.8	0.2	1
TAF	100	100	60	0	28
TSLF	200	200	0	0	28
US$ Swaps	36	36	24	0	N/A
TIO[3]	200	0	0	0	3.5
TOTAL	636.2	436.2	144.6	18.6	16.2
As % Fed Credit	73.4%	50.3%	16.6%	2.2%	
Offset by reduction in 'Treasuries Bought Outright'		*-77.0*	*-20.7*		

Source: *CrossBorder Capital, US Federal Reserve*

[3] Current 14-day outstanding US$102 billion, but recently reached US$225 billion (Feb 8th 2008).

CROSSBORDER CAPITAL®

Global View

July 2007

The Nikkei, NASDAQ & … Notting Hill!

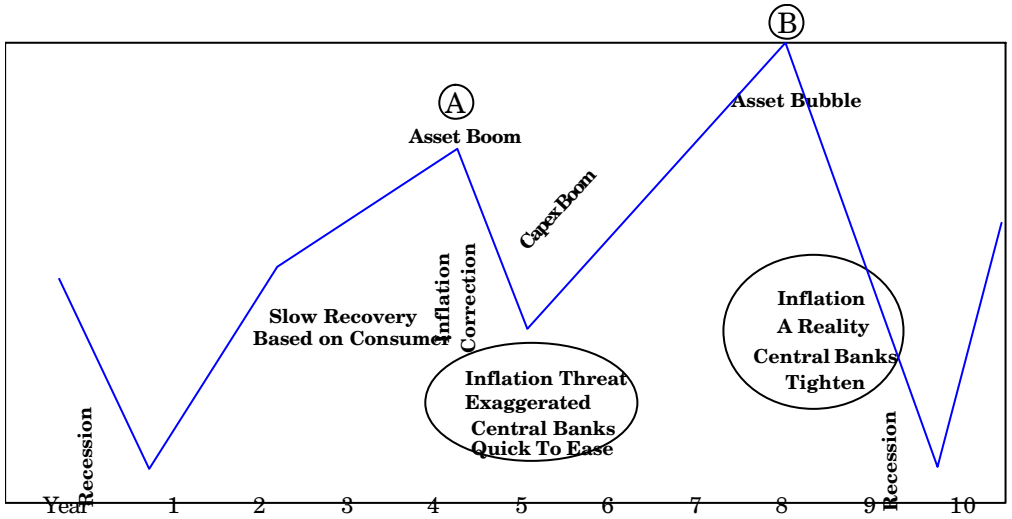
Face up. This is another bubble. Much like its 1980s and 1990s counterparts but with a different focus and different name. Real assets have replaced Japan and Technology shares as the mania's focus, but the driver of easy and abundant credit remains the same. Thus, markets are treading a similar decade-long path that will likely end in rising inflation, crashing asset prices and an economic recession of uncertain dimension. Yet some things are different. The scale of the current Asian and Chinese credit booms, denominated as they effectively are in US dollars, suggest another iteration. Gold looks to be a compelling haven, but other commodities may also come out the other side stronger not weaker.

Waiting To Pop?

Déjà vu? World markets are treading a 10-year path that looks remarkably similar to those who remember the 1980s and 1990s bubbles. These earlier decades featured strong and often irrational asset price gains: first Japanese shares and Tokyo real estate, and then US technology shares. Each decade was topped and tailed by recessions, and punctuated by a mid-term correction that was largely brought on by inflation fears among policy-makers. Although these inflation fears initially proved ill-founded, by decade-end the reality of rising inflation had forced Central Banks to tighten and so precipitate the asset price slumps that led on to sharp economic slowdowns.

If the theme behind each asset mania differed in each decade – Japan (1980s); Technology (1990s); and Real Assets, e.g. UK and US housing, commodities and

Figure 1. Stylised Credit/Asset Price Cycle



Source: CrossBorder Capital

Marcol House
289-293 Regent Street
London W1B 2HJ

www.liquidity.com
Tel: (020) 7535-0400
Email: www@liquidity.com

private equity, (2000s) – the underlying driver, namely easy and abundant credit, was unswerving. But we should also remind ourselves of other similar characteristics. Each decade had two halves. Households have frequently led the economy out of its initial recession, until burdened by an increasing take-up of debt, their spending slowed into the second half. The place of consumer spending was taken by corporate spending on new capital investment. These investment booms subsequently spilled over into asset markets and ultimately triggered higher inflation. Not surprisingly, bond markets tended to perform well in the early years of the decade and less well in the later years. Stocks, on the other hand, sustained a blistering pace towards the decade end. Could we be in for a repeat?

Share prices are, according to our research, the most liquidity-sensitive asset class. Thus, they eventually become the focal point of each mania as the credit peak approaches. Moreover, experience shows that share price returns demonstrate *persistence* – i.e. there are strong trends both up and down, and *lumpiness* – i.e. large gains and losses are likely. In many ways, share prices have lagged thus far in the bull market and probably need to catch up with real estate and commodities. Some large and sustained gains may lie ahead. For example, Figure 3 shows that Wall Street's P/E multiple has fallen over the past three years – a remarkable and unique fact in a supposedly *liquidity-driven* market. Is something unusual holding them back?

There are two constants. *Free Market Capitalism's* defining traits have featured as much in the past five years and in the past twenty-five years, as they have over the entire two hundred and fifty or so years of capitalist evolution. These twin pillars are the:

(1) ***Productivity of industrial capital***, and

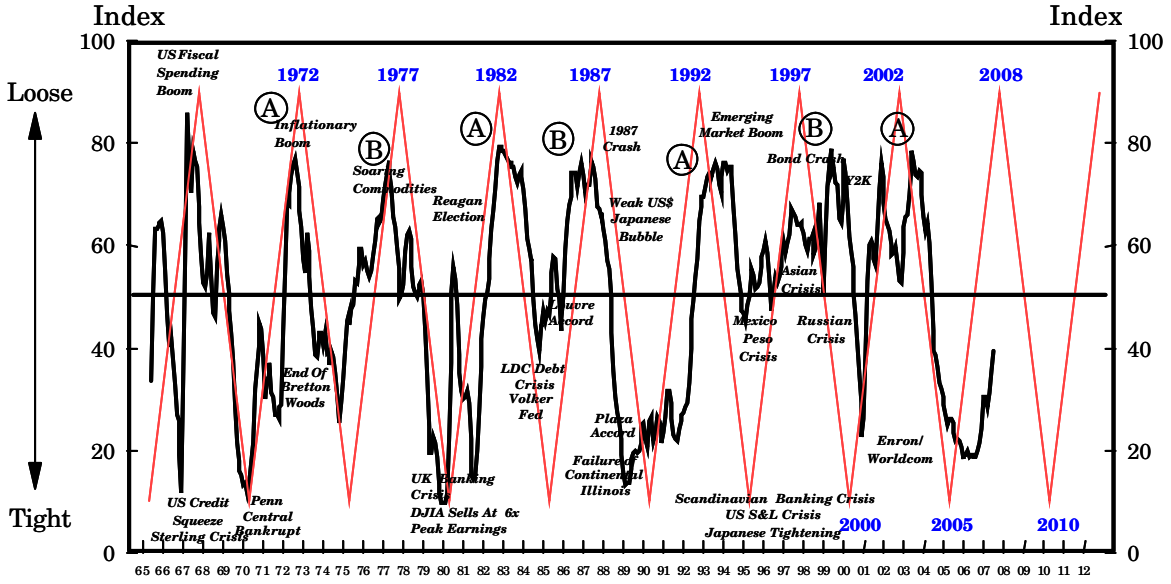
(2) ***elasticity of financial capital.***

In short, falling costs and rising credit are the norm. But this decade they have been served up with two unusual accompaniments:

(3) ***Low real bond yields***, and

(4) ***low financial market volatility***.

Figure 2. Global Liquidity Cycle, 1965-2007 (Index 0%-100%)



Source: CrossBorder Capital

It is these two latter features that need explaining; rather than sky-high asset prices, which should almost naturally follow**. We strongly believe that low financial market volatility rests almost entirely on the way Central Banks now manage money.** This may in part explain low real bond yields because inflation risk premia will be lower. However, low yields also likely hide a more sinister threat. And this probably demands a more thoughtful future asset allocation.

Bonds As A Risk Barometer

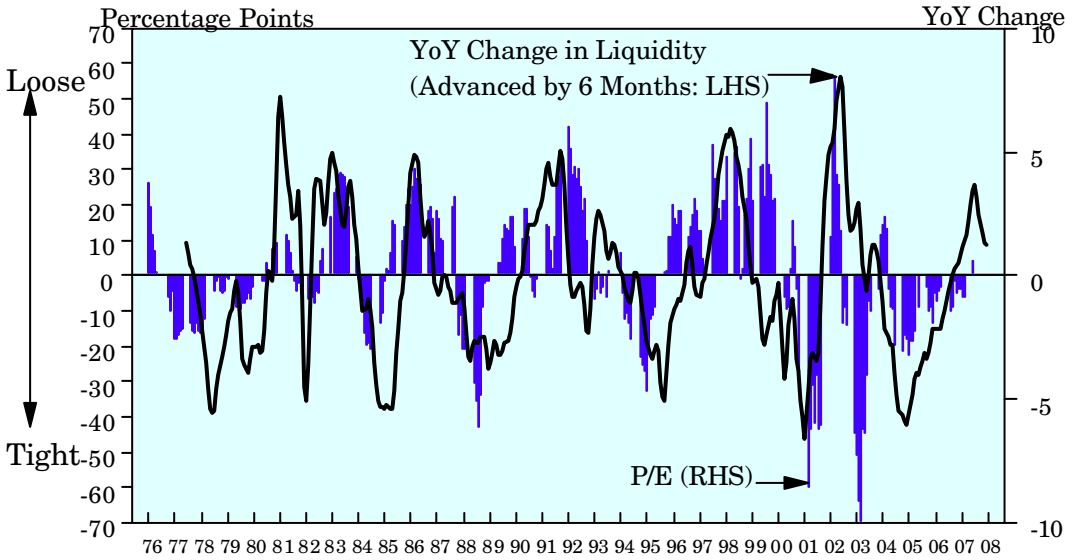
Capitalism has been unflatteringly described as a system of *creative destruction*. A more appropriate moniker is *creative deflation*. Capitalist industry is always trying to cut costs and reduce prices so as to steal a march on competitors. Rapid output growth therefore tends to coincide with falling inflation. On the face of things, with World GDP growth humming at a 5% annual clip, it seems churlish to doubt the current strength of productivity. However, that has been our nagging concern. **Despite the strength of global output, the World economy is not as robust as many believe.** Indeed, bond markets are witness to this, for how else can we explain low real yields?

The consensus argues that low real yields are explained by the 'savings glut' as investors bid up bond prices. Not only does this idea muddle the concepts of high savings and excess savings, but it also fails to address why currently high savings do not also mean high investment? Capex in the Developed World economy is curiously subdued.

The reality is that causation runs the other way: **not from bond markets to the real economy, but from the real economy to bond markets.** Thus, low real yields reflect a similarly low rate of capital productivity across World industry. We have previously estimated that capital productivity, at the margin (i.e. on new projects), across the major industrial economies is running at an average of around 2% in real terms. Plainly, if World GDP is growing at 5%, this tells us that the net capital stock is expanding at close to 3% per annum, or roughly equivalent to an annual rise in capital per man of some 1%.

The paradox is that stock market investors often confuse *growth* and *profitability*: in other words, the extensive and the intensive margin. Investors are often deluded by sales growth,

Figure 3. Change In US Liquidity And Changes In S&P Composite P/E Multiple, 1975-2007



Source: CrossBorder Capital, S&P

without asking whether profit margins will hold up and whether the amount of capital employed can stay the same. Thus, a 5% GDP growth rate tells us nothing about profitability, or the value-added by capital. **Soviet-style economies, like China, are renowned for marshalling large quantities of resources into the production process for low rewards.** Put another way, if you push enough sausage meat into the machine, plenty of (probably not very good) sausages will come out of the other end. Similarly, we should not to get too hung up over whether one expensive worker or one hundred cheap workers are turning the machine's handle because what really matters is the productivity of capital, not labour**. For, it is the productivity of capital that determines the level of interest rates.**

These conclusions will likely come as a surprise to many:

- Real interest rates have little to do with liquidity, Central Bank policy or real GDP growth. Rather they should equate with the marginal rate of capital productivity.

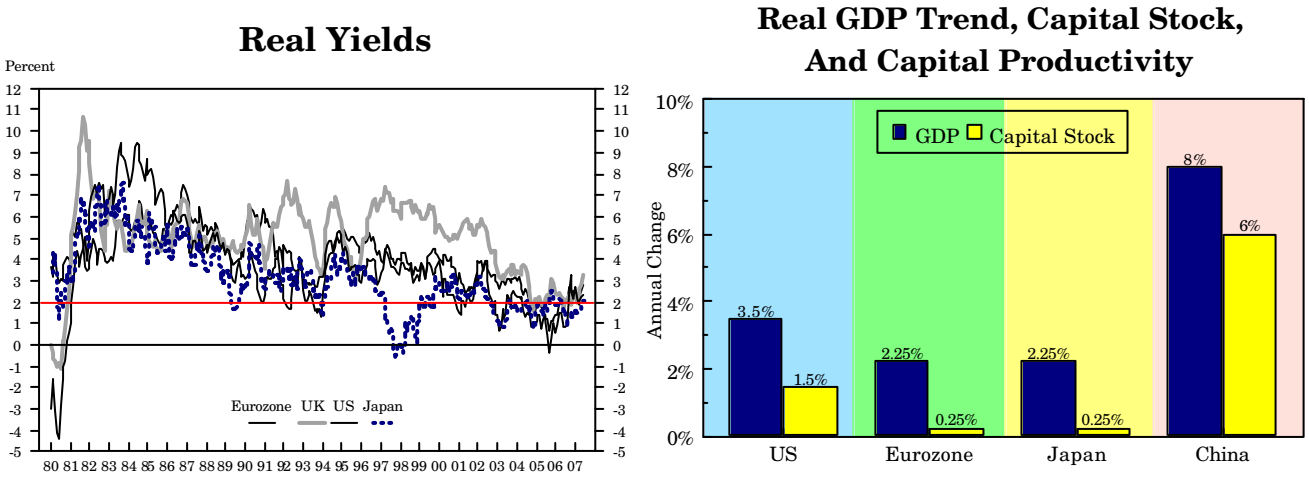
- China is the World's marginal producer and Chinese industry has 'over-expanded' to create jobs for itinerant workers. These jobs are political not economic. Consequently, profitability is a lesser consideration.

- Western industry's recent surge in reported profits is explained by increased returns from existing capital rather than new capital. This also highlights the attractions of M&A over spending on new capital equipment, which is hit by the low prevailing marginal returns

- The 'savings glut' must be gauged relative to credit markets. Adding Asia's current account surpluses to those for other emerging economies gives a total of around US$500 billion. Yet with global credit of US$67.4 trillion and having expanded by US$9 trillion, or 15.1% over the past year, this growth alone is nearly twenty times bigger than this 'savings' pool. We have a credit boom sustaining a global capital/ capacity glut, not a savings glut.

Thus, the recent surge in the Shanghai stock markets owes less to greater prospective domestic profitability and most to buoyant liquidity. This explains China's sky-high P/Es. **Alongside Chinese banks' balance sheets are getting stretched and the proximity of large parts of the banking system to insolvency is fast becoming a moot point.**

Figure 4. Real Bond Yields And Capital Productivity, Selected Countries, 1980-2007



Source: *CrossBorder Capital, Datastream*

Bank loans are the major (virtually sole) source of external finance in China, and China's ICBC is now the World's second largest bank by market capitalisation. Bank loans to GDP exceed 140% in China, compared to less than 40% in India. Moreover, more than one third of new Chinese bank loans still go to finance the unprofitable and lumbering State Owned Enterprises (SOEs). Even official estimates put bad debts, i.e. 'non-performing loans' (NPLs), at 18% of GDP. Unofficial estimates suggest between 35%-60%. Data show that the Chinese State has injected US$434 billion since 1998 to maintain bank solvency, while the 'Big 4' Chinese banks alone fess up to US$358 billion of NPLs. Ernst & Young in 2005 put banks' bad debts at US$911 billion: a figure that was hastily withdrawn and later air-brushed out of history after pressure from the Chinese authorities.

But there may be no easy end to China's credit boom because it is being driven by politics more than economics. The Middle Kingdom is fast becoming middle-aged largely as a result of its earlier 'one child' policy, which tragically skewed the emerging population towards young males. Thus, China is arguably getting older faster than it is getting richer. Today, its median age is 33 years, and more like the West's 36.6 than India's 24.3 years. Worryingly, China's median age will jump to 45 years by 2050, or slightly higher than the West's then average, and some 40% of China's population will be above conventional retirement age. Taken together it means that the absolute size of China's labour force peaks in 2009, and falls by around five million per annum thereafter. In the last decade and a half, nearly 100 million Chinese have entered the industrial workforce: in the coming 15 years roughly 80 million will leave it. Resources, therefore, need to be mobilised now, while they exist, to create the wealth required to afford this future retirement burden. Credit, credit, and still more credit, will mobilise Chinese labour and capital: thus it helps to explain why capex is currently some 45% of GDP.

Pushing On A Liquidity String?

As the quantity of credit rises, so its quality inevitably declines. Alongside, the price of gold increases. Could deteriorating Chinese credit rather than bad US sub-prime loans explain why gold prices are trending higher? In other words, domestic Chinese and Asian investors are moving into assets that can maintain their value, such as real estate, shares and gold. Unquestionably, structurally low real interest rates bolster nominal gold prices by reducing the 'cost of carry'. And America's Federal Reserve is also fanning the flames by printing more-and-more liquidity, which at the margin is spilling out into China's forex coffers and thus allowing the PBoC to supply the domestic banks with more liquid reserves. **Whatever, the combination of low real interest rates, rapid credit growth, and failing credit quality anywhere within a currency bloc, means rising nominal gold prices.**

In our model, the **overall volume of liquidity** determines the **slope of the yield curve**, and the supply of liquidity **relative to private sector savings** determines the **exchange rate**. Thus, more liquidity both steepens the yield curve and weakens the exchange rate, in much the way that Fischer Black first suggested two decades ago.

Traditionally, Central Bankers altered interest rates to ensure that money supply was consistent with a system of fixed exchange rates anchored by gold. Nowadays, they do the very reverse. **Open market-based monetary operations, i.e. liquidity injections, are used to meet short-term interest rate targets that are consistent with an intermediate policy objective, such as the Taylor Rule.** This latter rule, in turn, governs a final policy target, such as, say, 3% annual inflation and/or a 5% unemployment rate.

The widespread adoption of these policy rules by the major Central Bankers has elevated interest rate targeting above both exchange rate management and liquidity provision. In

fact, liquidity provision is the outcome of short-term monetary open market operations that are undertaken to target interest rates. And since the exchange rate is itself determined by the relative volume of liquidity, it is hostage to both. Yet, vicious feedback effects may sometimes apply because fluctuations in the exchange rate will affect the level of overall prices and, in turn, change credit demand. These unexpected shifts in credit demand will hamper policy-makers' attempts to set interest rates, likely forcing them to press harder on the liquidity brake and gas pedal.

These liquidity swings should translate into similar movements in the exchange rate. We have found that these periods of exchange rate volatility lead, sequentially, periods of, first bond market, and then stock market volatility. Looked at another way, low stock market volatility, such as the low values of the so-called 'price of risk', i.e. the VIX index of implied volatility on the US S&P100, tells us more about the prevailing stability of exchange rates than it does about the complacency of investors.

But why are currencies so stable if Central Banks are ignoring both the volume of liquidity and the exchange rate in favour of interest rate targets? The only explanations are:

(1) Policy guidelines, i.e. the Taylor Rules, are moving pro-cyclically with private sector savings. In other words, more private sector savings encourage more not less liquidity, pari passu. Central Banks therefore accommodate rising economic activity and rising savings.

(2) Central Banks are 'secretly' targeting exchange rates.

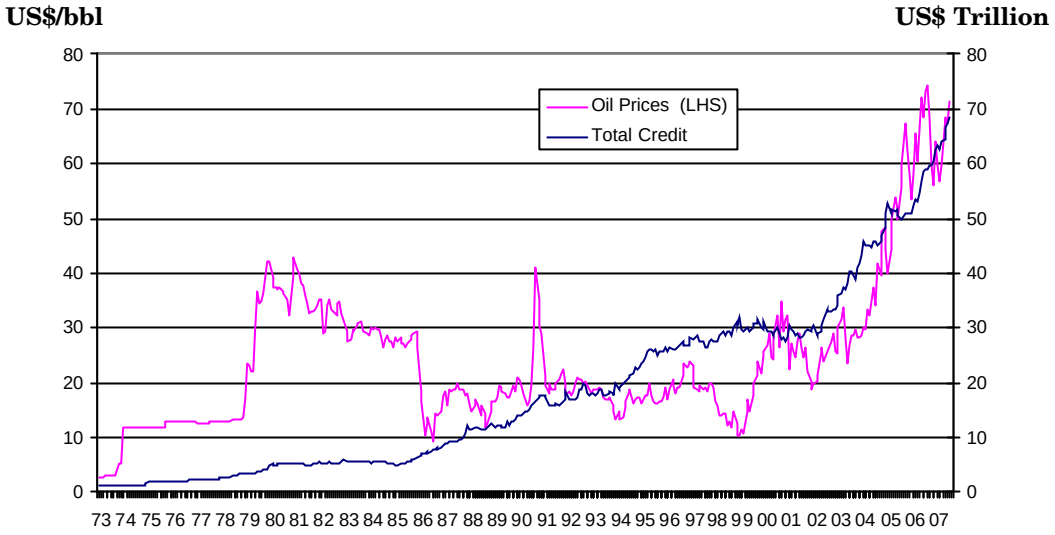
In fact, both may be true: while the US Fed, the ECB, the Bank of Japan and the Bank of England are probably unilaterally following Taylor Rule-type policies, other countries are likely shadowing the US dollar, to varying degrees. This may also explain the higher volatility of gold over paper currencies.

America remains the World's largest consumer market and the US dollar is still the lynchpin of the global financial system. A more integrated world economy requires a more stable currency system. Therefore, it makes economic sense for major exporters to peg to the US dollar; and it makes good financial sense for the US, as a major international borrower in its own currency, to maintain a stable value for the US dollar, at least against regions, such as Japan and Emerging Asia, which are major US dollar holders. **We have previously dubbed this dimension the 'Asian Dollar', denoting America's likely desire to keep the US unit stable against the Chinese RMB and Japanese Yen, but more willing to see it soften against the European currencies.**

If the Taylor Rule is making policy more pro-cyclical, then rising liquidity is more likely to correlate with and sustain galloping commodity prices. Oil prices, for example, are moving increasingly in-step with credit. See Figure 5.

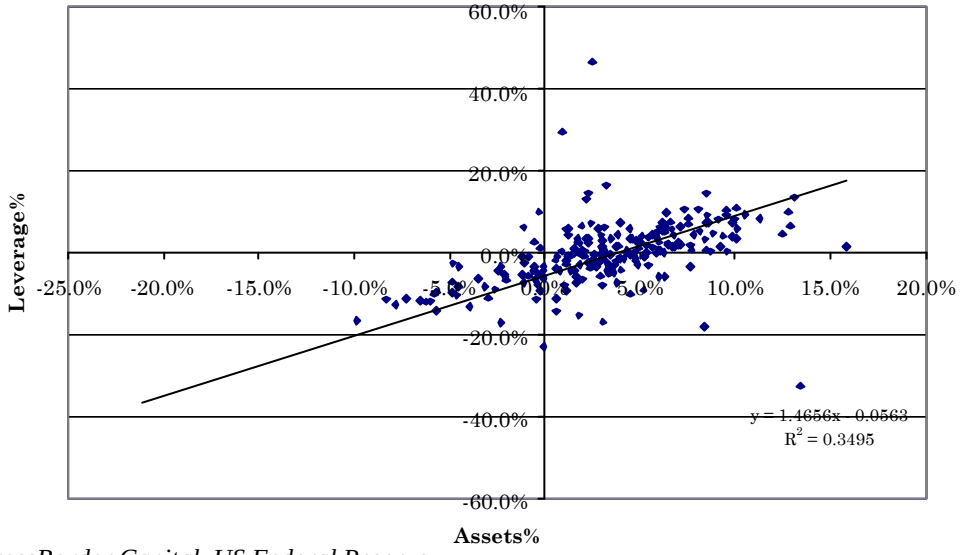
On top, the elasticity of the US credit system is rising because of increasing numbers of financial institutions that take more leverage as asset prices rise. In short, these firms – call them 'hedge funds' if you like – accelerate the pace of liquidity growth. According to Figure 6, using data extracted from the US quarterly *Flow of Funds Accounts (Z1)*, each 10% increase in the assets of Investment Banks and Government Sponsored Enterprises (e.g. Fannie Mae) leads to a 14.7% rise in their financial leverage. This probably also tells us that the Federal Reserve has lost its previous control over credit and, to turn the familiar adage around, it bizarrely can now '*…push on a string but not pull on it!*' Naturally, extra liquidity adds fuel to asset prices, but it also leads to an increase in the nominal price of gold. See Figure 7.

Figure 5. Global Credit (US Dollar Terms) And Oil Prices (Brent Crude US$/bbl), 1973-2007



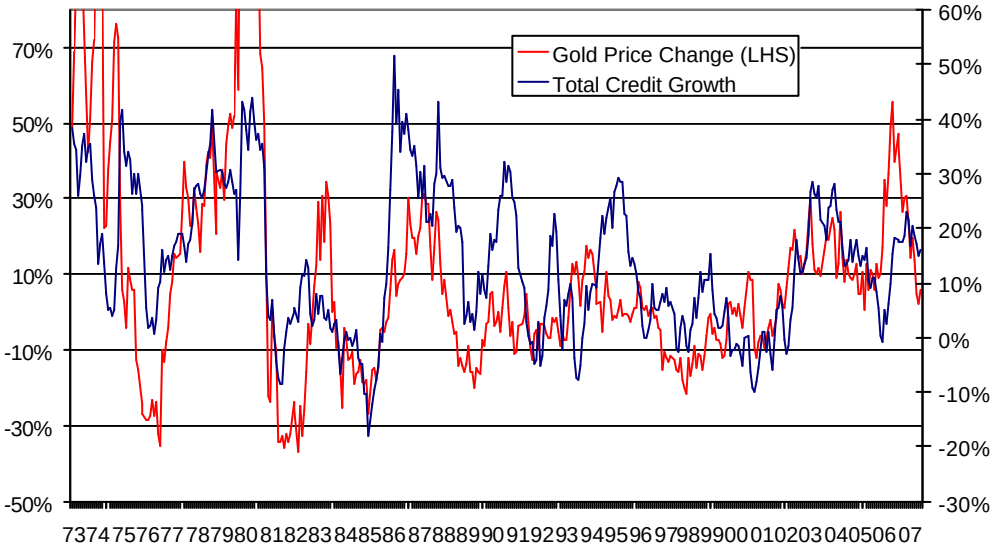
Source: *CrossBorder Capital, Datastream*

Figure 6. Financial Leverage Of US Investment Banks And GSEs, 1952-2007 (Quarterly % Change)



Source: *CrossBorder Capital, US Federal Reserve*

Figure 7. Global Credit Growth And Year-On-Year Change In Nominal US Dollar Gold Prices, 1973-2007



Source: *CrossBorder Capital, Datastream*

Gold And Oil

Gold prices are therefore rising because of an increase in the quantity of credit (US), structurally low real interest rates (China), and a deterioration in the quality of credit (China). Gold influences other commodities because commodity prices have two moving parts:

(1) A physical exchange ratio with gold, reflecting long-term productivity and technology factors, e.g. oil/gold ratio in bbls/oz.

(2) Nominal price of gold.

The product of these two factors determines the nominal commodity price. Figure 8 shows that the oil/gold ratio (shown in its more conventional form as the ratio of gold to oil), for example, has proved remarkably stable over time around an average of roughly 12 times, with temporary fluctuations away from equilibrium. **In short, over the long term the rise in oil prices owes most to the secular decline in the value of the paper dollar than to higher productivity within either industry or greater physical use.**

Recent movements in the oil/gold ratio against bullion likely reflect the growing inelasticity of global oil supply. With non-OPEC supplies likely on a plateau, OPEC supply, and particularly Saudi Arabian supply, may have been compromised by too rapid rates of recent extraction using methods that detract from long-term supply. OPEC members are now producing one mbd (million barrels per day) fewer than they were a year ago, while oil demand is roughly one mbd higher at more than 84 mbd. The inevitable result is falling oil inventories: in the last quarter they dropped by 0.14 mbd, compared to an expected seasonal rise of 0.84 mbd.

Saudi Arabia faces severe demographic challenges with its rapidly growing, young and increasingly unemployed population. With fertility at a remarkably high 3.94 (China 1.75, USA 2.09) and 38.2% of the population already aged under 20 years (China 20.4%), these pressures on the Saudi Authorities will swell. Not surprisingly, maximising their near-term oil revenues has been critical, but do they still enjoy the flexibility to act as the 'swing' producer, able to turn the oil taps on-and-off? Hence, the oil/gold ratio may stay high.

Similar commodity ratios exist between gold and steel, gold and wheat, gold and nickel, etc. The point here is that as more credit pushes up the nominal price of gold, it (other things being equal) must also push up the nominal value of all commodity prices measured in that currency. If we add in the likelihood of a strong, credit-fuelled Chinese economy, then its voracious appetite for resources will force up the physical exchange ratios between all industrial and food commodities against gold.

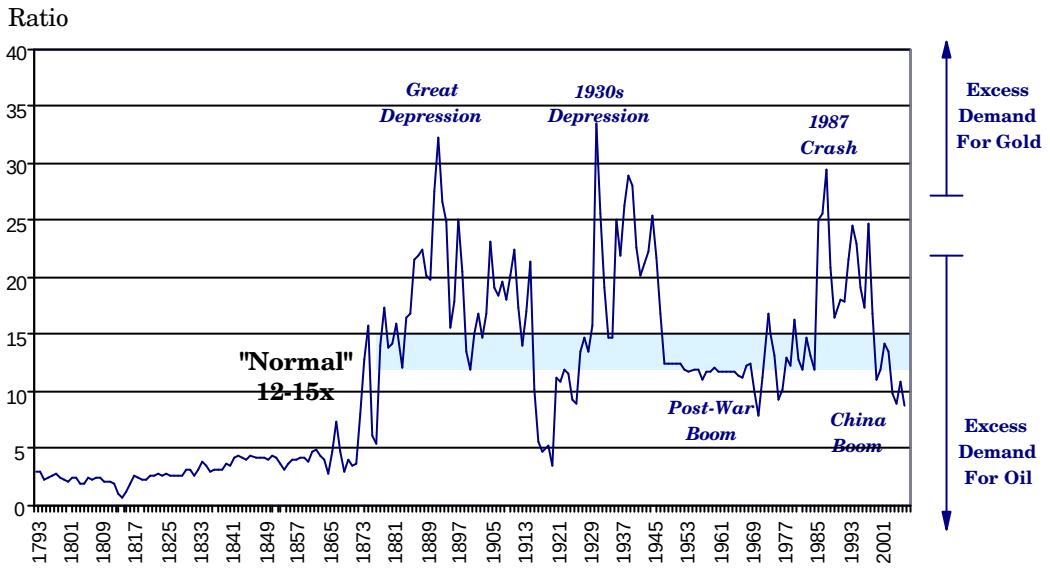
Strong Chinese and emerging market economic growth may have initially pushed up oil and commodity prices, but their rise has been sustained by continued inflows of credit. Facing comparatively benign domestic inflation, a slowing American economy and debt hiccups, the US Federal Reserve has been able to accept rapid credit growth and at times encourage it. The fact that the rest of the World, particularly emerging markets, is feasting from this credit bubble is strictly outside of the US Fed's concerns. **And just suppose that we are looking at the beginnings of the long secular advance of Asia and the start of the secular decline of America?** Federal Reserve monetary policy can consequently stay easier for longer, thereby fuelling a potentially bigger Asian boom/bust cycle.

Of course, this argument can work both ways. A credit bust will force commodity prices down. However, consider two things:

(1) A credit collapse may threaten economic growth and therefore dent commodity/ gold ratios, but it may also significantly boost the short-term attractions of gold as a 'safe haven'. Gold in real terms must rise.

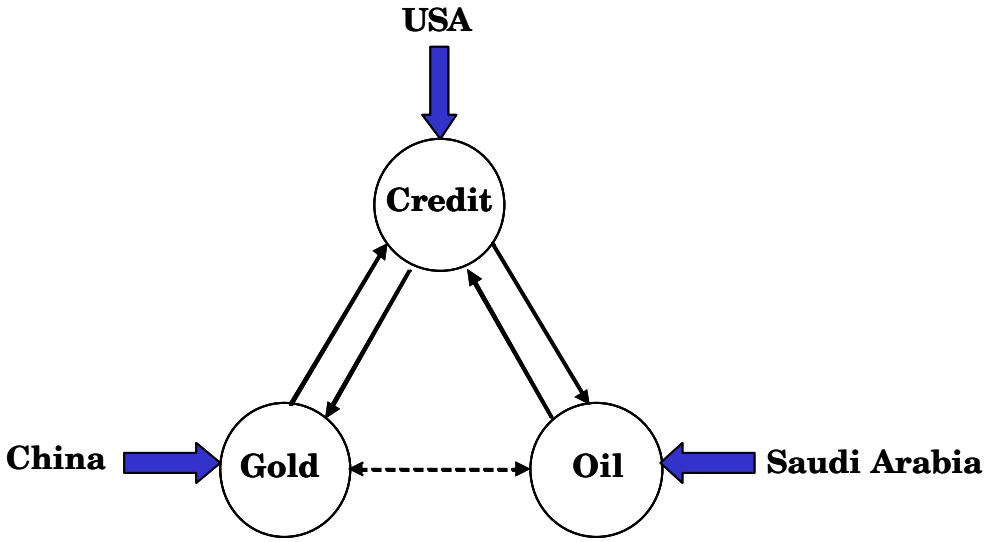
(2) Potentially weak, and maybe very weak, economic activity will likely force Central Banks to react by injecting massive doses of liquidity into their cash-strapped financial systems. Gold in nominal terms must rise and other commodity prices should stabilise.

Figure 8. The Gold/Oil Price Ratio, 1793-2007 (Annually)



Source: *CrossBorder Capital, Datastream*

Figure 9. Oil, Gold And Credit



Source: *CrossBorder Capital*

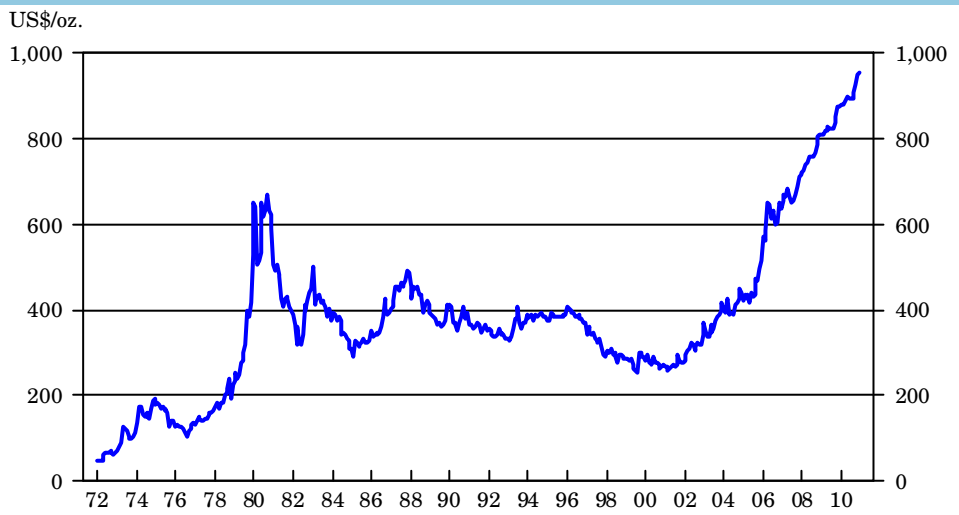
Capitalism features falling costs and rising credits. Usually, these go hand-in-hand, but today elastic American liquidity is helping to finance strong Chinese productivity. We have argued that this geographical split explains why real interest rates are at a structurally low 2% and financial market volatility is depressed.

The commodity-intensiveness of Chinese economic growth has helped push resources prices higher. The growing inelasticity of oil supply, particularly in Saudi Arabia, has made oil prices a particular winner. Rising credit quality and low real interest rates, in turn, have already boosted the price of gold. The potential credit bust in China's flaky banking system suggests that gold prices have a lot further to go.

It's hard to predict the end of asset bubbles, but judging from prevailing low inflation, continued credit growth and the Chinese authorities' priorities as hosts of the 2008 Olympics and 2010 World Trade Fair, we have not reached the equity peak yet.

Yet if world economic growth is as credit-dependent as we suspect; if China is depressing marginal returns on capital globally at the cost of rising NPLs in her banks, and if the Saudi's have lost their traditional control over oil supply, then gold may ultimately prove the asset of choice.

Figure 10. Gold Prices (US Dollars/oz.), 1980-2010



Source: CrossBorder Capital, Datastream

CROSSBORDER CAPITAL LIMITED
MARCOL HOUSE
289-293 REGENT STREET
LONDON W1B 2HJ
TELEPHONE 020 7535 0400 FACSIMILE 020 7535 0435

CROSSBORDER CAPITAL®

Global View
April 2008

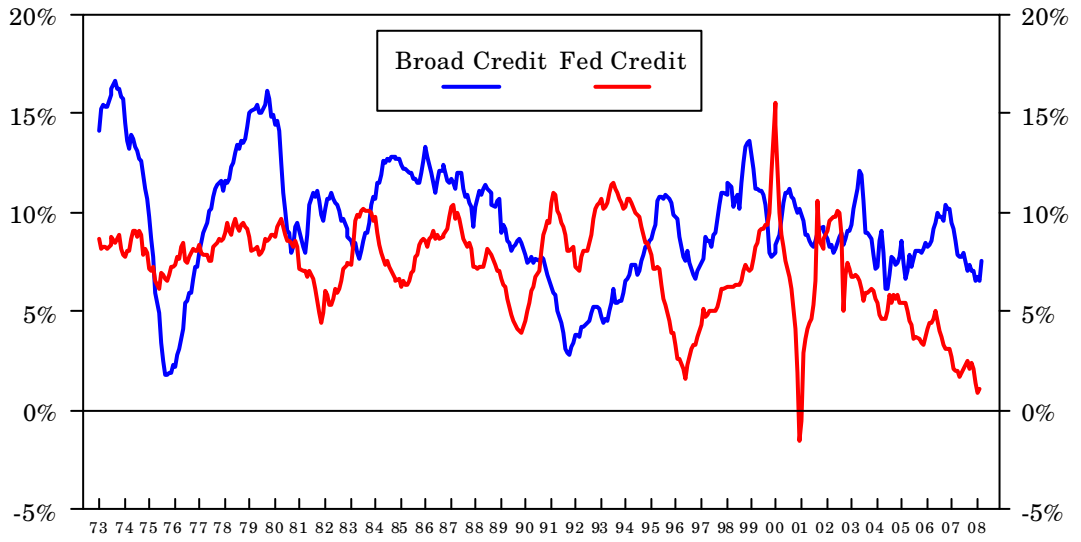
Dissent Inside The Fed?

They may have showered us with an avalanche of acronyms that add up to as much as US$600 billion of liquidity, but it is unclear how far the Fed is committed to further monetary easing. Worryingly, the March step-up in 'temporary' open-market activity is being offset (to some extent) by a sharp reduction in liquidity elsewhere in the system. The net result may still mean pathetically weak on-going growth in Federal Reserve credit. The US dollar should serve as investors' litmus test: a strong dollar rebound probably confirms that the Fed is being less accommodative that it claims. But a strong US dollar spells bad news for those 'crowded trades'— emerging markets and commodities.

Credit Crunch?

We remain selective in our use of the term *credit crunch*. Figure 1 highlights the growth of broad US private sector credit and US Federal Reserve credit. Figure 2 breaks down the sources of broad US private sector credit from bank lending through to commercial paper. The blackness of the stories written about credit since last August sharply contrasts with the consistency of its expansion detailed here. **There appears no evidence of any widespread credit slowdown so far, yet alone a crunch.** A crunch has occurred in commercial paper and between banks but this has not yet been passed onto the wider economy. Bank lending and lending provided by the government sponsored enterprises (GSEs) have been especially buoyant. Together these comprise roughly two-thirds of overall US credit. Commercial paper was in the eye of the credit storm and sank dramatically but has lately stabilised. Consumer credit and securitisation data both show weak trends, but these predated the August crisis. Overall, US credit has grown by an average US$141.6 billion per month over the past half-year, equivalent to an annual clip of 7.3%.

Figure 1. US Private Sector Credit And Federal Reserve Credit, 1973-2008 (Annual Percentage Changes)



Source: *CrossBorder Capital, US Federal Reserve*

Marcol House
289-293 Regent Street
London W1B 2HJ

www.liquidity.com
Tel: (020) 7535-0400
Email: www@liquidity.com

Figure 2. Broad US Credit Growth, 2007-08 (Monthly, US Dollar Billions)

	Total Credit (US$ Trs)	MoM Chg. (US$ Bns)	% Chg. YoY	% Chg. 3m Ann.	Banks	Finance Houses	Other Consumer Credit	GSEs	Commercial Paper	Securit-isation
					3-Month Annualised % Change					
J07	**19.78**	96.3	*9.5*	*8.1*	*9.1*	*0.7*	*7.1*	*8.7*	*28.0*	*3.1*
F	**19.93**	153.1	*9.2*	*8.9*	*10.3*	*1.5*	*-1.7*	*9.8*	*16.5*	*7.9*
M	**19.98**	44.0	*8.6*	*6.1*	*5.3*	*2.9*	*-12.9*	*11.8*	*5.0*	*6.1*
A	**20.04**	66.1	*7.9*	*5.4*	*5.5*	*4.1*	*-9.4*	*12.0*	*12.2*	*-2.3*
M	**20.22**	179.5	*7.8*	*5.9*	*4.8*	*2.4*	*-0.7*	*14.4*	*33.6*	*-7.3*
J	**20.35**	121.3	*7.8*	*7.6*	*8.3*	*-1.3*	*2.8*	*13.7*	*43.9*	*-7.6*
J	**20.51**	159.9	*8.0*	*9.5*	*8.6*	*2.7*	*-5.7*	*14.3*	*46.3*	*-0.1*
A	**20.51**	5.3	*7.1*	*5.8*	*11.9*	*5.7*	*0.8*	*13.2*	*-37.1*	*1.4*
S	**20.64**	130.9	*7.4*	*5.9*	*15.7*	*6.6*	*4.4*	*14.6*	*-56.3*	*3.8*
O	**20.78**	133.8	*7.1*	*5.4*	*18.3*	*-1.0*	*11.9*	*16.0*	*-64.1*	*3.0*
N	**20.91**	130.9	*7.1*	*7.9*	*17.6*	*-4.6*	*5.5*	*16.0*	*-43.8*	*3.3*
D	**20.98**	72.9	*6.6*	*6.7*	*11.8*	*-2.2*	*11.8*	*18.6*	*-43.6*	*2.7*
J08	**21.13**	148.4	*6.8*	*7.0*	*10.0*	*-1.1*	*8.5*	*15.6*	*-25.2*	*3.1*
F	**21.24**	111.0	*6.5*	*6.5*	*6.9*	*-1.4*	*8.9*	*16.5*	*-17.8*	*3.9*
Me	**21.49**	252.8	*7.6*	*10.1*	*13.2*	*-2.2*	*3.0*	*13.5*	*6.9*	*6.7*

E Estimate.

Source: CrossBorder Capital, US Federal Reserve

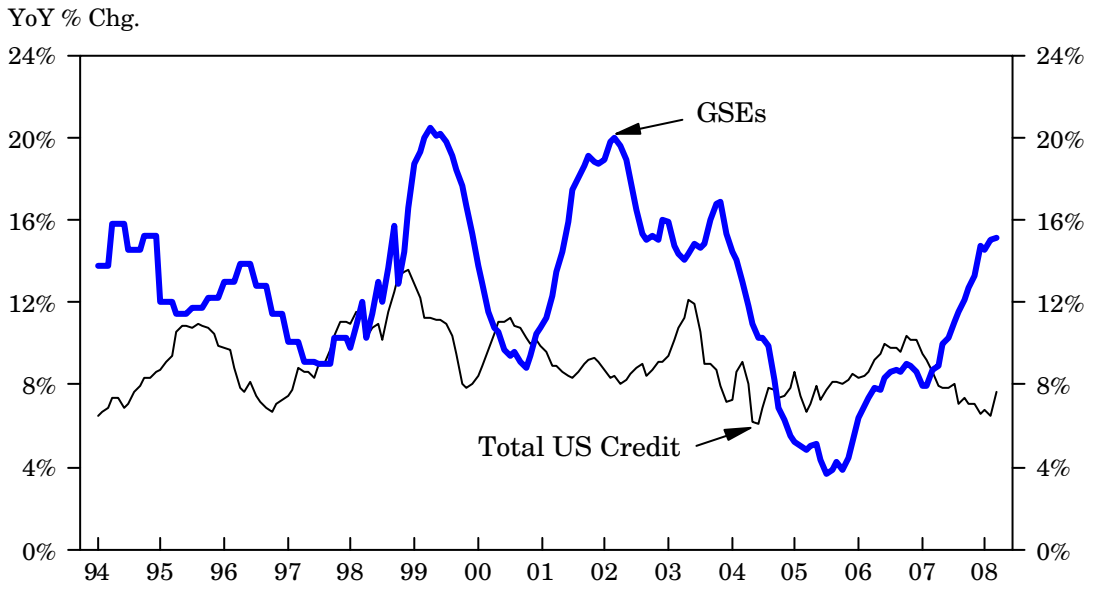
Latest data feature an awesome pick-up in GSE lending. Figure 3 shows the growth in Fannie Mae and Freddie Mac's combined balance sheet relative to overall credit growth. Not for the first time they are being used by the US authorities to support markets. Despite the concern over their lack of equity capital, the GSEs operate under an implicit US State guarantee. This attracts foreign buyers. Of the US$435.2 billion increase in GSE lending since end-August 2007 at least US$132 billion, or roughly one-third has been financed by debt sales to foreign Central Banks. **Cynics may thus note that the Chinese Government is implicitly bailing-out the US mortgage market!**

Thus, at first sight the outlook for US financial markets looks far better than the consensus believes. The two most important financial markets in America: (1) the US$14.6 trillion mortgage market and (2) the US$9.2 trillion repo[1] and commercial paper market are being 'fixed'. (Both are bigger than the US$6.8 billion of bank loans and US$5.1 trillion of Treasuries outstanding.) Summarising:

- Mortgage bailout is being led by the GSEs, i.e. Fannie Mae, Freddie Mac and Federal Home Loan Board.
- Repo market bailout is being driven by the Federal Reserve and Treasury, e.g. TIO, TAF, PDLF, etc.
- US private sector net cash flows soaring, e.g. current account deficit shrinking.

On top, the adjusted TIPS (index-linked bond) yield data show a more aggressive pick-up in expected inflation. This is in line with recent poor liquidity trends that likely raised the actual yield on index-linked securities. **Together, all four factors are forcing US yield curves to steepen across all maturities.** If past cycles serve as a guide, this positive yield spread will persist for several quarters, maybe even years? See Figures 4 and 5.

Figure 3. US Credit And GSE Lending, 1994-2008 (Annualised Three-Month Percentage Change)



Source: *CrossBorder Capital, US Federal Reserve*

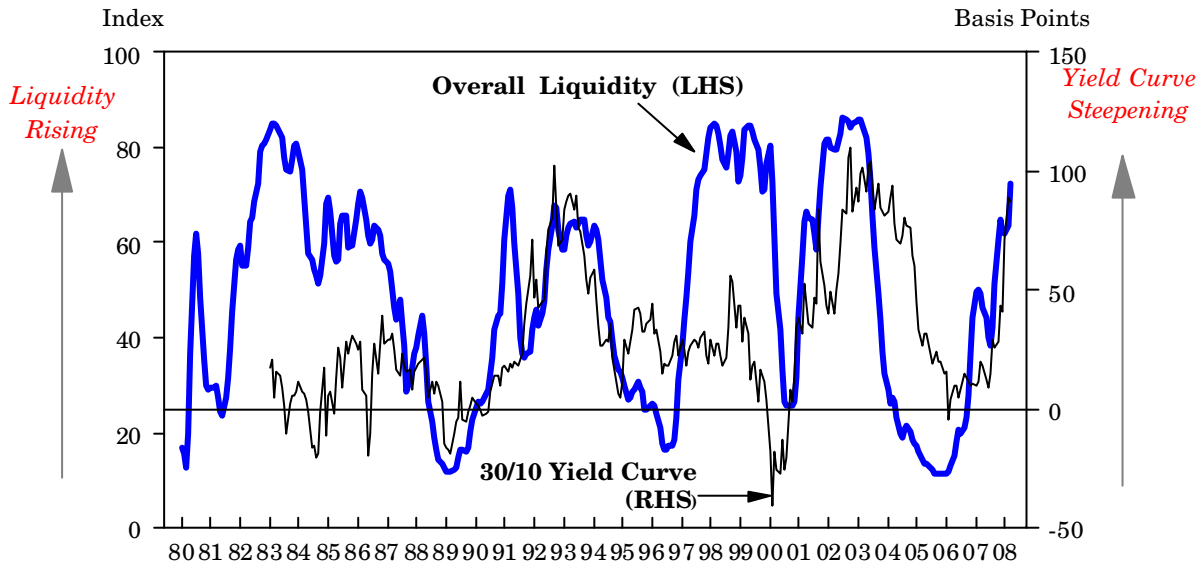
[1] We have used New York Fed gross data and included repos and reverse repos outstanding.

Outside The Fed

Let us briefly recap the importance of the US repo market. The repo market and its sister market in commercial paper make up what is commonly dubbed the 'money market'. (We are somewhat uncomfortable with this description because every market in a monetary economy is strictly a money market.) Figure 6 shows the growing importance of the repo and commercial paper markets relative to the US Treasury market. Forty years ago the US Treasury market was roughly 40 times larger; today, the Treasury market is roughly the same size, in net terms.

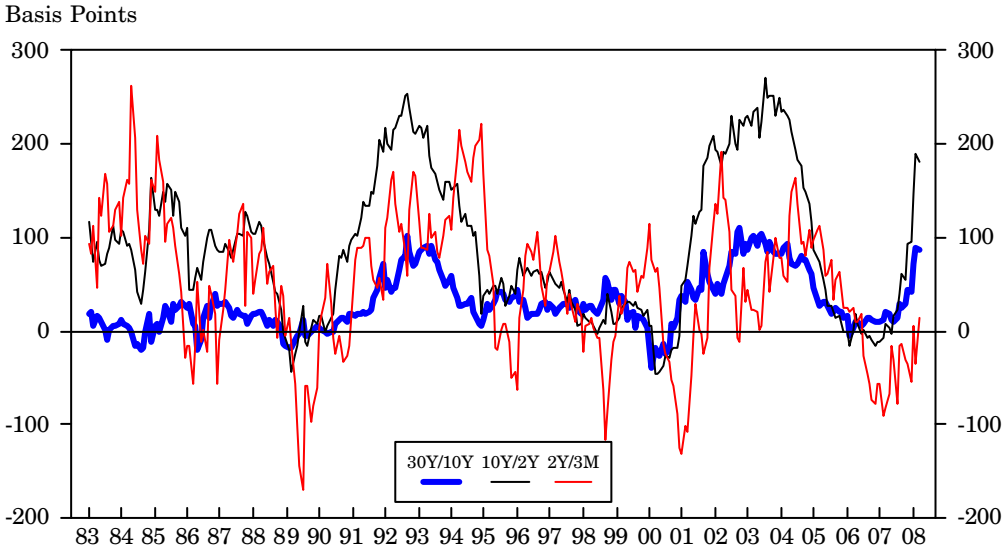
The same table highlights how much the funding of banks has changed over time. Again some forty years ago, virtually all bank credit was funded from deposits. Today, the figure has fallen to barely 70%, but if we also acknowledge that the dominance of banks as credit providers has slipped significantly, then deposits make up less than one third of total US

Figure 4. US Liquidity Cycle And US 30/10 Yield Curve, 1980-2008



Source: *CrossBorder Capital, US Federal Reserve*

Figure 5. US Yield Curves, Various Maturity Spreads, 1980-2008



Source: *CrossBorder Capital, US Federal Reserve*

credit. The gap has been filled by the wholesale money markets. Banks now obtain some 28% of their funding requirement from the commercial paper and repo markets. And, the US Federal Reserve controls the tempo of this re-financing process through its own repo activities.

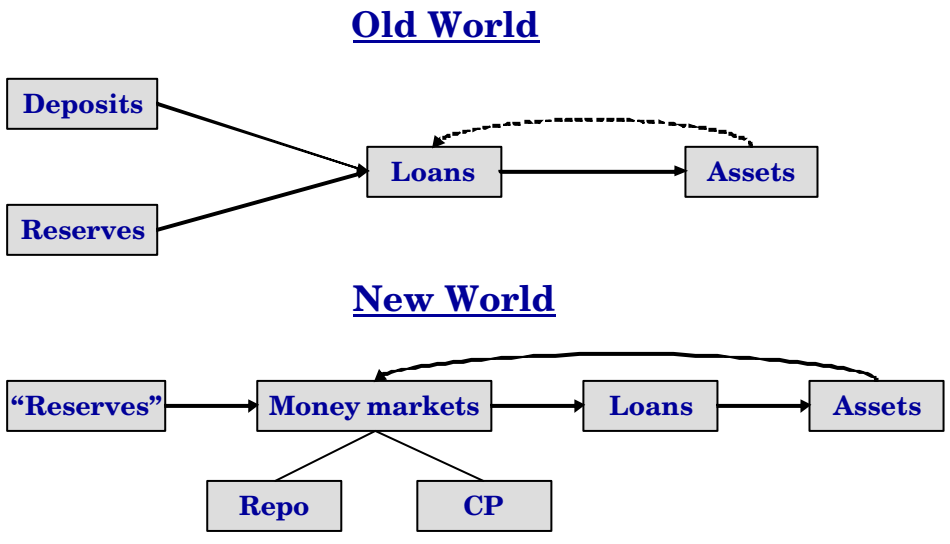
Figure 7 approximates how the financial system has changed compared to the standard 'textbook' model. **No longer does the modern credit system rest on a base of reserves that stand in some fixed relationship to deposits, and that, in turn, limit the growth of lending.** Financial de-regulation scotched the deposit-reserve multiplier model in the 1980s by turning banks into investors and investors into banks. This levelling of the financial playing field forced regulators to de-emphasise control through bank reserves and precipitated its replacement with capital ratio control, i.e. the so-called Basel I & II rules. Sadly for the regulators, clever credit providers discovered off-balance sheet lending, e.g. the infamous SIVs, and side-stepped control.

Figure 6. Growth And Importance Of The US Repo Market (US Dollar Trillions)

US$ trillions	1965	1980	1995	2007
Bank Credit	0.31	1.27	3.60	9.16
Mortgages & Security Loans	0.20	0.29	1.19	3.97
As %	*28.8%*	*30.8%*	*44.9%*	*58.5%*
Bank Deposits	0.30	1.01	2.59	6.59
As % Credit	*96.8%*	*79.5%*	*71.9%*	*71.9%*
Repos & CP	0.01	0.20	0.67	2.55
As % Credit	*1.9*	*15.8*	*18.6*	*27.8*
Memo:				
Repo Market	0.0	0.12	0.66	2.57
CP Market	0.01	0.12	0.68	1.79
US Treasuries	0.35	0.73	3.61	5.10
Times Repo & CP Market	*38.9x*	*3.0x*	*2.7x*	*1.2x*

Source: *CrossBorder Capital, US Federal Reserve*

Figure 7. Credit Systems: Old And New



Source: *CrossBorder Capital*

The gyrations of the credit cycle are now commanded by Central Banks through their repo market activities. In turn, asset values feedback to either further encourage lending by enhancing collateral, or to destroy collateral and restrict lending. On top, as we have argued elsewhere, the persistent low appetite of Western industrial companies for credit, has forced lenders into unfamiliar avenues, such as sub-prime mortgages and providing leverage for hedge funds via prime brokers. The daunting financial productivity of Wall Street has enabled credit provision to rocket, outpacing traditional money supply by 2½ fold over the past 25 years, and making it increasingly supply-driven. **All-in-all, these factors interact to make the credit cycle potentially far more cyclical.**

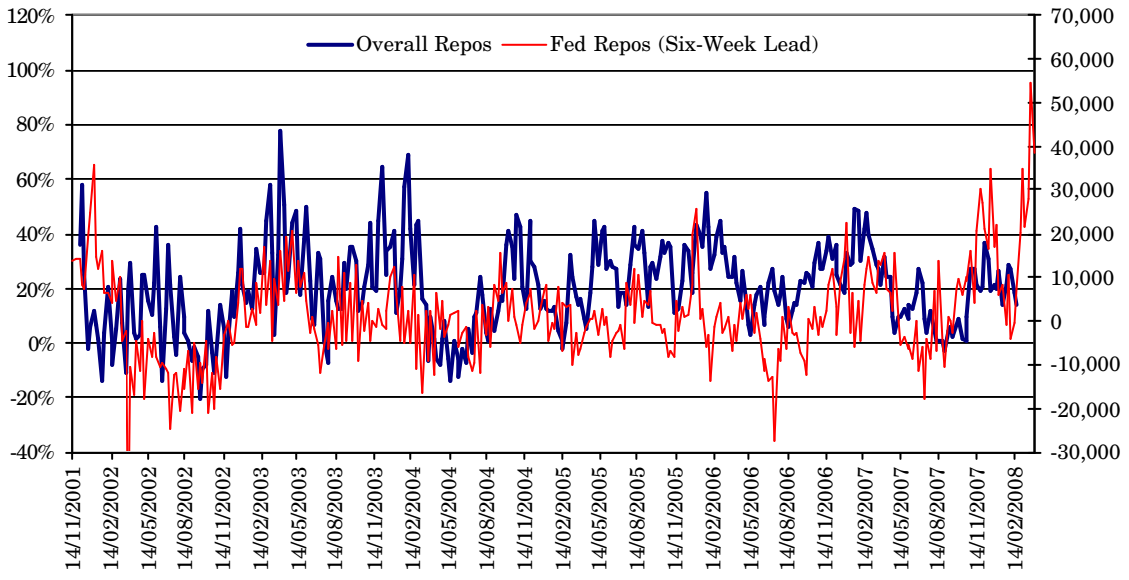
The close correlation between Federal Reserve repo activity and the wider swings in overall repo market activity is highlighted in Figure 8. **The Fed apparently leads by around six weeks.** If, as we have argued over recent months, the Fed plays such an important role, then the drop in the scale of Fed repo activity, aka liquidity injections, starting from February 2007 and recurring in July, September and January 2008, must take a large part of the blame for the credit turmoil? See Figure 9.

On top, Figure 10 shows the average lending term in the repo markets. **Ahead of the August crisis it dropped to an unbelievable 3.8 days.** In other words, the major credit providers, now forced to fund between 30%-70% of their balance sheets through repos (rather than traditional deposits), had to subject themselves to a *Law of Re-finance*, akin to the old *Law of Re-flux* under the Gold Standard, roughly twice every week. Against the backdrop of shrinking collateral in the summer of 2007, this proved impossible.

Inside The Fed

The puzzle since last summer's hiatus is that the US Fed has largely encouraged markets from the sidelines, and offered little real support. Indeed, Central Bankers in Washington, London and Tokyo have consistently argued that credit problems concern the distribution of 'abundant' liquidity and NOT its overall scarcity: the ECB have been more equivocal but, if pressed, even they would lean more towards the 'distribution' argument, rather than 'scarcity'. We feel they are wrong. Widening credit spreads and recently flat/inverted yield curves are unambiguous barometers of tight liquidity. **However, misguided policy-makers are not a helpful backdrop for healthy financial markets!**

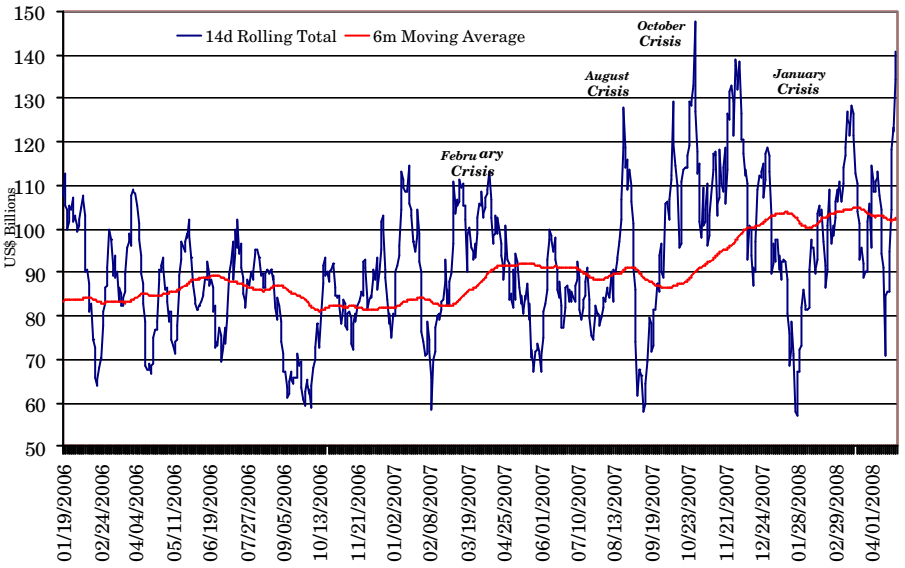
Figure 8. US Fed And Repo Market, 2001-2008



Source: *CrossBorder Capital, US Federal Reserve*

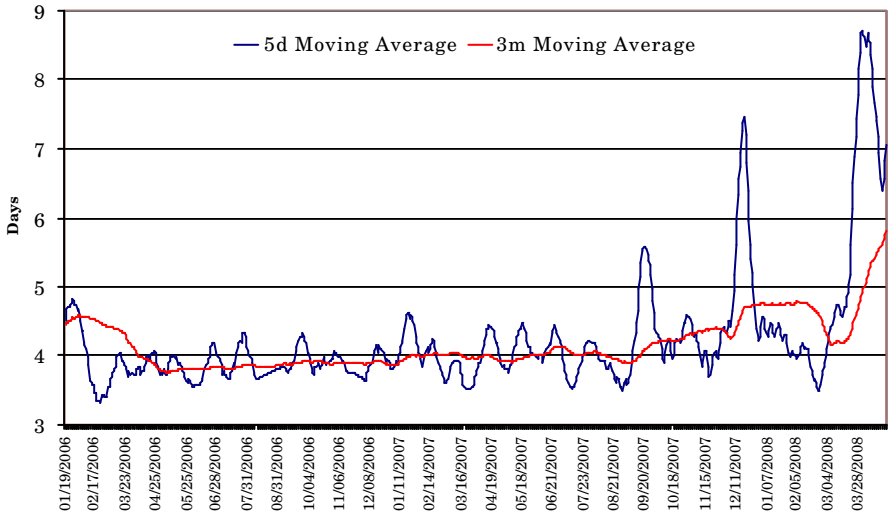
Our current concern is that what new liquidity the Fed gives with one hand, following the avalanche of acronyms in March 2008, e.g. TAF, PDCF, TSLF, it is taking away with the other. Figure 11 shows our estimates of the likely step-up in so-called 'temporary' open-market operations announced last month in both gross and net, or new money terms. The TAF (Term Auction Credit Facility), an anonymous auction of collateralised funds to some 7,000 banking institutions, is an unambiguous injection of funds that circumvents the apparent stigma in using the traditional discount window, and was raised to US$100 billion. Alongside the Fed announced the TSLF (Term Security Lending Facility) programme that allows primary dealers to swap quality mortgage-backed securities into US Treasuries. This makes assets more marketable, but does not add to net system liquidity. However, it may boost liquidity if the primary dealers then use the post-Bear Stearns PDCF (Primary Dealers' Credit Facility) for collateralised borrowing. The US Treasury's extant TIO (Term Investment Option) programme similarly does not add to net system liquidity, but recycles US Government cash back to markets through an auction system.

Figure 9. Daily Repo Market Operations, 2007-2008 (US Dollar Billions)



Source: *CrossBorder Capital, US Federal Reserve*

Figure 10. Average Lending Term In Repo Markets, 2002-2008 (Days)



Source: *CrossBorder Capital, US Federal Reserve*

At first sight, these recent programmes may boost Fed Credit by a whopping 50-60%. However, late-March and early-April data reveal that these injections are being 'offset' by reduced liquidity elsewhere. The Fed's *permanent* holdings of US Treasuries have dropped sharply, leaving overall Fed Credit growth languishing. **Since the crisis starting last August, US Fed credit to markets has grown by a dismal 0.5% annualised rate.** The 1966/67 banking crisis saw Fed Credit increase at an annualised 4.6%; in the 1975/76 crisis growth was 7.3%; in 1991/92 8.0%, followed by a similar 9.4% as that crisis lingered into 1993/94. The 1998 Russia Crisis and subsequent fall-out for US banks triggered Fed credit growth of 8.8%; ahead of Y2K the Fed expanded its balance sheet by a whopping 27.7%, and by a further 17.6% annualised in the wake of 9/11. In short, during past 'crises' when support was needed the Fed responded by raising its credit growth by an average annualised 11.9% clip: today's 0.5% response hardly figures! See Figure 12.

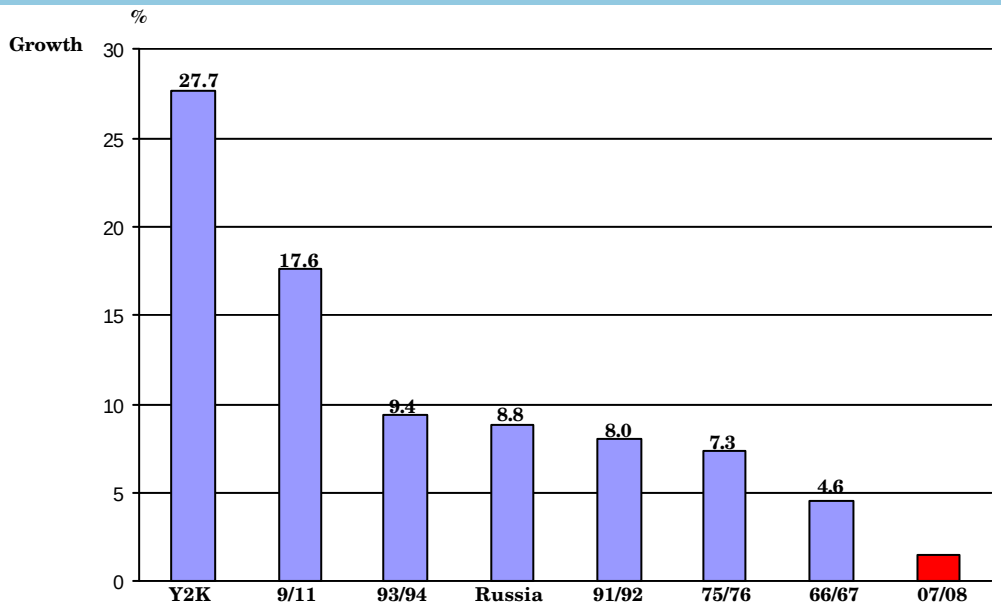
Figure 13 examines the Fed's recent actions in more detail. **Calculations through to early-April 2008 show a sizeable increase in 'temporary' open market operations but also a sizeable fall in so-called 'permanent' open market operations.** Treasuries bought outright have fallen by a whopping US$152.6 billion to US$560.8 billion since end-

Figure 11. Estimates Of Potential Federal Reserve Liquidity Boost, March 2008

	Gross (Mar 08)	Net (Mar 08)	Net (Dec 07)	Net (Jun 07)	Term (days)
Repos	100	100	56.8	18.4	6.2
Discount Window	0.2	0.2	3.8	0.2	1
TAF	100	100	60	0	28
TSLF	200	200	0	0	28
US$ Swaps	36	36	24	0	N/A
TIO	200	0	0	0	3.5
TOTAL	**636.2**	**436.2**	**144.6**	**18.6**	**16.2**
As % Fed Credit	*73.4%*	*50.5%*	*16.6%*	*2.2%*	

Source: *CrossBorder Capital, US Federal Reserve*

Figure 12. Federal Reserve Response To Previous Credit Crises (Annualised Growth In Fed Credit During Crisis Months Or Six Months Following Key Event)



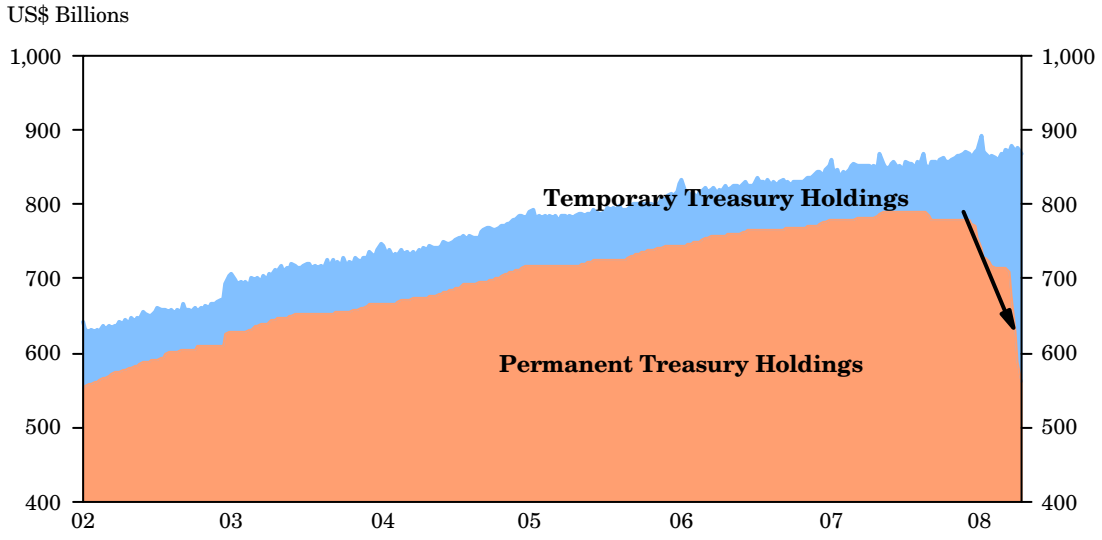
Source: *CrossBorder Capital, US Federal Reserve*

February, whereas temporary operations – including repos, term auction credit facility (TAF) and the primary dealers' credit facility (PDCF) – jumped by US$157.4 billion. In other words, after much wheel-spinning the Fed's balance sheet advanced by a measly US$4.8 billion. Progress, yes: but not much. The positive news is that the Fed is finally focussed on the all-important repo markets, but the disappointing addendum is that funds are being taken from elsewhere – a near-zero sum game. **Admittedly, it is still early days and premature to accurately judge the Fed's programme, yet we urge some caution: markets doubtless deserve to bounce, but investors still face an amber light and not yet a full-on green.**

We're caught between thinking this sluggish supply of Fed credit is simply an error, or that it is deliberate policy. The Fed is wedded to targeting interest rates and remains convinced that, provided it finds the 'neutral' rate, the markets will create sufficient overall liquidity. Yet, as Figure 14 highlights, there has lately been little correspondence between the Fed's own judgement of its stance (gauged from the Taylor Rule 'gap') and the true liquidity position in US markets. **However, if we revert back to the pre-1995 years, when Volcker and an 'unreconstructed' Greenspan ruled, the Fed then used American liquidity conditions to surreptitiously target the US dollar, either through influencing a US dollar index of commodity prices and/or the nominal US dollar gold price.** The current backdrop of nagging US inflation and concerns about runaway food price inflation worldwide may have spurred policy-makers to do something? The April G7 Meeting sounded unusually co-ordinated in their desire to stabilise currencies and contain food price inflation. And, the Japanese Press 'leaked' policy discussions in which President Bush allegedly voiced the need for a *"… strong US dollar."* It is unprecedented for the President to discuss the currency. Something may be up?

The implication here is that the decrease in desired asset duration and the consequent increased demands for liquidity implied by steeper US yield curves will be more-and-more forced on the private sector rather than being supplied through an accommodating Fed. Short-term interest rates could still drop, but we always figure that interest rates are a particularly ambiguous guide to the monetary stance. **The only way the private sector can garner more liquidity is to work harder, sell more things and slow spending.** Thus, the outlook for US retail spending and new hiring look bleak, the prospects for the narrowing trade deficit and lower inflation appear much better. Financial markets balance these influences and typically will respond most to falling inflation once the trough in spending closes in. We may be getting nearer but we're not yet there.

Figure 13. Breakdown Of US Fed Credit, 2002-2008 (Weekly, US Dollar Billions)



Source: *CrossBorder Capital, US Federal Reserve*

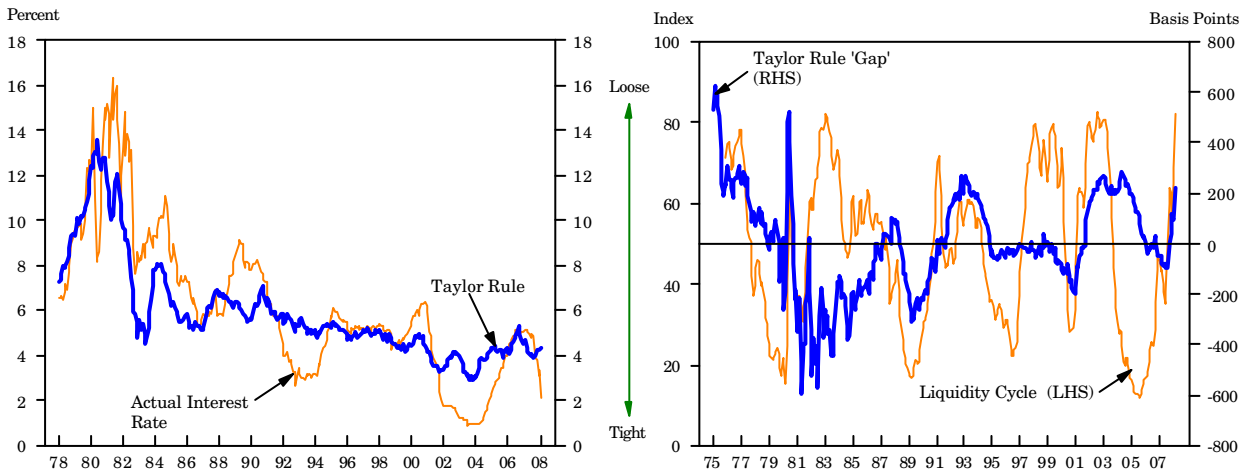
Conclusion: Taylor Mis-Rule

In short, Central Banks are too interest rate fixated and rely too much on the Taylor Rule. We have railed against the Taylor Rule for years. The credit turmoil of the past year stands as judge and jury that: (a) liquidity conditions, and not interest rates, matter; and (b) the Taylor Rule is a misguided and inaccurate way to operate monetary policy. Many assume that the Taylor Rule captures the 'neutral' or optimal interest rate; that deviations in market interest rates will restore equilibrium, and that Central Banks can control and fine-tune market interest rates. **But Central Banks do not set interest rates; they set interest rate targets, which can be very different.** A pursuit of the 'correct' interest rate targets can radically change liquidity conditions, largely because the rate of interest is not the *price of money* and so it is not established in the general money markets. But a pursuit of the 'wrong' interest rate targets, as generated by the Taylor Rule, can devastate liquidity conditions and greatly exaggerate the credit cycle.

The Taylor Rule sets the 'wrong' interest rate for several reasons. First, it embeds the discredited *Phillips Curve* relationship between lower unemployment and faster inflation – unemployment affects real wages rather than nominal wages. Second, it assumes a closed economy, whereas today's open/globalised economies can channel excess demand pressures through their trade accounts. Thus, in the absence of her whopping trade deficit America's inflation rate might be higher. Third, the Taylor Rule functions with an assumption of a constant real interest rate of circa 3%. We believe that the secular drop in the marginal productivity of capital has already tipped this to a lower 1%. Thus, targeted 'neutral' rates will be too high. Fourth, the Taylor Rule ignores asset prices. Rapid credit growth may first show up in rising asset prices and only later appear in higher consumer price inflation. In this case, the Taylor Rule would be a lagging policy indicator.

Monetary policy has become hostage to the errors of academic economics and business school finance programmes. Modern finance theory sees financial markets as *capital-raising mechanisms*, whereas they have evolved into *capital-distribution mechanisms* in the mature industrial economies. **Thus, the business cycle in these latter economies has become largely a cycle of asset duration not income growth.** As such, asset duration and liquidity are more important concepts than the cost of credit. Modern economics is all about the *uses of funds*, e.g. consumption, capital spending, and not the *sources of funds*, e.g. credit and savings. Liquidity is a measure of the sources of funds, and through liquidity

Figure 14. US Taylor Rule Target And Actual Fed Funds Rate; And Taylor Rule Gap And Liquidity Cycle, 1975-2008



Source: *CrossBorder Capital, US Federal Reserve*

and its connection to asset duration, we can establish a bridge between finance and economics. Liquidity is controlled by Central Banks, not interest rates. Changes in liquidity show up first in forex markets because the exchange rate is the*price of money*. Low exchange rate (and low commodity price) volatility should signal an equilibrium monetary policy. **Once Central Banks realise this – and the lessons of the last year have been stark – the World will never be the same. The US dollar may prove the litmus test for investors. A stronger dollar likely signals a less accommodative Fed. And a stronger dollar spells bad news for those currently 'crowded trades': emerging markets and commodity prices. Watch it ...**

CROSSBORDER CAPITAL LIMITED
MARCOL HOUSE
289-293 REGENT STREET
LONDON W1B 2HJ
TELEPHONE 020 7535 0400 FACSIMILE 020 7535 0435

CrossBorderCapital
Implementing Insight

The Message From A Previous 'Low'

Michael Howell

May 2011

We are republishing this report, two years after it first came out in February 2009, just before the 'low' in World stock markets. The Message From A Previous 'Low', consists of a series of prescient political cartoons (with our narrative) penned by the New Zealand satirist David Low (1891-1963) from the late-1920s onwards. The cartoons focus on the Depression and subsequent economic recovery; the monetary solution; the rise of extreme politics and the slow but seemingly inevitable slide towards international conflict through the late-1930s. Low's main themes were: (1) the dominance of stupidity over conspiracy as the recurring challenge in national life; (2) ; the fragility of existing monetary arrangements and the inability of bankers and policy-makers to understand that money must keep circulating and sometimes had to be actively 'unfrozen'; (3) the problem of overproduction in America and Japan during the post-WW1 economy (read post-Cold War economy today ; (4) the 'false hope' of international co-operation, which always descended to selfish national interests as the newly emergent nations scrambled for natural resources and 'living space'.and the (5) naivety of 'appeasement' towards the rapacious fascist/ military powers in Europe and Asia.

Politico-economic leadership changes are fraught times. Could they also serve as a roadmap for us today? We are not using these cartoons to predict a coming global conflict. Rather they are points for investors and asset allocators to ponder. We are republishing because our great grandparents faced similar challenges to us, and the timeline of Low's cartoons reveal both close parallels with today and the future pitfalls we must ensure that we avoid. We have divided Low's insights into four groups, rather than simply publish them chronologically. Each section deals with a specific global problem, relevant both then and now: (1) Overproduction; (2) Fragile Finance, and (3) Central Bank Monetary Deflation & Policy Inertia. These led on to a number of: (4) Consequences, such as imperialism, trade protection, migration quotas, re-armament, currency volatility, inflation and over-hyped stock markets.

Thus, our central thought over the past two decades has been that the key event for our generation is the Fall of the Berlin Wall, and not the demise of Lehman Brothers. The consequences are the near quadrupling of the capitalist labour force; the unstoppable economic 'catch-up' of the emerging markets; structural cost deflation, and the resulting burden from huge Western debt accumulation and its inevitable monetary (i.e. liquidity) solution. Thus gold, history's unchallenged store of value, again looks the outright winner. Those who, rightly, fear high-street inflation should jump to page 26 and note that it was then the ultimate 'End Game', but it came some twenty-five years after the Wall Street Crash.

96 Baker Street
London W1U 6TJ
Tel (44) 20 7908 2800
crossbordercapital.com

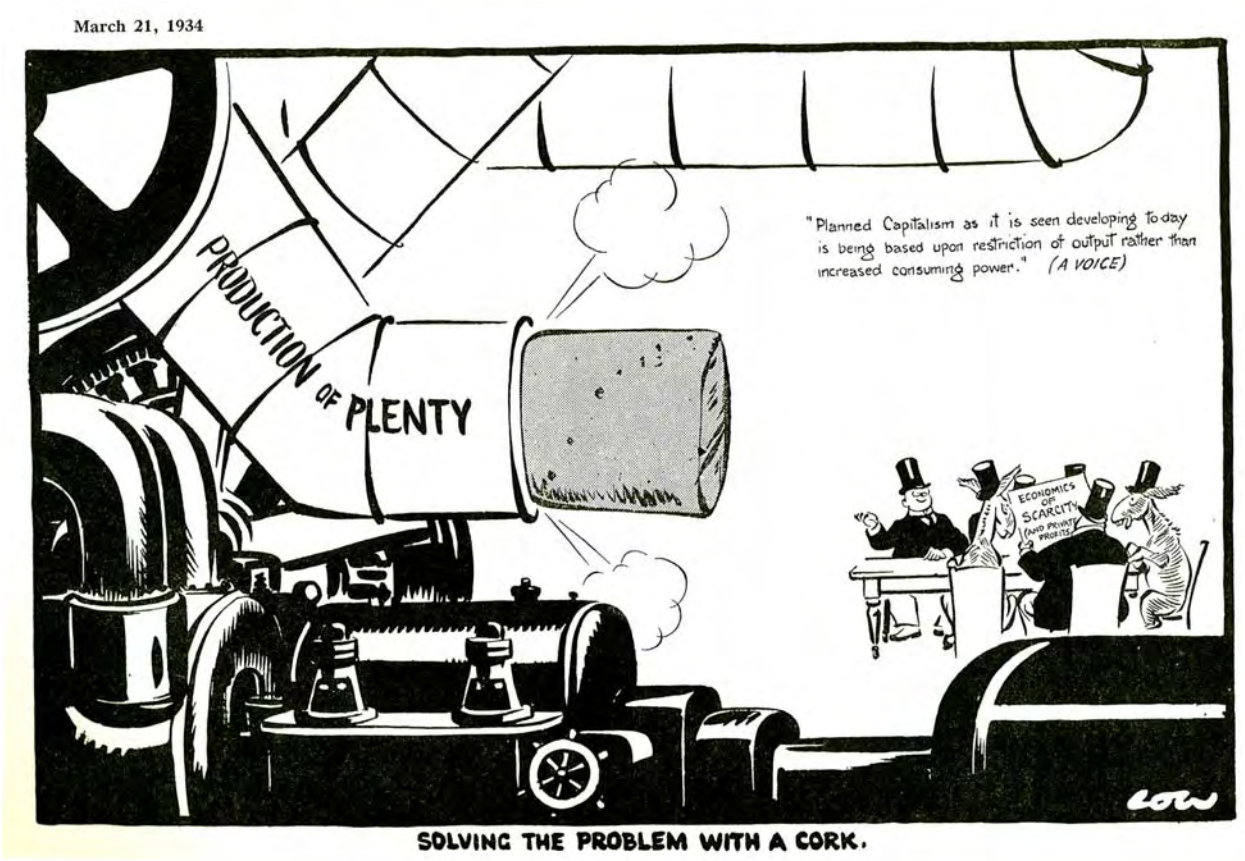
CrossBorderCapital
Implementing Insight

Overproduction

The Evening Standard - March 21, 1934

General Overproduction. Recall the power of America in the early 1920s:

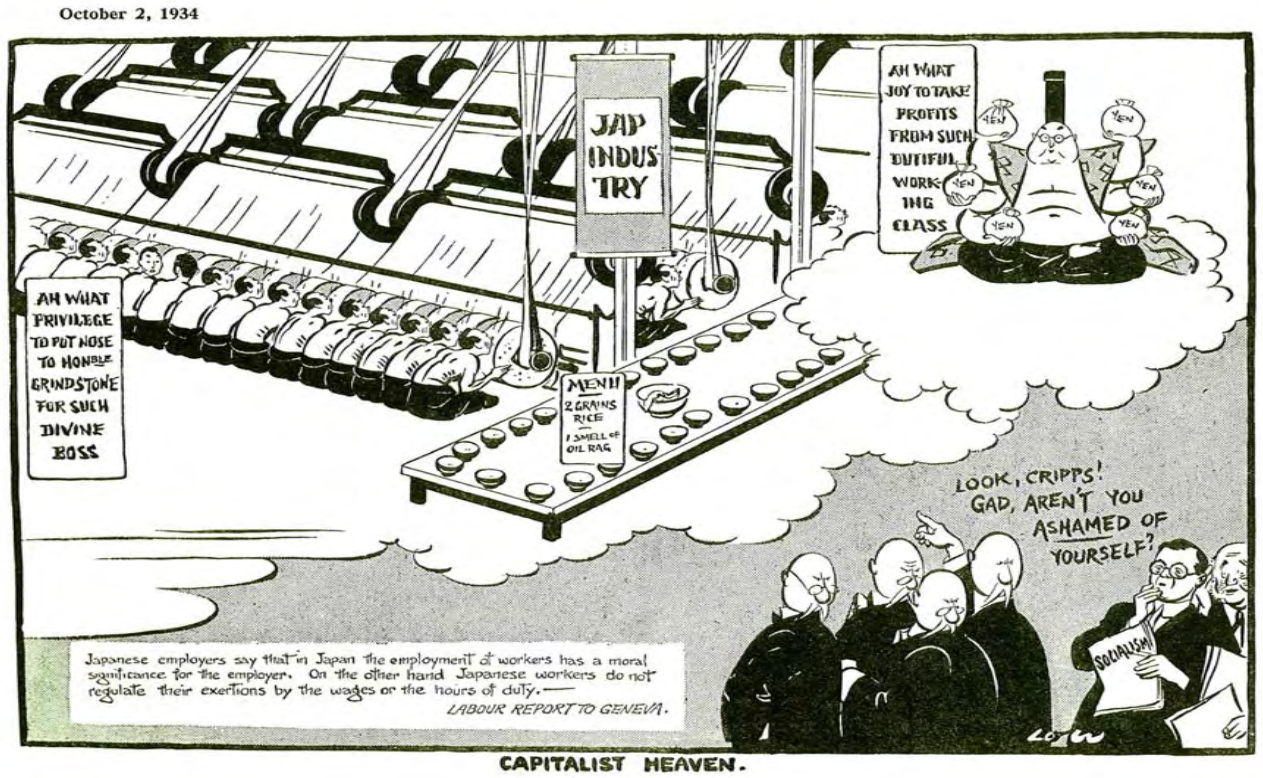
"Throughout the 1920s production and productivity per worker grew steadily; between 1920 and 1929, output per worker in manufacturing industries increased by about forty three percent. Wages, salaries and prices all remained comparatively stable, or at least underwent no comparable increase. Accordingly, costs fell, and with prices the same, profits increased. These profits sustained the spending of the well-to-do, and they also nourished at least some of the expectations behind the stock market boom. ***Most of all, they encouraged a very high level of capital investment.*** *During the twenties, the production of capital goods increased at an average annual rate of 6.4 per cent per year* ***[75% over 1920-29]****; non-durable consumer goods … increased at a rate of only 2.8 percent* ***[28% over 1920-29]*** *…A large and increasing investment in capital goods was … a principle device by which the profits were being spent." (J.K.Galbraith, The Great Crash, 1954).*



The Evening Standard - October 2, 1934

Overproduction from the East.

The Japanese Yen had been fixed to Sterling at close to ¥10/£, but by 1935 it had fallen to ¥17.1/£.



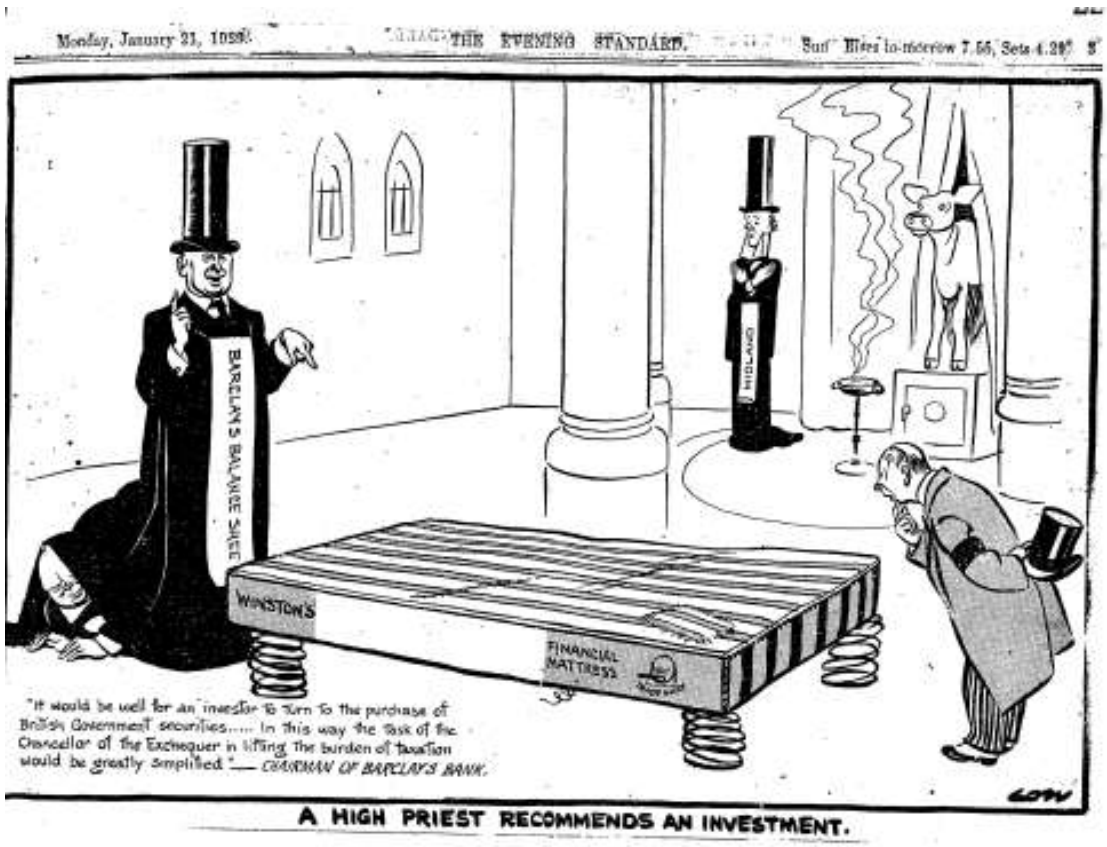
CrossBorderCapital
Implementing Insight

Fragile Finance

January 21, 1929

Supporting the banks. Inside every bank chairman there is a Chancellor wanting to come out.

Can you spot Winston Churchill the British Chancellor (Finance Minister)?



July 16 1931

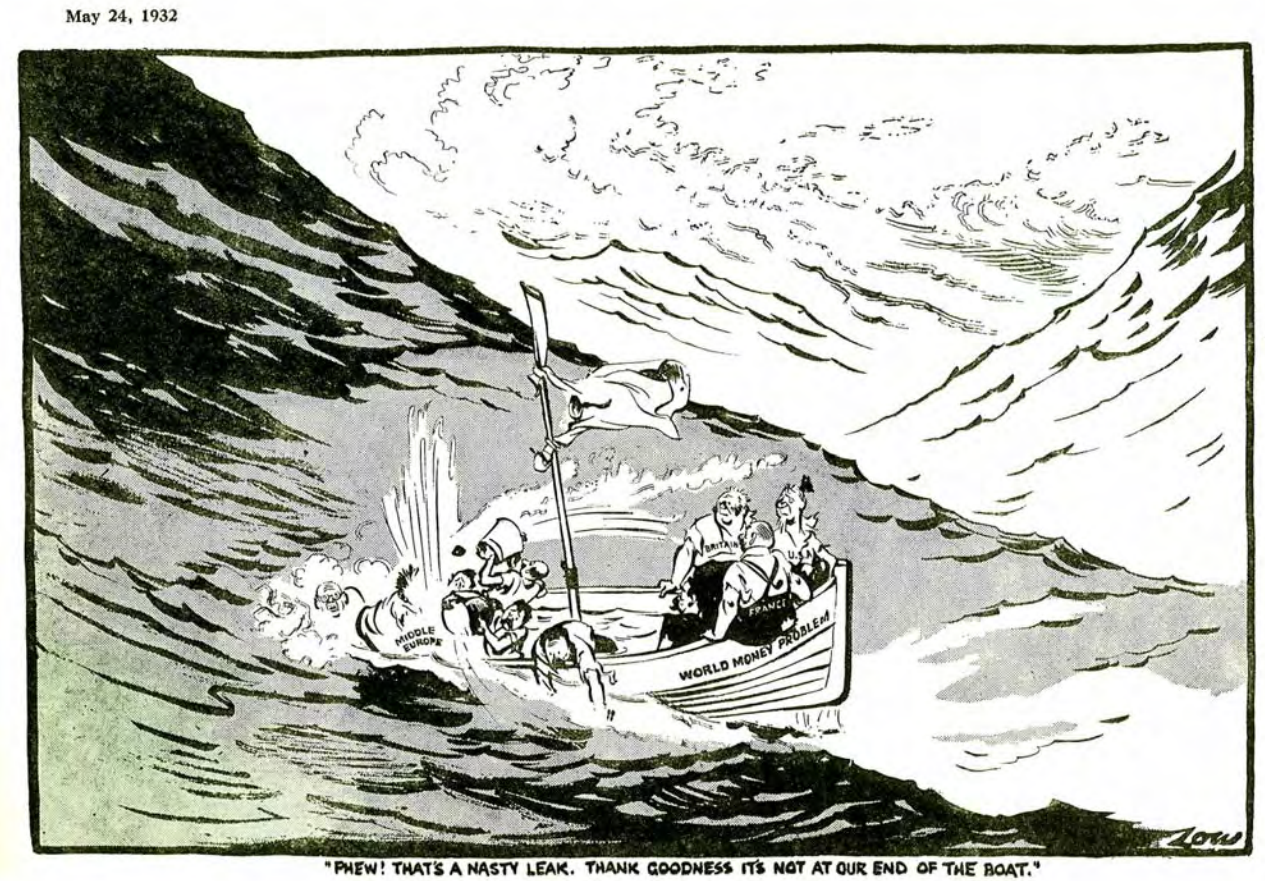
Bolsheviks look on while international bankers scramble out the Young Plan to continue the flow of lending, following failure of 1924's Dawes Plan for the payment of Germany's WW1 Reparations.

Europe was an important source of demand for America's factories. Between 1923 and 1935, 49.1% of US exports went to Europe.

It was also an important haven for American capital. Some 40% of German capital inflows came from the US over the period. Intriguingly, the three great waves of capital flight from Germany were partly triggered by fear of Communism!

The Evening Standard - May 24, 1932

It's a global problem. 'Leak' appears in Middle Europe and threatens to capsize World Economy.



Fragile banks ..... all around while unsold goods pile up.

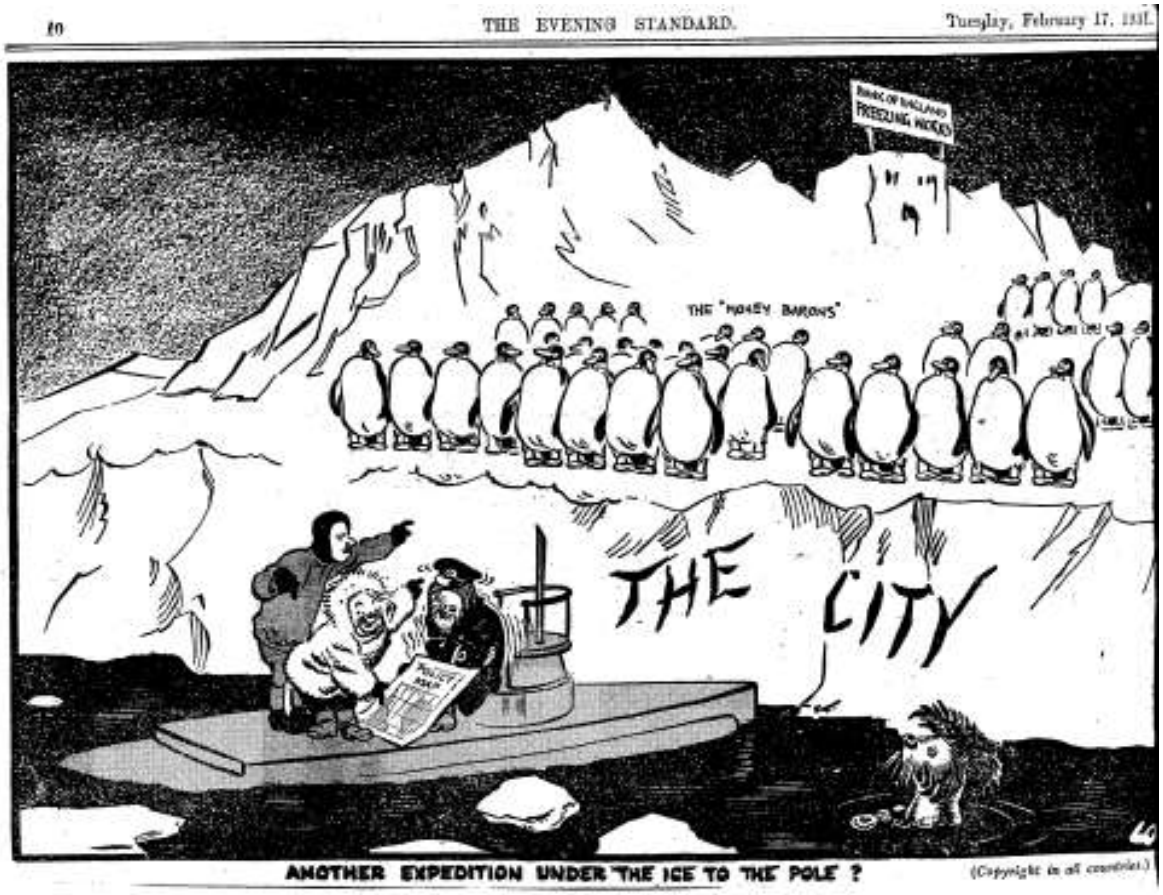
CrossBorderCapital
Implementing Insight

Monetary Deflation

February 17 1931

Bank of England "freezing" up financial circulation as money barons look on.

Stockmarkets became the ultimate barometer of frozen money and deflation. Wall Street averaged an index level of 21.9 in 1929 but fell to 17.7 in 1930 following the Crash. 1931 saw a greater collapse to 11.5 and shares only hit bottom at an index of 5.8 in 1932.



December 17, 1931

The circular flow of income and spending.
Keep the money moving!

The Evening Standard - October 24, 1932

Central Bank money is locked up and not circulating.

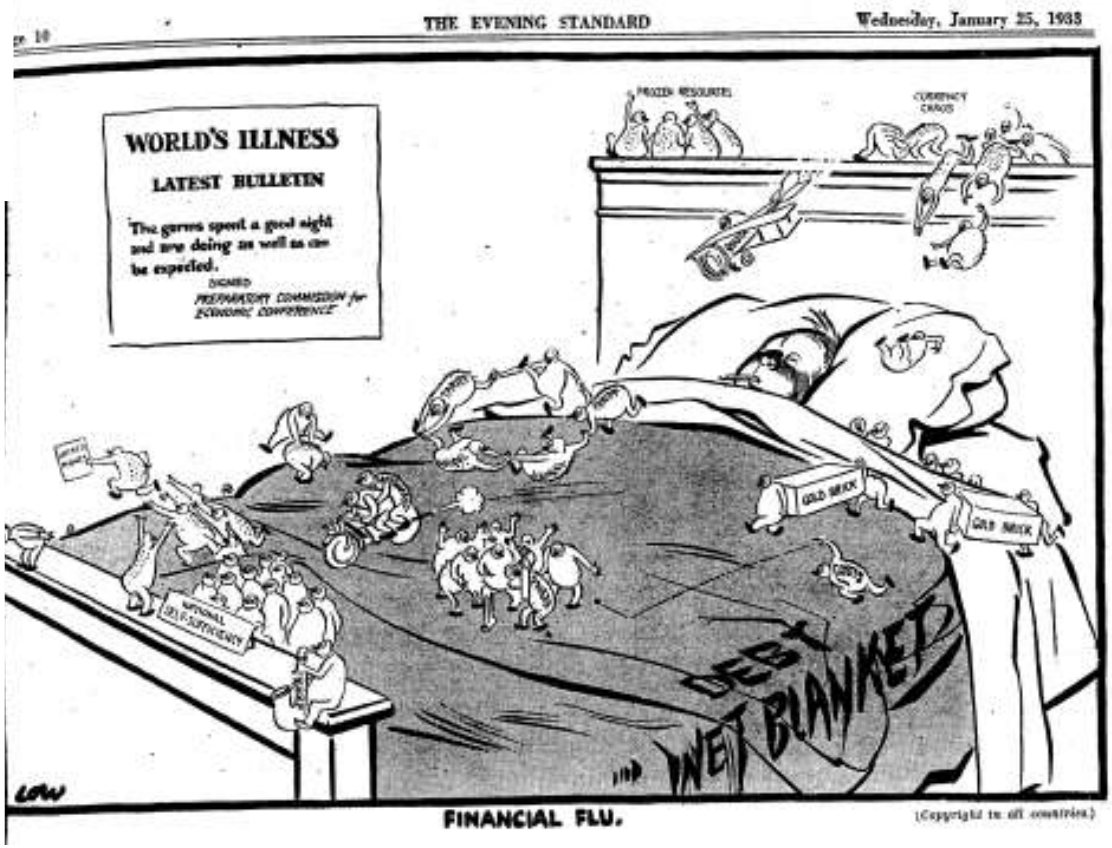
UK Treasury Bill rates fell to 1.486% in 1932, from their 1929 5.264% peak.

January 25, 1933

Currency chaos, unused resources.....

Same problems, no remedy in sight.

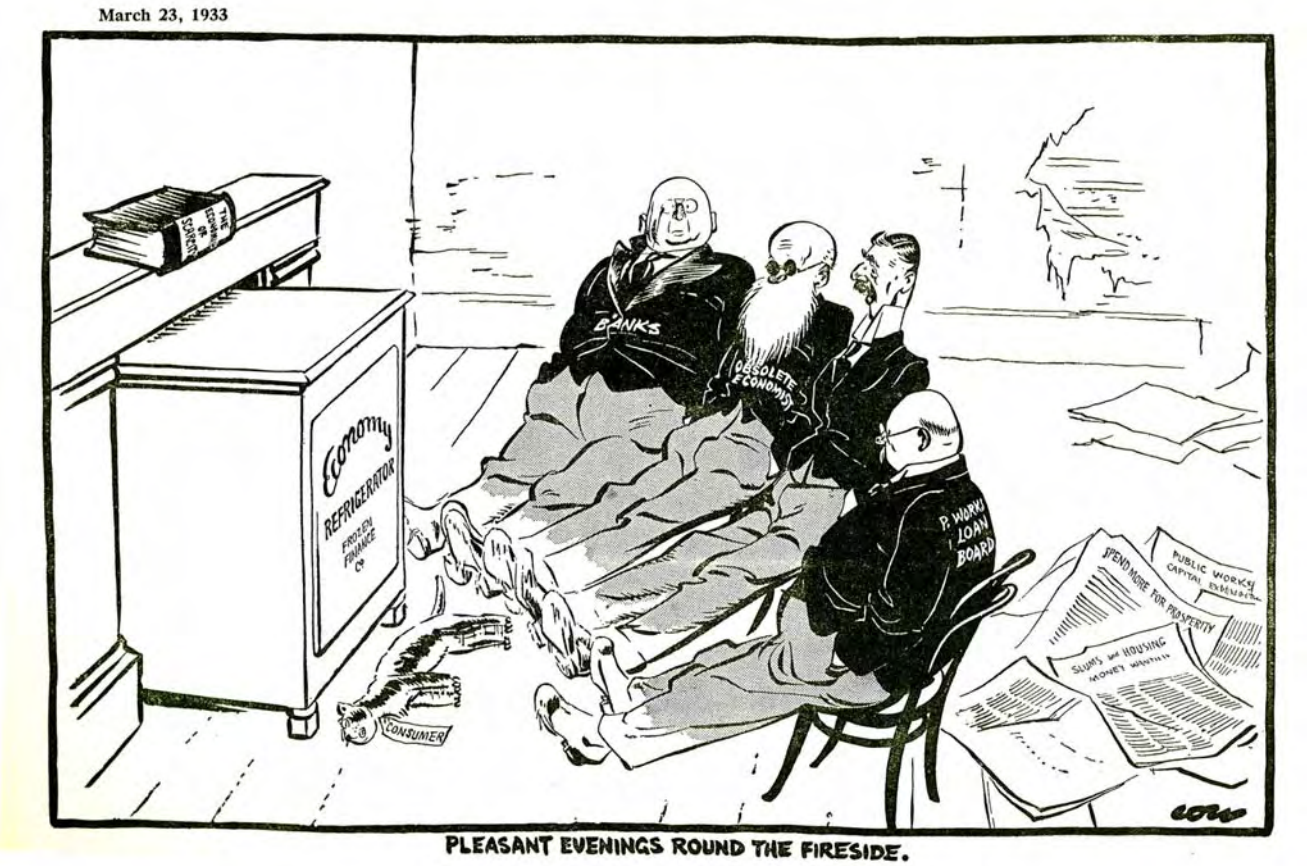
Between 1931 and 1934 Sterling fluctuated from US$4.859/£ to US$3.504/£ and back to US$5.041/£.



The Evening Standard - March 23, 1933

No idea of how to 'unfreeze' finance.

UK Treasury Bill rates dropped again to 0.591% in 1933. US rates hit 0.52%. US Steel production ended 1932 at 13.6m tons, drastically below its 1929 peak of 51.3m tons. US unemployment reached 12.8m in 1933 or 24.9% of the workforce.



November 3, 1932

Bank of England Governor, Montague Norman, is shown urging economy, when really more money is needed

April 3, 1935

Policy inertia - Governments try to balance the books.

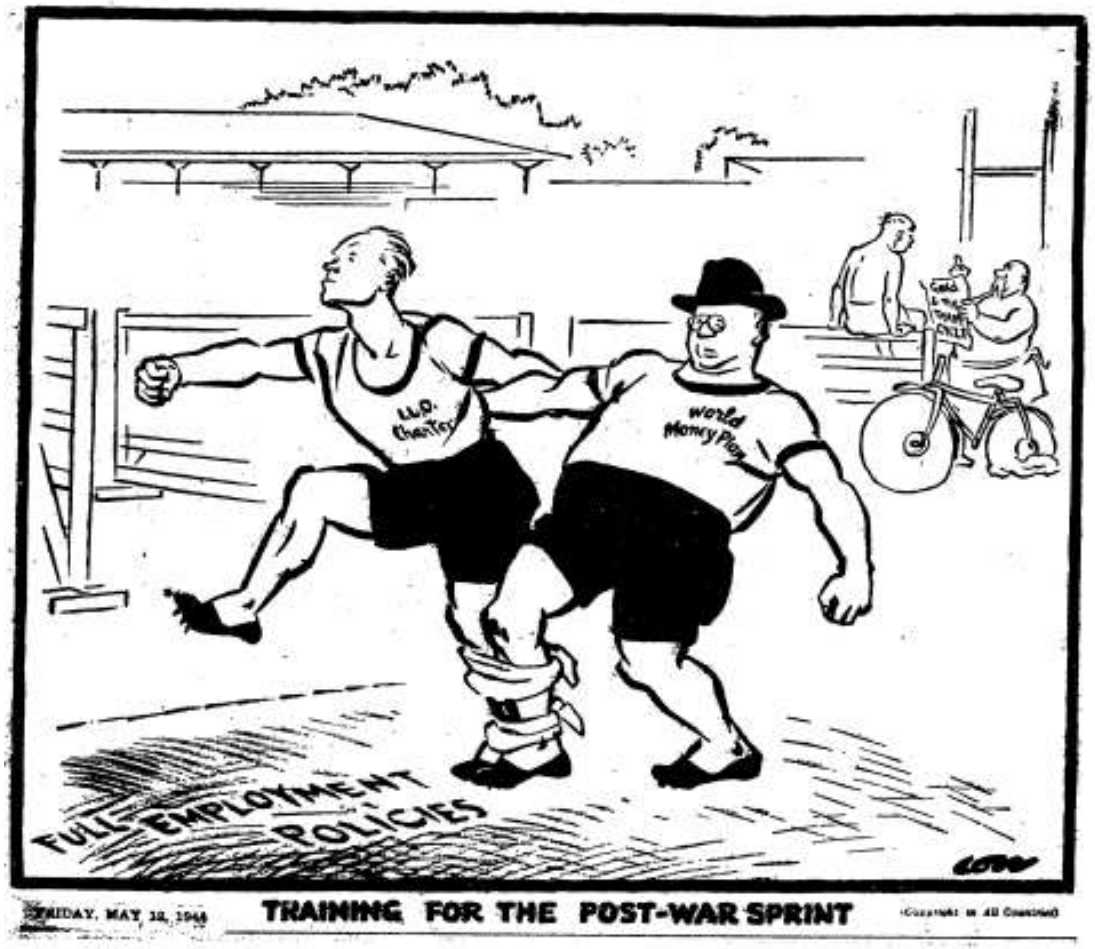
From 1920 - 29, the US ran a consistent fiscal surplus. 1937 saw another surplus.

The Evening Standard - April 15, 1943

Lead up to creation of IMF and Bretton Woods and the need to follow rules. Ahead of Depression, Gold Standard's rules were broken.

The Evening Standard - May 18, 1944

Ideals of UN Charter held back by World finance. Notice that the 'trade cycle' has a flat tyre.



The Evening Standard - July 18 1944

Bretton Woods and the birth of the IMF. Gold makes a reappearance to dismay of Central Bankers.

Note Keynes (UK) and Morgenthau (US) are the 'midwives'.

CrossBorderCapital
Implementing Insight

Consequences

The Evening Standard - October 9, 1933

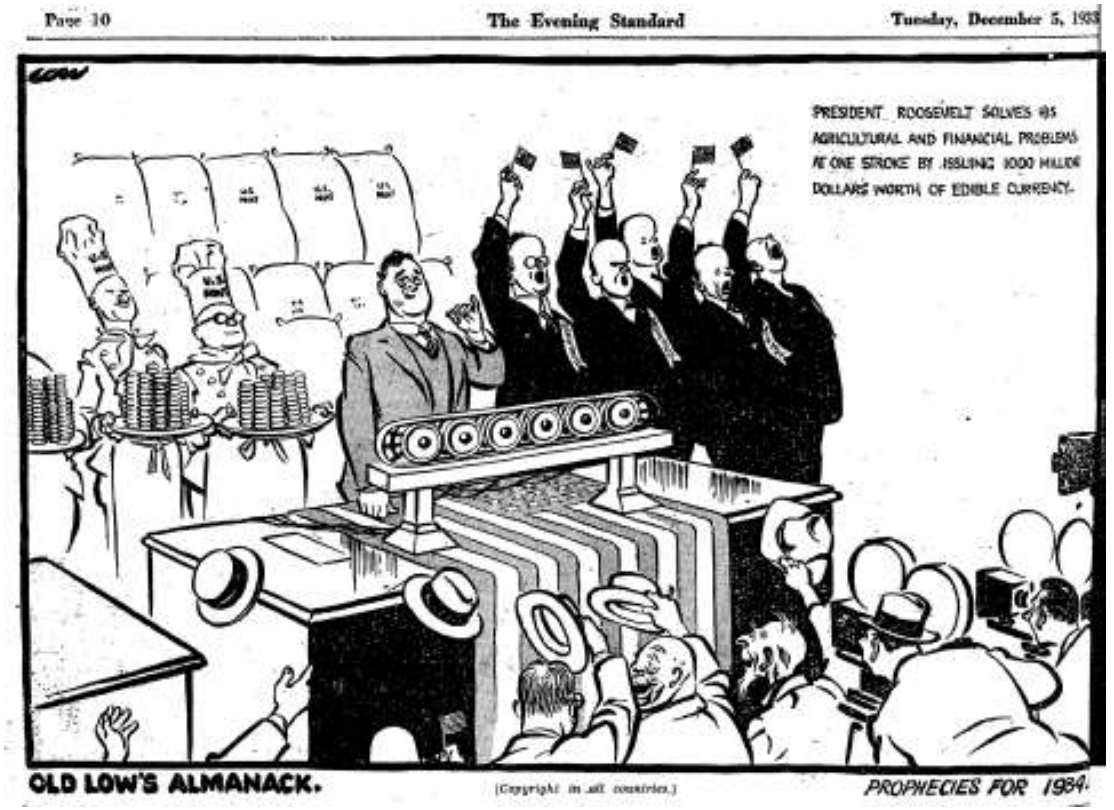
One solution!

The 1930s were a decade of conflict and rising nationalism. WW2 occured less than 10 years after the 1929 Wall Street Crash.

December 5, 1933

Election of a new president in 1933. Printing money becomes a 'solution'. The only thing America had to fear was ..... monetary inflation.

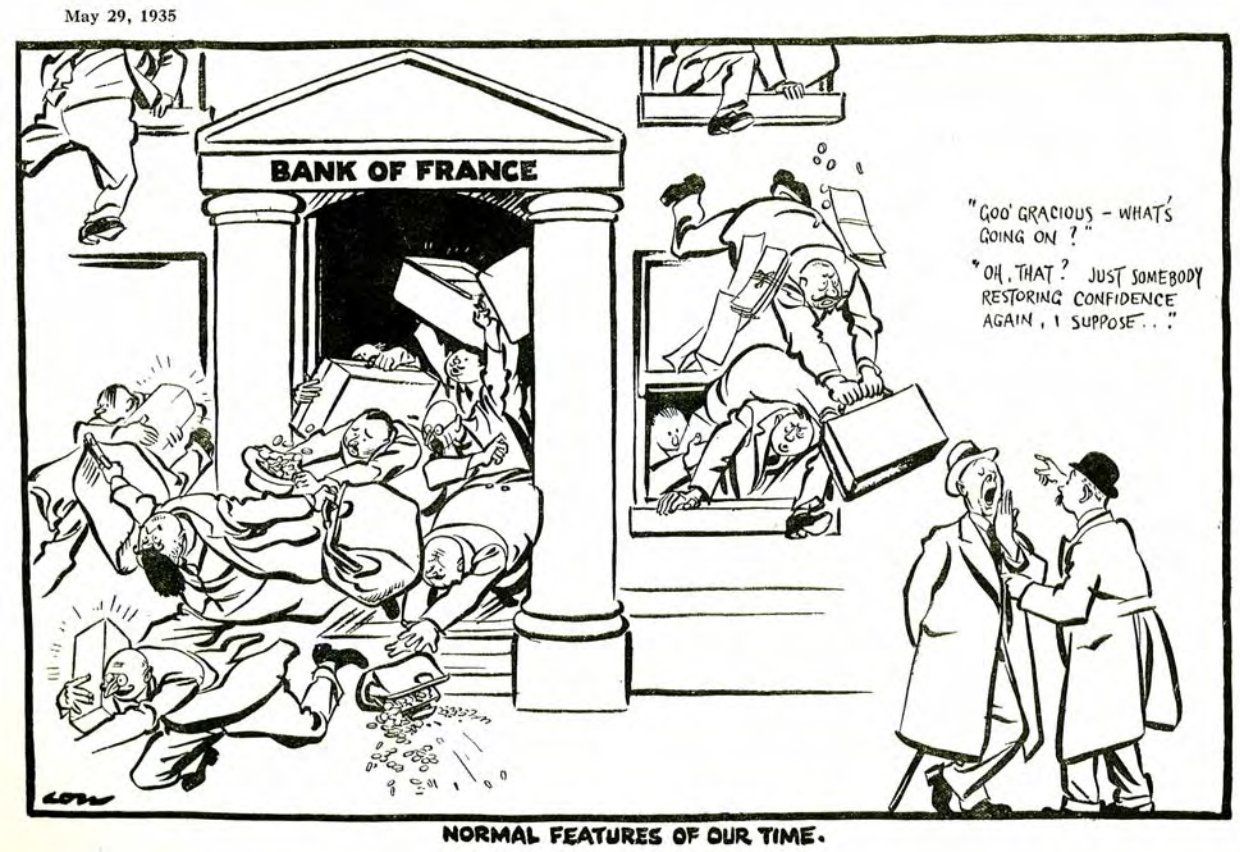
Roosevelt was elected on a policy of "sound money", whatever that meant? It was said that he was careful to avoid specifically mentioning the Gold Standard.



The Evening Standard - May 29, 1935

Run on the French Franc as deflationary pressures build. France was ultimately forced to devalue the Franc (1936).

In 1921, the Franc stood at FF51.9/£. By 1926 it had collapsed to FF152.38/£. It then rallied to FF124.06/£ in 1931 and continued strengthening to FF74.27/£ in 1935, before slumping back to FF176.65/£ by 1939.

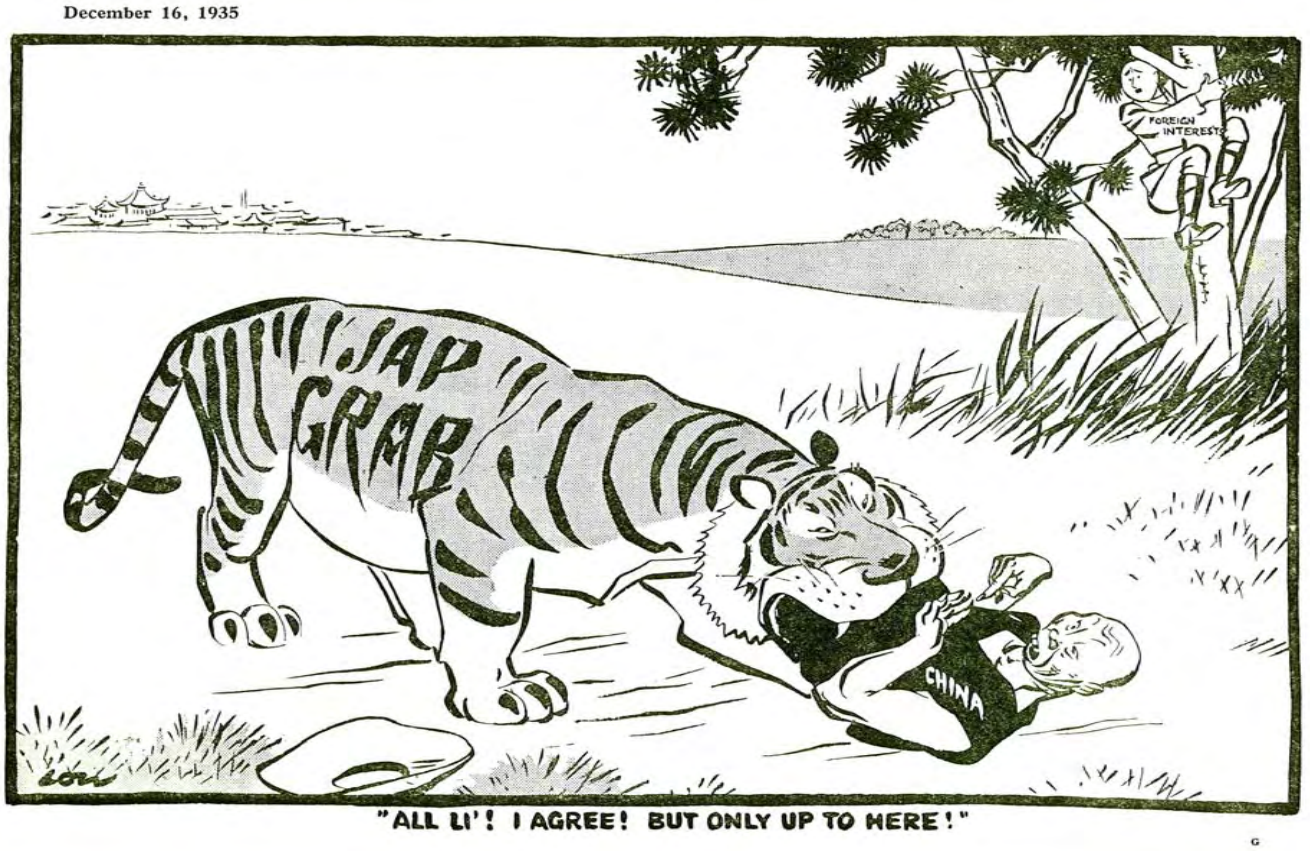


The Evening Standard - December 16, 1935

Japan invades China. Imperialism reappears.

The new US policy of aggressive silver purchases, part of Roosevelt program of raising commodity prices, devastated China. China operated a Silver Standard and rising World silver prices caused the export of Chinese silver, thereby dragging China into deflation.

Ironically, in 1934 Japan sent an invitation to China, pledging support against America's silver policy in return for all Chinese land North of the Yangtze.

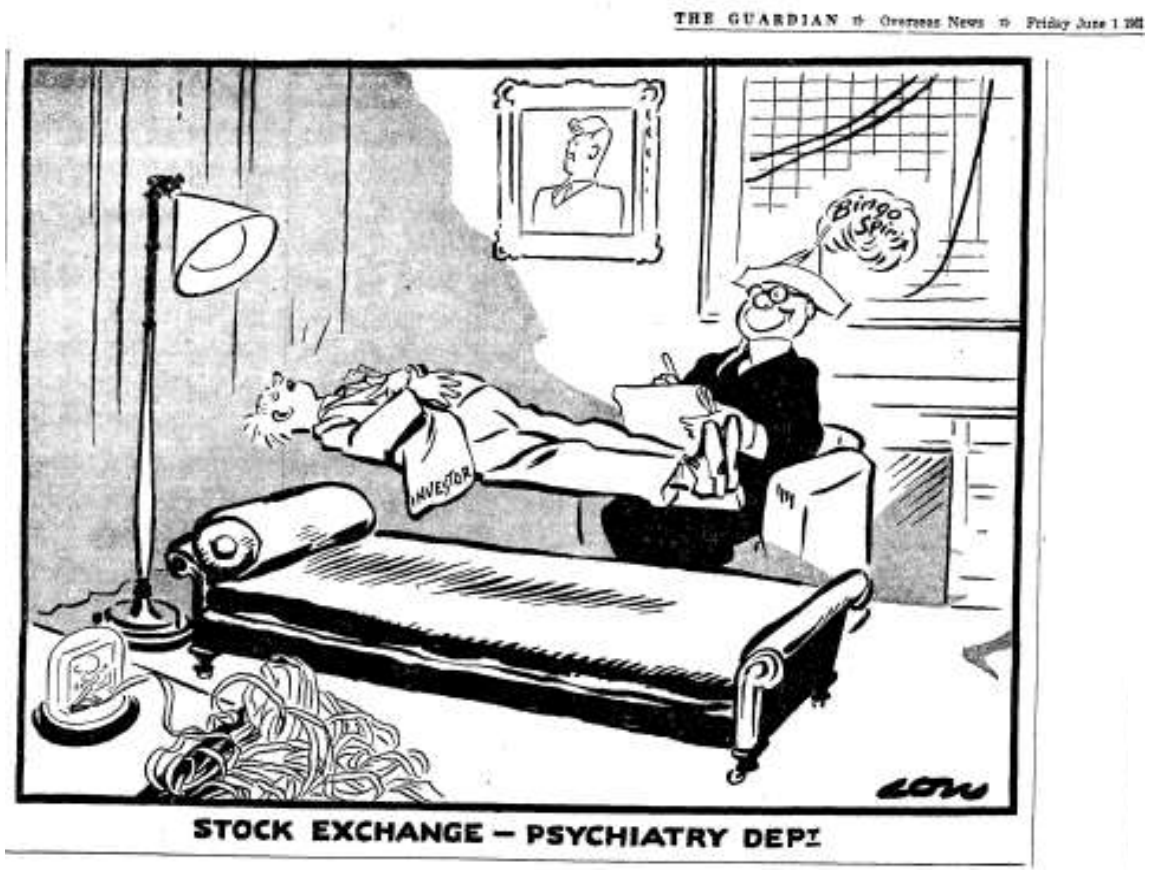


July 19, 1957

Desperately trying to turn off the money tap.

June 1, 1962

From depression to euphoria. Stockmarket now too elevated?



CrossBorderCapital
Implementing Insight

Global View

August 2011

Odds of a QE3 ... 100%

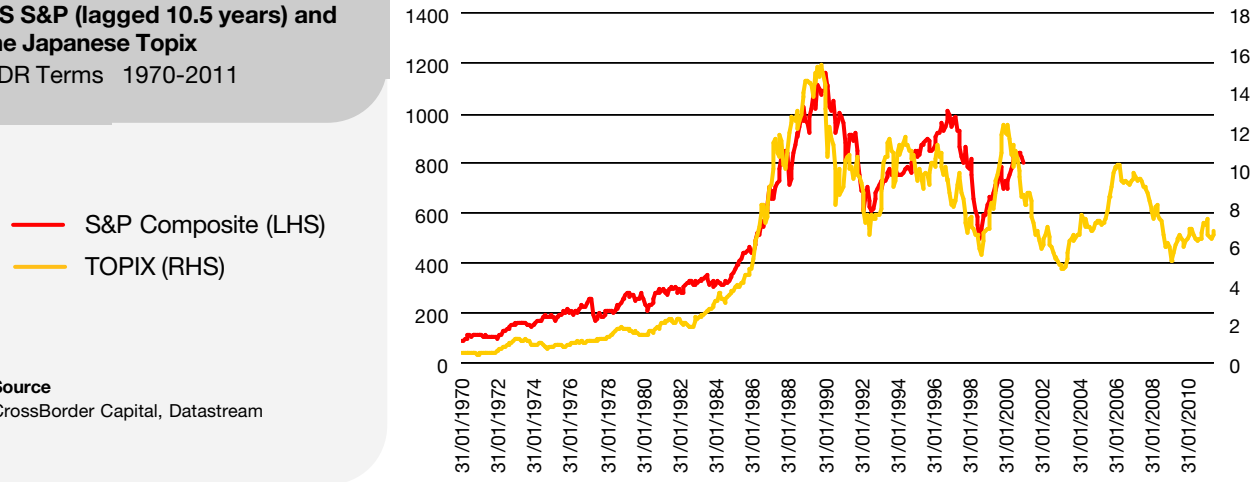
More QE looks inevitable. Western economies cannot cope being saddled with huge debt burdens. Western politics cannot cope with persistently high unemployment. Debt must either be defaulted or, more probably, devalued. Devaluation means more *monetary inflation* which is just another term for QE. Western currencies must tumble further, and this means not just the US dollar. Gold, as we have maintained for a decade, is the major winner. Economic rebalancing also needs Asian and EM currencies to rise in real terms. Asian governments, like Japan and Germany in the late 1970s, will drag their feet, forcing more adjustment onto Western units and ultimately putting upward pressure on EM asset prices and downward pressure on Western asset prices.

We re-iterate our view that the World changed in 1989 with the *Fall of the Berlin Wall,* and not in 2008 with the failure of Lehman Brothers, or in 2010 with the *de facto* bankruptcy of Greece. The latter are merely symptoms of deeper real economy troubles. In the past 150 years, the World has seen three major productivity surges: (1) US economy in early twentieth century; (2) German and Asian Tiger economies in 1950s and 1960s, and (3) China, India, Brazil and other EM economies from late-1980s onwards. **These jumps in productivity demand parallel real exchange rate changes. Real exchange rates can increase either by a rise in the nominal exchange rate or through a rise in some national price level.**

This does not have to be consumer prices, and, in practice, e.g. Japan in the 1980s, price level adjustment is often expressed through an increase in asset prices.

Clearly, there is a trade-off. **The more that the nominal exchange rate adjusts, the less onus there will be on other prices to rise.** Equally, the less the nominal exchange rate adjusts, the more other prices, e.g. stocks and real estate, have to increase. On top, this works both ways. A stronger Chinese real exchange rate might also occur through a weaker US dollar and deflation of US price levels, including falling high street prices and a tumbling Wall Street.

Figure 1
US S&P (lagged 10.5 years) and the Japanese Topix
SDR Terms 1970-2011



Source
CrossBorder Capital, Datastream

96 Baker Street
London W1U 6TJ
Tel (44) 20 7908 2800
crossbordercapital.com

Understanding the role of currencies in this adjustment picture is crucial. For example, if the US authorities do not want to see Wall Street lower, they will pump in liquidity to hold it up. However, this will cause the US dollar to skid lower, and if the Chinese act to maintain the existing RMB/US dollar parity, the bulk of adjustment must come from the US dollar collapsing against other units, such as the Euro, the Swiss Franc, the Yen and, most importantly, gold.

Figure 1 highlights this process by comparing the Japanese and US stockmarkets in common currency (SDR) terms. Although it appears that, since QE1 and QE2, Wall Street has decoupled from the path taken by the Tokyo market after its 1989 bubble, the truth is that once the weaker US dollar is included, American asset markets are on-track with Japan's previously trodden path. In short, either Wall Street falls, or the US dollar falls to restore the balance.

The investment message is clear. Looking into the medium term, EM asset markets in EM currency terms will significantly outperform Western asset markets in Western currency terms. There are four potential moving parts: which moves most is a moot point, but if pushed we would argue that Western policy-makers would rather allow their currencies to slide than their asset markets collapse. Equally, EM policy-makers would rather their asset markets rise than their currencies rocket higher.

Central Bankers have been quicker than most to learn lessons and to understand just how to hold their asset markets up. They have re-discovered a 'new' lever called *quantitative easing* (QE) and downplayed another lever called interest rates. **We have long maintained that interest rates don't matter, but liquidity does.** There is only a loose historical relationship between the level of short-term interest rates and the volume of liquidity. The level of interest rates is determined by real economy profitability. Interest rates are low, not because liquidity is abundant but because profitability is weak. Liquidity affects spreads and risk premia. By expanding the volume of cash and credit (a.k.a. access to cash), the monetary sector reduces risk premia. The four main risk premia are: (a) the interest rate yield curve; (b) the corporate credit spread; (c) the equity risk premium, and (d) the exchange rate.

Not only can Central Banks control the volume of liquidity, they can also set the level of overnight interest rates. If this sounds like having one's cake and eating it, it is! Few investors seem to understand this process. What's more, it is opposite to all the economic textbooks, which discuss policy in terms of a choice between setting the volume of funds or the interest rate, but not both.

The change results technically from the corridor system of interest rate control now adopted by most Central Banks. Through QE policies the volume of liquidity is expanded, often significantly, but interest rates are held around their target levels by the willingness of policy-makers to pay banks with 'surplus' funds an interest rate (at the target rate) on any deposits they make with the Central Bank. In a way, this mops up liquidity by creating an artificial demand for it. **But the important fact is that by offering the banks the opportunity to hold vast amounts of liquidity, policy-makers reduce risk premia and so encourage bankers to invest in longer duration assets, such as government bonds.** Of course, locking in a juicy yield spread helps banks restore their capital, while at the same time they are holding large amounts of cash: solvency and liquidity concerns nearly killed-off with a single policy stone.

The problem, of course, comes when QE stops. Risk premia rise, among other things forcing yield curves to flatten, which, assuming unchanged interest rate targets, must force bond yields lower. Indeed, this was the immediate response to the end of QE2 in the US. These rising risk premia must be off-set by a renewed QE3 in America or via a QE2 in Europe and Japan.

The Eurozone suffers remarkably tight liquidity. Our weekly measure of net liquidity provision by the ECB is dramatically lower than its E722.3 billion level of last summer: the period following the initial Greek Crisis. As a result, the Eurozone monetary base stands a whopping 14.4% down on its year ago levels. No sign of QE here! To reinforce the point, around one fifth of ECB liquidity provision is being deliberately channelled into the fringe economies to ease their funding blight, which itself is worsening as depositors shift their accounts towards non-domestic banks.

Our monthly index of ECB liquidity hit a suicidal 1% in July 2011, or well-below its 84.9% year ago level. The index ('normal' range 0%-100%) is a normalised z-score of several

balance sheet liquidity measures scaled relative to GDP. **It was last at these levels in mid-2008 and the last time a major Central Bank was at similar lows was the Russian Central Bank in early summer 1998, or just before the August Crisis.** Before we incite panic, there are two important caveats: (1) in 1998 the Russian State was bankrupt and, having no domestic savings to tap, it was forced to print money. Europe's problems are in the periphery and the core remains rich in savings; (2) Russian private banks were no stronger than the State in 1998, but the average Eurozone bank still enjoys good balance sheet liquidity.

Nonetheless, there is no reason for complacency. The plain fact is that tight domestic liquidity conditions go some long way to explain why the Euro is seemingly defying economic gravity. When economic conditions demand it, e.g. unacceptably high unemployment, liquidity will be relaxed and the Euro could tumble. We have previously drawn the analogy between the present day position of the Euro and the condition of the French Franc in the 1930s. The French Franc was very, very strong until it was very, very weak. Our *crie-de-coeur* remains true: just like the 1930s, the cocktail of large debts and quantitative easing creates devastating currency volatility. The interwar Franc suffered a roller-coaster ride. Putting the Euro in the same frame, it would have started in 1933 at the equivalent of US$1.25/ ; rocketed to US$2.10/ within two years and then collapsed to US$0.80/ and then to US$0.20/ as the German tanks rolled in.

Europe's periphery is bust. More importantly, the causes of the bust, namely a propensity to over-spend combined with a fundamental uncompetitiveness of production, have not been addressed. On top, the latest fiscal numbers simply do not add up. Either the uneconomic fringe will be bailed out by German savings, in which case the Eurozone will lose its powerhouse, its growth will crater and the Euro weaken. Or the ECB will print money and the Euro will weaken. **Investors are playing a waiting game for the Euro currency to drop.**

Investment Implications of a Two-Speed World

The secular decline in US real interest rates over the past decade or so does not show an ever loosening monetary stance, as some claim. **Rather, falling interest rates measure the decreasing price of capital, in other words its weakening profitability.** Under the weight of tremendous competition from EM, global profitability is skidding and worryingly it is skidding fastest in the West. **Do not lose sight of the fact that we live in a two-speed economic World.** The scale of the divergence is eye-watering. With EM growing in real terms by 3-4% faster than DM, they are roughly doubling in relative economic size every twenty years. Somewhat flippantly, we have noted that the last two previous occasions that this gap occurred on such a scale was the Black Death in the fourteenth century and the Industrial Revolution in the eighteenth century!

Western financial problems and the huge scale of its domestic debts result from the fact that this two-speed World has reversed the polarity of the Western financial system: industrial corporations, the very engines of expansion, have stopped investing in new plant and instead accumulate cash. They have turned themselves into lenders not borrowers, and Western capital markets have become *capital-distribution* mechanisms and are no longer *capital-raising* ones. The forces of cost deflation are ripping through Western high streets, adding to debt burdens and reinforcing dole queues.

Western policy-makers have little choice but to use monetary policies, and particularly QE-style *monetary inflation* policies, to try to devalue their whopping debts. Fiscal policies are only likely to tighten from here, given already vast deficits. Central banks control monetary inflation, not high street inflation. In other words, they simply determine how fast to devalue their paper currencies. **The price of money is not the interest rate, but the exchange rate.** Investors should therefore take note of the soaring gold price and the flakiness of Western paper units.

The over-riding fact about the current market environment is that the cocktail of large-scale debts combined with bouts of quantitative easing (QE) always cause currency market volatility. **Therefore, the primary duty of every asset allocator is to first select which currency unit to hold wealth in.** Over recent years, we have championed a portfolio of gold and emerging and commodity-related paper currencies. We cannot help repeating again that the two principles that define our investment view are: (1) gold is a currency and (2) cash is an asset.

This, note, is 180-degrees different from most investors' understanding of how best to manage money over the past 30 years.

We have before set down our view that the only two long-term places to invest are: (1) EM for growth; and (2) gold, physical commodities and EM currencies for capital preservation. Before this crisis has finished, the US$ gold price will test US$3,000/oz. and EM countries will come close to doubling their real per capita incomes.

Western economies are not about to go back into recession. It is worse. Relative to the last two decades, it will feel like they never got out of recession because their GDP growth will shuffle along at dismal near 1-2% rates. The next leadership phase of the World economy will be taken-up by China. Already, we sense that policy-makers in Beijing are beginning to rev-up the economic engine to avoid a major stall.

Watch Chinese stocks closely for signs of an upward break-out. Consolidate positions in EM equities. Expect Western bond markets to range sideways. Look for higher gold prices over the medium term, and start to make a serious commitment to EM currencies. The economics of real exchange rate adjustment simply mean that either EM currency units or EM asset prices have to rise, or, better still, both. **In an equivalent way, ours have to decline.** In this sense, we are following Japanese trends by around a decade. If you had any doubts look closely again at Figure 1. **This chart spells out the fact that currencies are critically important to understanding market valuation.** Many doomsters supposedly predict that the S&P composite will tumble to 500 from its current near-1300 level. In US dollar terms, it will not, but simply because the collapse of the US dollar already puts it down at around '800' on a currency-adjusted index basis (i.e. SDR terms).

Wall Street has gone up, but the US dollar has likewise gone down. Do not be fooled by rises in the nominal stock price indexes. Underlying Western paper units are crumbling. **Western policy-makers cannot stop the inevitable downward real exchange rate adjustment. Either Western asset prices fall; exchange rates fall; or both. But a QE3 will shunt the burden of adjustment further back on to Western currencies. Gold's boom has not finished yet.**

CROSSBORDER CAPITAL LIMITED
96 BAKER STREET
LONDON W1U 6TJ
TELEPHONE 020 7908 2800 FACSIMILE 020 7908 2835

CrossBorderCapital
Implementing Insight

Global View

February 2012

Asian Liquidity – No Tiger in the Tank

Asian liquidity is becoming reminiscent of US liquidity in 2006 and 2007. What's more, it is the closest it has been to its own dire liquidity situation just ahead of the 1997-98 Crisis! We remain big fans of the Asian asset class and we hope we are wrong, but these facts of extremely tight Asian liquidity cannot and should not be ignored.

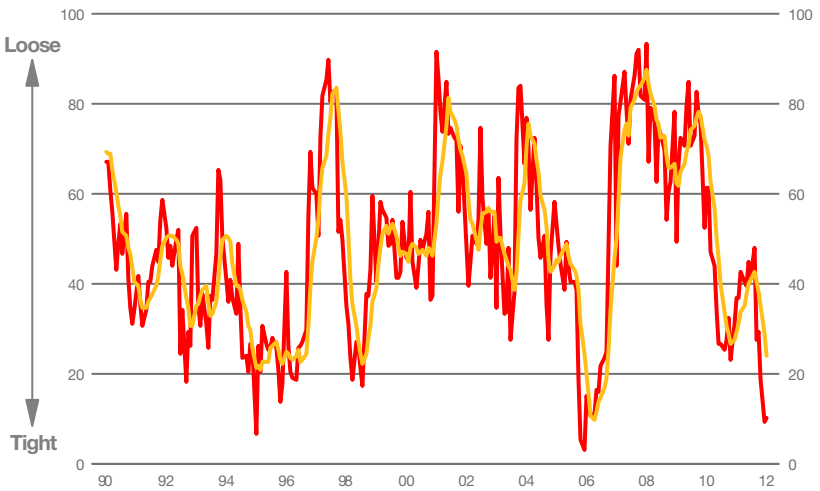
Needless to say, we have been searching for some silver-lining, but so far in vain. We have made the point in recent years that the Chinese Central Bank (PBoC) is now too big for international investors to ignore.

Here, it may be true that China is about to substantially ease her monetary conditions, and it is surely the case that China and other EM economies have cooled substantially from their 2010-11 bout of overheating and so can ease? Yet, hard evidence of easing is scarce. The EM problem may itself be a hang-over from last year's Euro Crisis and, specifically, the exodus of many Eurozone banks from the cross-border lending arena, which has resulted in the pulling of their credit lines. The BIS recently dismissed these risks as trivial, estimating the potential pullback at ½% total Asian lending. Yet, in the final four months of 2011, capital totalling a net US$3 trillion exited EM financial assets, or a pullback not dissimilar to the outflow triggered by the 2008 Lehman Crisis.

Worryingly, January saw another US$400 billion leave. China is hurting too, and losing precious foreign exchange. **Note that these trends run against the recent direction of widely-reported US mutual fund flows.** Our data cover all investors and include bonds plus other credit instruments: what's more, it is a much bigger asset pool. Mutual fund data, even on generous extrapolation, only capture 10%-20% of all EM inflows, and January may have seen some contrarian 'bottom fishing' in equities.

On top of the exit of foreign investors, tighter US liquidity following the end of QE2 from mid-2011 and the recently stronger US economy have pulled dollars away from EM.

Figure 1
1997-98 Crisis Redux? Emerging Asian Central Bank Liquidity
Index = 0%-100% 1990-2012



Source
CrossBorder Capital, IMF, People's Bank of China

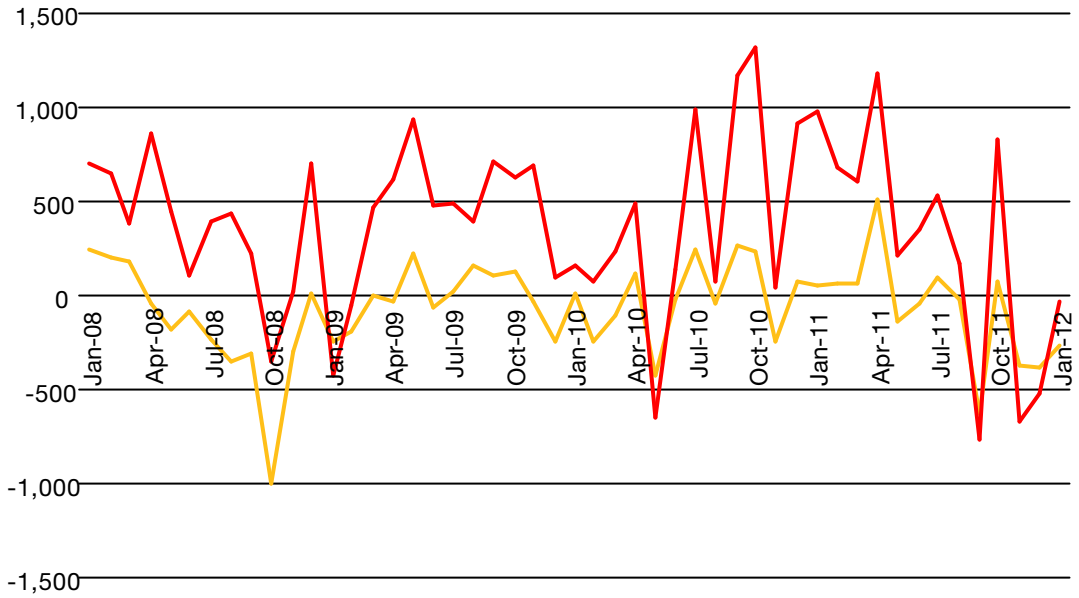


Figure 2
Net Cross-border Capital Flows into Asia
US dollar billions 2008-2012
Source
CrossBorder Capital, IMF

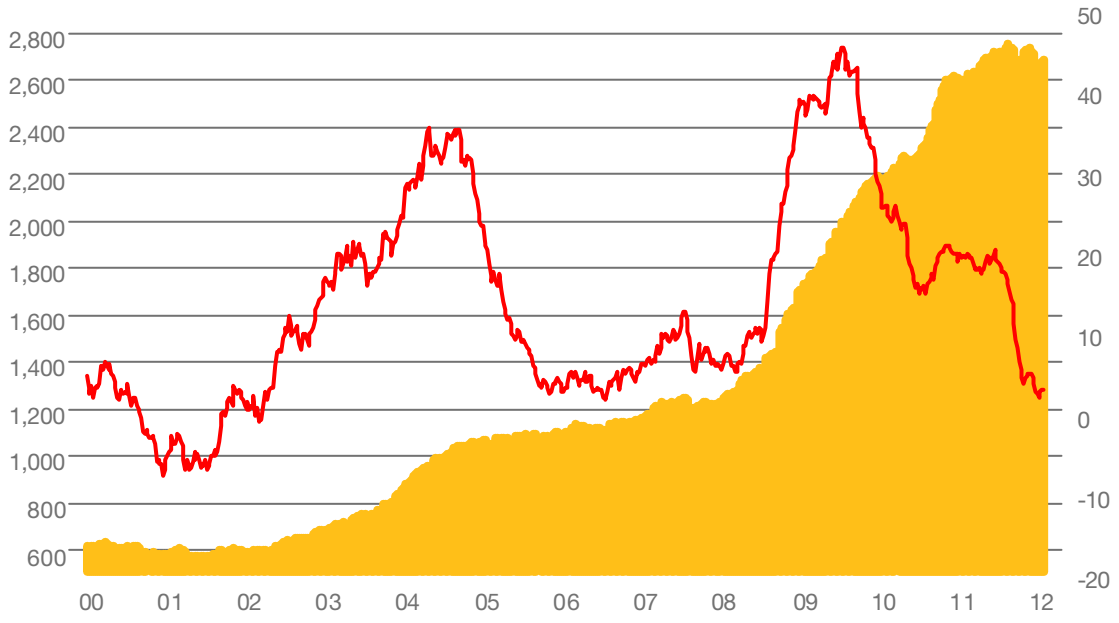


Figure 3
Foreign Holdings of US Treasuries held in Custody at the Fed
Weekly 2000-2012
Source
CrossBorder Capital, US Federal Reserve

These effects are highlighted in the sharp retreat in the stock of foreign holdings of US Treasuries held in custody at the Fed. Add to this stock the size of the Fed Balance Sheet and the resulting series is what we call the *US dollar Monetary Base*. Some commentators treat this as a proxy for *Global Liquidity*: plainly it is not because it excludes Europe, Japan and China, among others, but it still is too important to ignore. See Figure 4.

Given that the monetary base of many smaller EM economies is largely determined by the size of their foreign exchange reserves and that these reserves are traditionally invested in US Treasuries and held at the US Fed, the sharp slowdown (read modest contraction) in the quantum of these custody accounts must have negative second round effects on domestic liquidity across the EM.

Admittedly, China, Brazil and India are big enough economies to offset this foreign drag, but a key point is that they are not yet doing so. **China's monetary base contracted last month surprisingly sharply.** This may prove to be a seasonal distortion caused by the early start to Chinese New Year, but traditionally December and January have been strong months for Chinese liquidity, not negative ones. See Figure 5.

We are troubled by this persistently poor Asian liquidity data. **We are also troubled by the fact that this is a consistent picture and not one restricted to one-or-two economies.** It affects economies from Korea through Singapore to China. See Figures 6 and 7. What's more, it is mirrored in very short-term credit spreads, and it is consistent with the parallel collapse in net cross-border flows to Asia. See Figures 8 and 9. And, what's more, this latter shift can be seen in the rapid slowdown in the pace of foreign accumulation of US Treasuries officially held in custody at the Fed.

The mechanism is straightforward. Rather than allow the capital outflow to disturb their exchange rates, EM policy-makers are being forced to 'monetise' the outflows, thereby, pushing forex reserves and domestic liquidity both lower. **This policy response not only creates bigger cycles, it reinforces the pro-cyclicality of the financial systems.** On top, this transmission process will ultimately reproduce these same cycles in the industrial economy. **The bottom line is that we must anticipate a coming severe deterioration in Asian economic conditions.**

Figure 4
US Dollar Monetary Base (Fed Balance Sheet plus Treasuries held in Custody)
YoY % Change 1990-2012

Source CrossBorder Capital, US Federal Reserve

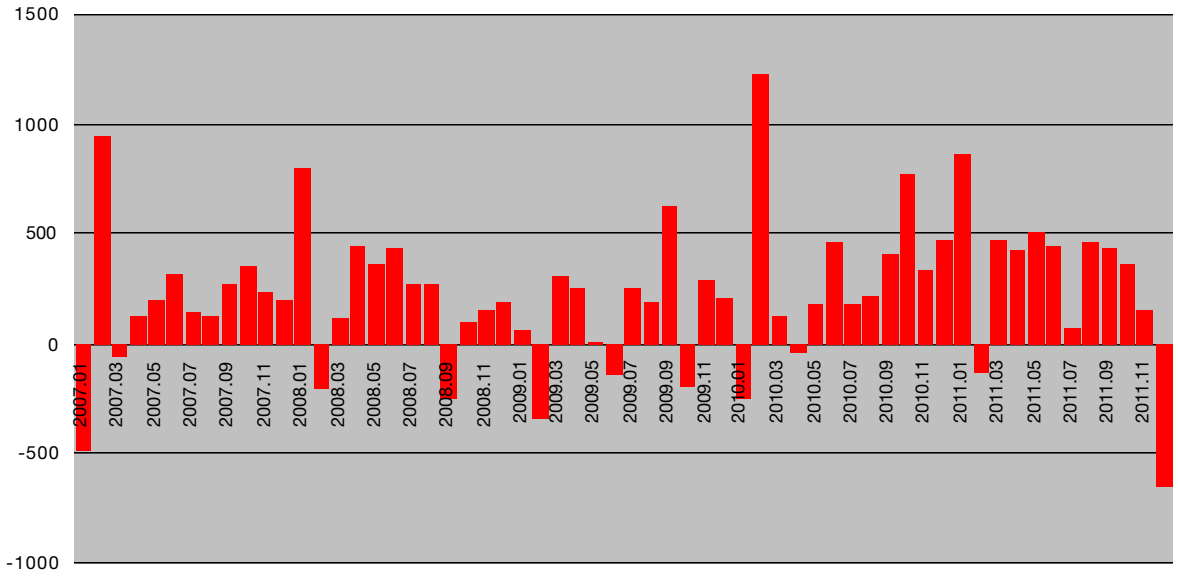


Figure 5
Chinese Monetary Base
Monthly Change RMB Billions 2007-2012
Source CrossBorder Capital, People's Bank of China

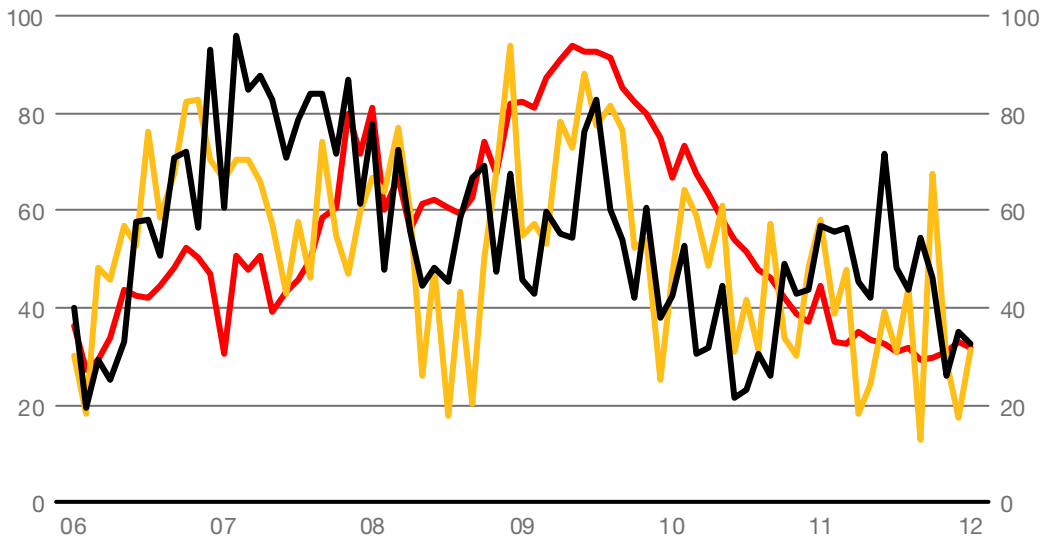


Figure 6
Central Bank Liquidity - Hong Kong, Thailand and Singapore
Indexes Monthly 2006-2012
Source
CrossBorder Capital, HKMA, IMF

This will not only heighten risk aversion among investors, it will particularly frighten foreign investors who are again committing their funds to EM to capture its faster long-term growth potential. This long-term uptrend likely remains in place, but a sharp down-cycle may interfere first.

Figure 9 shows the correlation between our Asian liquidity index (ex Japan and India) and the OECD Asian leading economic indicator. The association is not perfect (correlation coefficient = 0.4), but it is sufficiently close for us to be concerned. Granular data on business activity for Asia are often hard to get, but the following annual relationships between liquidity, the OECD leading indicator and GDP add further support to our concerns. See Figures 10 and 11.

We have taken a simple average of the IMF data series for *Newly Industrialised Asian Economies* and *Developing Asia* to generate overall Emerging Asian (ex Japan) growth. Liquidity has been advanced by two years.

The key question is whether we are about to see another 1997/98 Asian Crisis? This is impossible to answer because much will depend on how investors react. There are plainly differences between now and then. The 1997/98 Crisis was about Asian's overdependence on external finance to fund a runaway capital spending boom. Huge inward foreign capital investments were being paid for by foreign currency borrowings. Excess capacity swelled. The resolution was severe recession and domestic monetisation that involved significant currency devaluation and resulted in severe market turmoil.

This time around the parameters are different. Asia stands at the end of a boom, not mid-way through. Her current account balance is positive and unlike 1997 forex reserves are large, particularly for the ASEAN bloc. See Figure 12. During 1995-97, Emerging Asia was in deficit, but it now enjoys a near-5% surplus in GDP terms. All this probably means that we will not see a similar currency crisis to 1997/98. On the other hand, markets are often troubled by inflexions, not least because financing always matters most at the margin. Asia's current account surplus is turning lower and it often comes under greatest pressure when the US deficit is narrowest, like now. In addition, even without this international

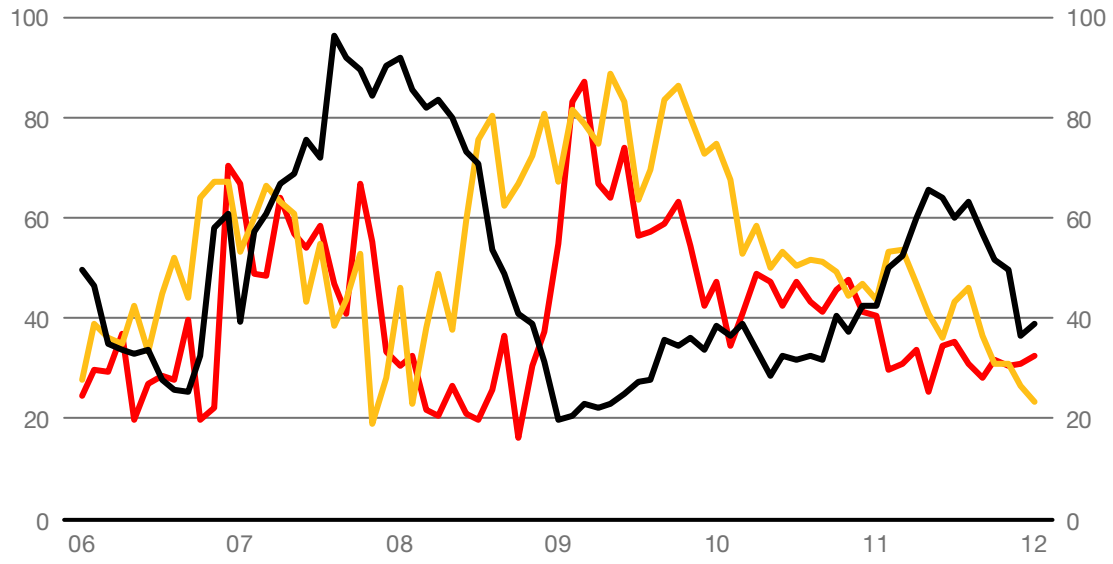


Figure 7
Central Bank Liquidity - Korea, Taiwan and China
Indexes Monthly 2006-2012
Source
CrossBorder Capital, People's Bank of China, IMF

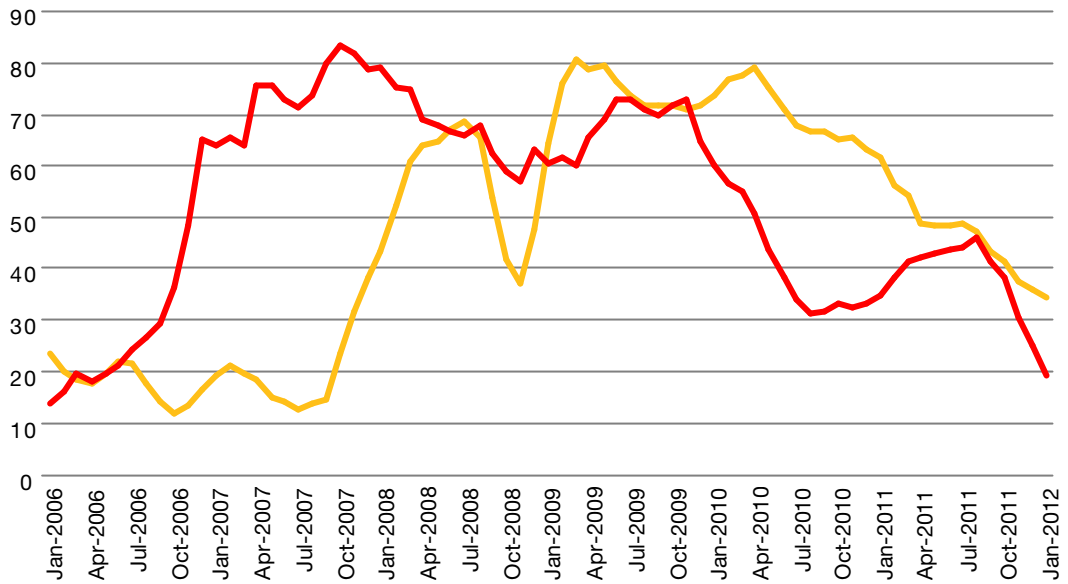


Figure 8
Emerging Asian Central Bank Liquidity and Short-term Credit Spreads
(Indexes: Wider Spreads shown as Falling Index) Monthly 2006-2012

Source CrossBorder Capital, IMF, People's Bank of China

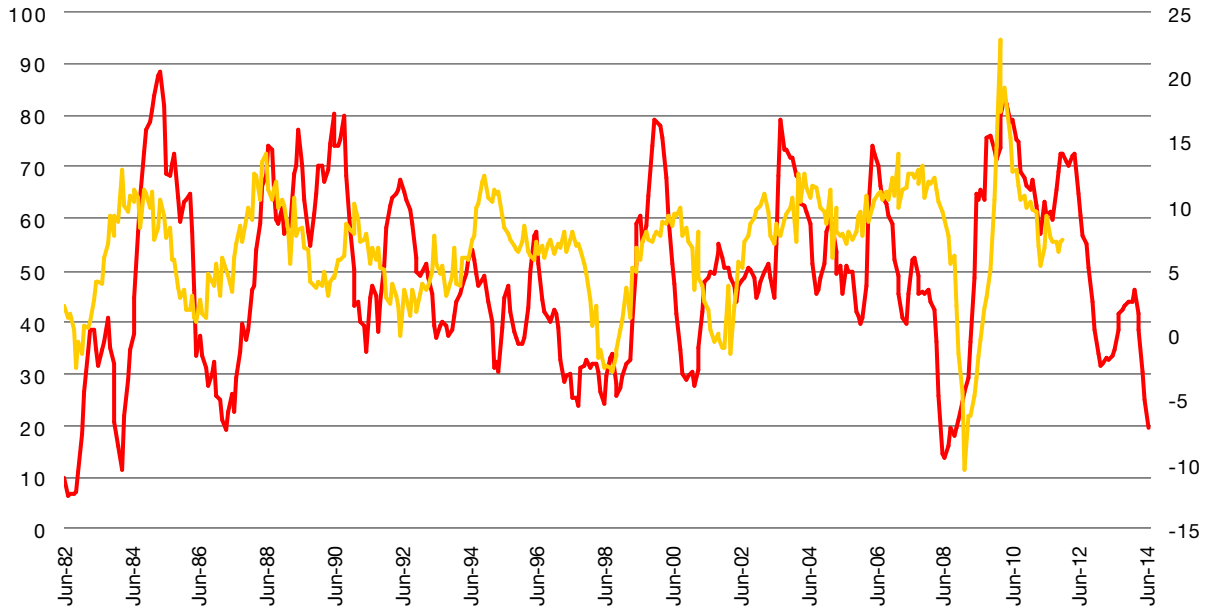


Figure 9
Asian (ex Japan) Liquidity and OECD Leading Indicator of Asian (A5) Economies
Liquidity Advanced 29 Months 1980-2012
Source
CrossBorder Capital, People's Bank of China, IMF, OECD

dimension, the tight and self-inflicted domestic liquidity situation is still likely to hit Asian economies negatively. Admittedly, China is now more able help the region by providing its long-awaited monetary easing. And, the US Fed may even be prompted to re-engage QE, if a general turmoil breaks out.

The best case is that Asian liquidity quickly revives and, having already discounted all this bad news, markets bounce. Here, our investor exposure indexes for Asia currently show low, but not ultra-low readings, China aside. The middle case is that Asian economic growth slows much more than expected, equities skid or range lower, but credit and forex markets come through largely unscathed.

The worse case is that investors become skittish and Asian markets first fall, before policy-makers are forced to ease. **The message is to watch the liquidity numbers, and perhaps prudently only buy half that intended equity position now, waiting for another better chance to top-up later this year, if we're right?**

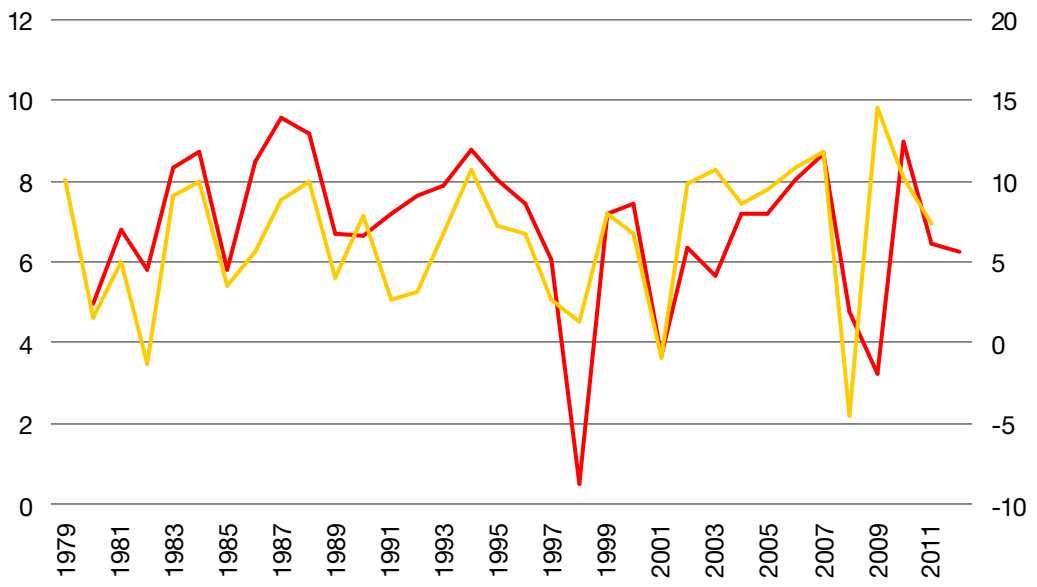


Figure 10
Asian GDP Growth and OECD Asian (A5) Leading Indicator
Annual 1980-2011
Source
CrossBorder Capital, IMF, OECD

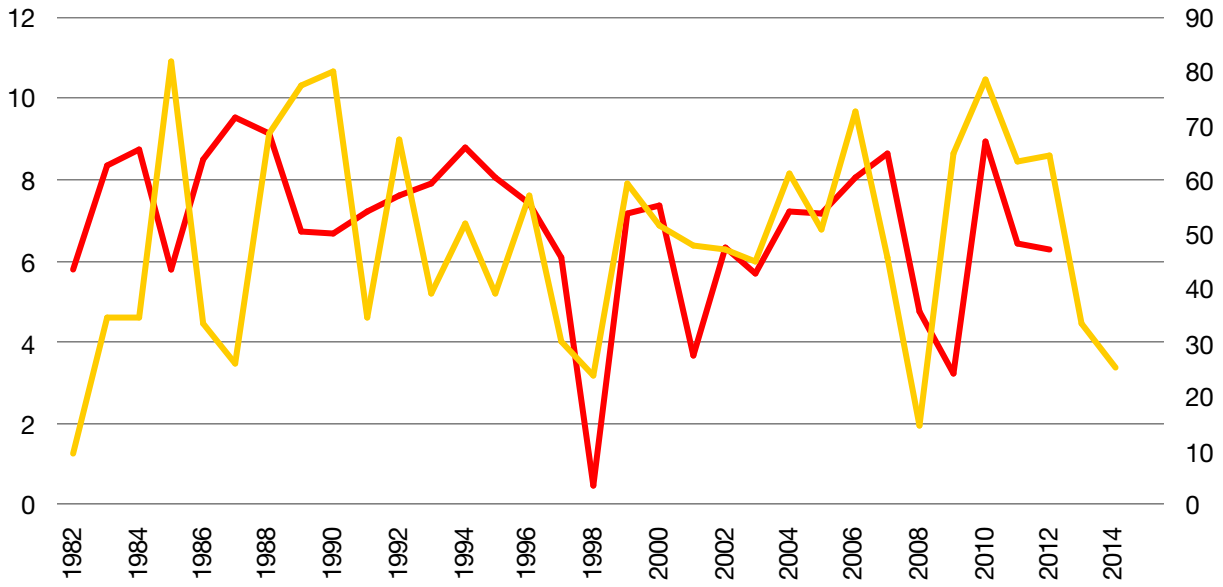


Figure 11
Asian GDP and Asian Liquidity (Advanced 2 Years)
Monthly 1982-2013
Source
CrossBorder Capital, People's Bank of China, IMF, OECD

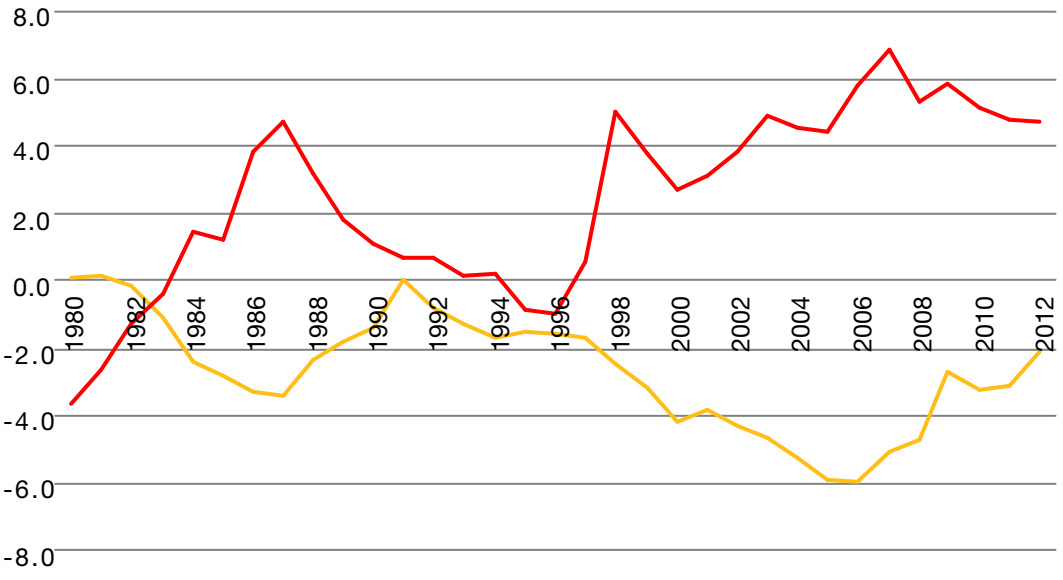


Figure 12
Emerging Asian and US Current Account Balances
Percent of GDP 1980-2012
Source
CrossBorder Capital, IMF, OECD

CrossBorderCapital
Implementing Insight

Global View

February 2009

Japan Is The New France

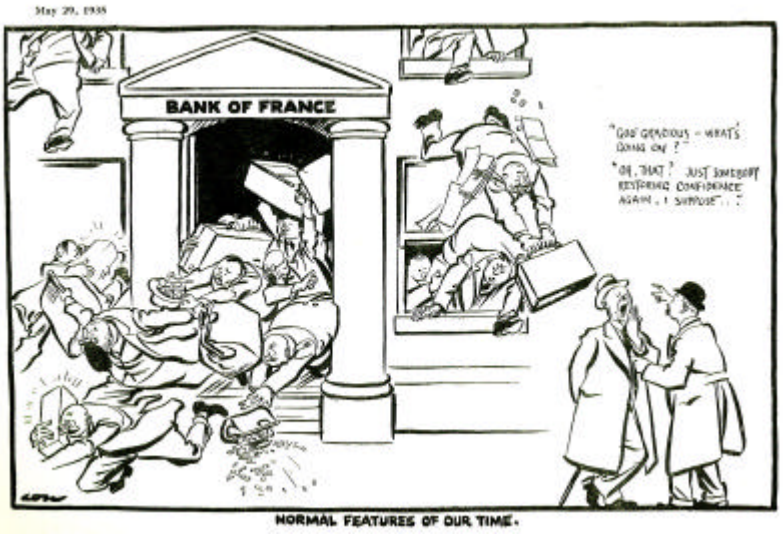
Like now, the 1930s saw a struggle among Central Banks to change liquidity conditions. Since the price of money is the exchange rate, these efforts led to a step-up in currency market volatility, in both absolute (versus real assets) and relative terms (versus other paper units). Widespread quantitative easing by Central Banks will allay deflation fears and should underpin a late-1930s like outlook, featuring modest consumer inflation, but huge relative price shifts and currency swings. France came into the 1930s in a stronger position than most other industrial economies, but she left it fatally weakened, economically and politically. While other economies inflated, France deflated, before events forced a whopping devaluation. Japanese investors beware!

Most economic data currently make depressing reading. But within this gloomy picture, Japanese economic data are truly awful. Machine tool orders plunged 71.8% year-on-year in December 2008; construction orders cratered by 27.3% over the same period, while overall Japanese industrial production skidded by a whopping 20.6%. First estimates suggest that the Japanese economy shrank at the incredible annual rate of some 13% in the final quarter of 2008.

If one single economy is suffering the equivalent of the 1930s Depression, it is Japan.

Figure 2 shows the close relationship between the Japanese leading economic indicator and often tight BoJ liquidity. In the words of Fed Chairman Bernanke, writing as an academic in the September/October 2000 edition of *Foreign Affairs*:

Figure 1
Tensions in the Thirties - Deja vu?
Pressure on the Deflating Franc
May 1935



Source
Solo Syndication/Associated Newspapers Ltd

"… Japan in the 1990s was a slow-motion replay of the U.S. experience 60 years earlier. ***After effectively precipitating the crash in stock and real estate prices through sharp increases in interest rates (in much the same way that the Fed triggered the crash of 1929), the Bank of Japan seemed in no hurry to ease monetary policy and did not cut rates significantly until 1994.*** *As a result, prices in Japan have fallen about 1 percent annually since 1992. And much like U.S. officials during the 1930s, Japanese policymakers were unconscionably slow in tackling the severe banking crisis that impaired the economy's ability to function normally."*

One measure of Japan's pursuit of persistent deflationary economic policies is the seemingly endless strength of the Japanese Yen. Japan's currency index (trade-weighted) hit 161.4 in January 2009, compared to its 1990 base of 100. The index rose by an incredible 28.1% over the last year, following a 6.3% rise through 2007.

This is important because the 'price of money' is the exchange rate (not the interest rate). Remembering this difference is the key to understanding financial markets. **Exchange rate changes reflect underlying shifts in liquidity conditions. Thus, the strong Yen likely reflects the current deflationary Japanese monetary policy.** But like the 1930s, today's Central Bankers are struggling, albeit at different speeds, to alter national liquidity conditions and ultimately shift from monetary deflation to monetary inflation. **And like the 1930s, this should mean significant currency market volatility, measured both in: (1) absolute (versus real assets), and (2) relative terms (versus other paper units).**

The 1930s provide useful signposts to what might happen to us over the next few years. **Its dislocations reflected an economic and political power shift from Europe to America.** Ironically, although America was among the hardest hit economies in the early 1930s, her productive potential had grown hugely through the 1920s boom, and, as we know, she recovered and went on to dominate World economics through the next half century. **Could today's dislocations, therefore, presage another such power shift, perhaps from America to China?**

As we see it, the 'players' at that time could be generically broken down into Country A – a large imperial power in decline militarily, financially and economically; Country B – a large fast-growing industrial economy attracting global savings flows; Country C – a large, rich, traditionally export-focussed economy, economically and geographically close to Country A, struggling to find its way in the World but unwilling to devalue or inflate; and Country D – a commodity exporter, financially tied to Country A and representative of other commodity producers in the 'economic periphery'.

Economic Type	1930s	2000s
Country A	Britain	USA
Country B	USA	China
Country C	France	Japan
Country D	Australia/ Argentina	Brazil/ Russia

The parallels identified in the table are intriguing. We have left out Germany, largely because its circumstances and policy actions in the 1930s were unique and we can find no obvious comparison today. Britain struggled through the 1920s as financial reality bit. Churchill's disastrous attempt to restore the Gold Standard in 1925 led to a General Strike and UK economic collapse. Helping Britain, in large part, lay behind the initial easing and later tightening of American monetary policy in the 1920s. **It became clear to the nascent Federal Reserve in 1929 that a stable domestic price level was likely incompatible with a stable international financial system.** Add in some inertia plus a sprinkling of policy errors, and the Depression Years are explained. After allowing sterling to collapse and embarking on a major fiscal spending programme, the British economy survived the 1930s better than it had the 1920s. Japan and America, from 1934, unconsciously followed similar policy mixes and also recovered strongly.

The commodity producers in the economic periphery required higher commodity prices. These ultimately arrived from the middle decade, and their domestic impact was often reinforced by a twist of devaluation. By allowing the *de facto* 'fixed' link between

the Australian and Britain pounds to wither in the early-1930s from 20 shillings to 16 shillings (-20%) significantly aided Australia. The Latin American economies were also helped by devaluation, even though, like the concurrent US-led tariff wars, it led to a beggar-my-neighbour downward spiral as economies struggled to keep one-step ahead of competitors.

Figure 3 shows the impact of devaluation on inflation and economic activity for the four main regional Latin American economies. These countries devalued by between 40-60% through the 1930s, and so enjoyed rising real economic activity at rates ranging between one third and 85%. Over the same period, consumer inflation rose by most in Chile (+80%) and least in Argentina (+25%). Could similar currency volatility in the periphery be a blueprint for the next few years?

Yet France felt the brunt of the economic pain. She persisted with monetary deflation for the longest time. Her return to the Gold Standard at a then undervalued Franc in the late-1920s gave an initial cushion, but as competitor-after-competitor devalued against each other and ultimately against gold, her exports became priced out of World markets and she suffered the wrecking-ball of monetary deflation. The September 1936 Tripartite Currency Agreement between Britain, the USA and France ultimately allowed the Franc to surreptitiously devalue, but this proved too late to save either her economy or her polity. Figure 4 shows the movements of the (old) French Franc against the US dollar.

The lead-up to the 1930s Depression strongly parallels today's troubles, although we are less convinced that the World faces a subsequent and equivalent scale deflationary slump. The current policy response is both bigger and faster. Yet it is of such a similar type that we expect the outlook to be similar to the late-1930s recovery. In short, the 'ends' look the same; the 'middle' may be very different.

Inertia and major policy errors are today less likely, and it seems improbable that economic output will crater by anything like as much as it did between the Wars. Fiscal policy was only engaged slowly in the 1930s and then largely at the fringes in the major economies. Again according to Bernanke, an academic expert on the Depression:

"… the economic repercussions of a stock market crash depend less on the severity of the crash itself than on the response of economic policymakers, particularly central bankers. ***After the 1929 crash, the Federal Reserve mistakenly focused its policies on preserving the gold value of the dollar rather than on stabilizing the domestic economy.*** *By raising interest rates to protect the dollar, policymakers contributed to soaring unemployment and severe price deflation. The U.S. central bank only compounded its mistake by failing to counter the collapse of the country's banking system in the early 1930s; bank failures both intensified the monetary squeeze (since bank deposits were liquidated) and sparked a credit crunch that hurt consumers and small firms in particular. Without these policy blunders by the Federal Reserve, there is little reason to believe that the 1929 crash would have been followed by more than a moderate dip in U.S. economic activity.*

A main difference today is that these instruments are now being engaged more quickly. For example, most large economies have already announced sizeable fiscal packages. At close to US$1 trillion, America's totals over 6% of GDP. China has slated a similar dollar amount, although her economy is around one third of the nominal size. In the 1930s the US monetary base took five years to expand by 75%, but in 2008 it doubled in barely five months. The US Federal Reserve is thus creating more money in less time than it ever has before. What's more, Fed Chairman Bernanke seems willing to take these risks because there is a rapid exit strategy lined-up[1]: *"…significant shrinkage of the [Fed] balance sheet can be accomplished relatively quickly, as a substantial portion of the assets that the Federal Reserve holds are short-term in nature and can be simply allowed to run off as the various programs and facilities are scaled back or shut down."*

Rapid monetary expansion will work. Figure 5 is reproduced from the 'final' academic article written by monetarist Milton Friedman. It shows the difference

[1] Speech, LSE, January 13th 2009

between the policy responses in this decade; 1990s Japan and 1930s America. Today, US monetary growth remains solid as Figure 6 shows: US bank deposit growth (i.e. M2 money supply) is now accelerating. The table confirms that in the 1930s US monetary growth collapsed, causing the depression; 1990s Japan saw weak but positive monetary growth, which led to a similar economic performance; and early 2000s (and now) America, monetary growth continues at a high rate. Although we figure that *credit* remains more important that *money*, money, i.e. bank deposits, is needed to fund future credit expansion.

In the lead-up to the two big global crises – the 1930s and now – three factors look eerily similar: (1) **Overproduction**, then launched by the switch of war production and the unleashing of the US economy, and now by the surging post-Cold War Chinese economy. (2) **Fragile Finance**, then involving leveraged investment trusts and uninsured banks, and now involving a more complex web of banks and shadow banks, but both facing a potential inability to re-finance credits. And (3) **Monetary Deflation**, then caused by the unwillingness of the USA and France to follow the rules of the Gold Standard, and today by the fixation on inflation-targeting and controlling interest rates via the so-called *Taylor Rule*, rather than liquidity.

There is also another sinister echo. The 1930s Depression and subsequent currency turmoil resulted in huge social tensions, which, as we know, triggered civil unrest, nationalism, migration quotas, protectionist trade restrictions, and fuelled imperialist ambitions. Within a decade of the 1929 Crash, WW2 had started. Military actions in the late-1930s often found their vent in a scramble for resources, which WW1 had shown were both in short supply and usually located in inconvenient places. Today's, concerns about *Peak Oil* and the general inelasticity of commodity supply may, therefore, have another parallel?

Given that monetary inflation, fiscal stimulus and currency devaluation are again the main policy solutions, the history of the late-1930s, at least economically, will likely resonate loudly. **We believe that there will be three similar outcomes:**

- Fast-moving rapacious capital flows and currency volatility
- Strongly rising commodity markets
- Financial market leadership from the increasingly dominant (Chinese) economy

Churning Capital Flows

In economics, like in many walks of life, what counts cannot always be counted, and what can be counted does not always count. Thus, the easily calculated and much discussed trade and current account imbalances matter far less than many believe. Fast-moving, speculative capital matters much more. It seems to us curious to attribute causation running from trade flows to capital flows, rather than the reverse, given that we live in a World dominated by fast-moving global capital. Trade flows, just as likely, accommodate capital flows. **So, if the fast-growing Asian economies demand US dollars, America may be forced to run a trade deficit to accommodate them!**

A heightened velocity of cross-border capital also featured 75 years ago. The other spooky parallel with today is the knots policy-makers tied themselves in during the 1930s trying to understand, and sometimes to manage, these volatile global capital flows. This seemingly muddled the operation of the pure Gold Standard. America, and later France, proved reluctant to monetise gold inflows induced by this cross-border capital. Instead both economies placed greater emphasis on maintaining stable internal price levels, and so sterilised gold. **Arguably, they were correct individually, but the outcome proved bad globally.** America stockpiled bullion – the Fort Knox effect[2] – thereby denying the first principle of the Gold Standard that required the free-flow of gold. **In short, a tension developed between the aims of American monetary policy and the needs the World system: a stable American price level and a stable World price level had become incompatible.**

[2] Although Fort Knox was only used as the US bullion depository from 1936, it has become an icon for inertia.

Eight decades on and worried by the distorting effect on fixed income markets (and ultimately housing) of capital inflows from the so-called Asian 'savings glut', US policy-makers tightened monetary conditions sharply through 2006 and 2007. On top, they subsequently proved too slow and hesitant in restoring liquidity, i.e. acting as lender of the last resort, when credit troubles inevitably appeared. See Figure 7. As a prominent US Central Banker confirmed:

"In response to the financial turmoil in the wake of declining house prices, the Fed instituted a series of new lending facilities that increased the liquidity of participating institutions' portfolios without simultaneously increasing the total supply of liquidity in the financial market, at least before September 2008. In so doing, the Fed departed significantly from its historical practice of relying on traditional tools of open market operations and discount window lending to provide liquidity to financial markets … Whatever the reason, it now appears that the Fed has abandoned the strategy of offsetting completely the effects of its new lending programs. Indeed, the Fed has injected historically large amounts of credit into the market…" The Fed, Liquidity, and Credit Allocation, Daniel L. Thornton, Federal Reserve Bank of St Louis, January 2009.

Assuming it continues, this policy reversal is likely to prove significant in us avoiding a repeat of the 1930s. Irving Fisher, the economist partly remembered for his bloated optimism on the very brink of the 1929 Crash, later fessed-up to explain that his error simply followed from a monetary policy mistake triggered by the untimely death of US Fed Governor Strong:

"It is true, however, that I underestimated this fall [US depression] enormously. I do humbly confess it. But it was partly because I believed that the policy that Governor Strong [US Federal Reserve] had initiated and the policy which Governor Rooth [Swedish Riksbank] is now successfully carrying out would be continued. Governor Strong died in 1928. I thoroughly believe that if he had lived and his policies had been continued, we might have had the stock market crash in a milder form, but after the crash there would not have been the great industrial depression. I believe some of the crash was inevitable because of over-indebtedness, but that the depression was not inevitable. The reason is that the deflation that went with over-indebtedness was not necessary. We can always control the price level." Irving Fisher, Annals of the American Academy, January 1934.

With global interest rates close to zero and the playing field for speculators correspondingly flatter, there is little to tie rapacious cross-border capital to any single currency. Swings in investor sentiment will dominate demand, while the pace of quantitative easing will dictate supply.

Swinging Currencies

Through the final quarter of last year we expected currencies to move through two regimes. First, the de-leveraging of the private sector caused strong appreciation of the main funding currencies – the US dollar and Yen – as borrowings were repaid. Second, the re-leveraging of the government sector – e.g. Central Bank monetisation – led to general paper currency weakness against real assets, starting with gold and the other precious metals.

The surge in US dollar exposure during late-2008 is evident from Figure 8 and ran alongside the visible de-leveraging highlighted in Figure 9. These suggest that the first adjustment phase is now largely behind us. The second phase involving a rising gold price should be anticipated. We believe that, with Central Banks collectively engaged in quantitative easing, and real and nominal interest rates at low levels, the case for a stronger gold price is compelling. Gold was pushed up significantly through the 1930s from US$20.65/oz. to US$34.42/oz. as part of deliberate policy. Allegedly, at one time, US President Roosevelt met with his advisors each morning over eggs to decide that day's gold price target!

Yet, in the 1930s, paper currencies did not devalue against gold at the same steady, predictable rate. Figure 10 shows the initial huge devaluation of the Japanese Yen and the later dramatic collapse of the Franc. The British pound

moved more in line with the US dollar, but devalued first and ended the decade weaker than the greenback. The German Mark is not shown. It was a controlled market and trade was increasingly pursued through bi-lateral deals.

Despite the publicity given to the US Federal Reserve's recent massive quantitative easing, the US dollar will not unambiguously weaken. First, dollar preference particularly among emerging market residents is likely to have risen for 'safe haven' reasons. Second, most other major economies will also have to ease liquidity massively, so America may have started first, but she is far from alone. Third, the fate of the US dollar is likely to be linked to prospects for the US dollar zone, and particularly to the prospects and policy decisions of China.

The Chinese RMB is likely to be a long-term beneficiary of the economic and political power shifts we suggest are underway. However, we are far from convinced that the Chinese currency will appreciate near-term. In fact, we think that even the recent gradual appreciation of the RMB against the US dollar will halt as Chinese policy-makers try to stem collapsing export demand. **If the RMB is an important World monetary unit, it is possible that strapping together the RMB and the US dollar will itself add upward impetus to the US dollar.** Figure 11 shows the movements of the trade-weighted US dollar through the 1930s. If China is the 'new' America and the RMB ultimately eclipses the US unit, then a 'fixed' US dollar/RMB link may drag the US dollar higher.

Sterling has already skidded badly in foreign exchange markets. We have seen this collapse in terms of Britain's especially fragile banking system. These problems are far from over, and may ultimately lead to full-nationalisation of the major banks. Britain's banking problems are what we have labelled an Iceland Effect. In other words, the major UK banks have ambitions beyond what sterling can deliver. We reckon that the leverage ratio of UK banks (ratio of credit to cash, or inside to outside money) is a whopping 54 times. US banks have lately de-leveraged hugely from a peak ratio of 24 times to just 13 times. The Icelandic banks saw peak leverage ratios of 76 times, or 56 times just prior to their 2008 bankruptcy. The key issue for UK banks is their inability to get funding, especially in foreign currencies given the large international multi-currency loan books they have to finance. As in every financial crisis, the real problem is an asset-liability mismatch (in duration or currency) rather than a simple overextension of credit. Britain's banking problems are causing continual cash hoarding by the banks. **We figure that the only resolution lies in a massive expansion of Bank of England liquidity provision.** Could this explain the recent decision to halt future publication of the Bank's balance sheet (i.e. weekly Bank Return) for the first time since 1844?

The Euro remains an enigma wrapped in a mystery. Three possibly independent issues need to be considered: (a) entry and exit of economies from the Euro bloc; (b) potential default of EU national governments of their Euro denominated debt; and (c) what these developments tell us about exchange value of the Euro, itself?

Although the first issue is the most discussed, it is not only the least likely but also the increasingly least likely. **In short, this crisis has bound the Euro members even closer together.** It would make little economic sense for an existing hard-pressed Euro member to leave because its future debt issuance would become hugely expensive. What's more, economically strong economies, like Germany, probably have too much political capital now tied up in the Euro to pull out. Debt default is independent of Euro membership, in much the same way as holding debt issued by the State of California in no way affects whether America's West Coast uses the greenback. The quality of the debt issued by Euro member states is expressed via yield premiums and discounts. Thus, the blow-out of the so-called PIGS spread.

Ultimately, the only resolution to potential debt default is institutional. The EU would have to allow the ECB to buy newly issued and on-the-run bonds unhindered, and set up an EU-wide fiscal authority as a discipline to control potentially profligate member states. Like the emergence of most institutions, this authority would probably appear through revolution rather than evolution. Thus, a fiscal crisis and potential default must

first shock policy-makers into action. **In short, the ECB probably cannot avoid monetisation, but it will not be a smooth process.** Heightened forex market volatility at least seems probable. Moreover, any protracted failure of the EU to agree wider fiscal powers will add to pressure on policy-makers to allow the Euro to weaken in order to protect Europe's export industries. Sterling's early collapse is being eyed enviously in Brussels and beyond.

But the currency that stands far apart from the rest is the Japanese Yen. The Yen does not have the same underlying demand as do the Euro and US dollar. The Japanese authorities largely control the Yen as a policy tool because Japanese exporters largely invoice in US dollars and seek to off-load these dollars to the BoJ. Thus, the export sector is always 'long' dollars. This says nothing about the value or competitiveness of the Yen. To us, the Japanese currency looks massively overvalued in a World of depressed trade, slumping US consumer spending, and skidding Chinese capex.

The bottom-line is that the Japanese Yen moves closely with the Japanese trade balance. **This is not because trade flows determine exchange rates, but because (in Japanese policy eyes) exchange rates determine trade.** See Figure 12. During the last economic downturn, the Yen cratered to Y135/US$. This time expect at least Y120/US$. The BoJ seems destined to restart aggressive quantitative easing for domestic reasons. This increased supply will itself weaken the Yen.

Already by early February 2009, net liquidity provision by the BoJ – a measure we devised to monitor its injections into money markets – has climbed to Y19.1 trillion, or well-above recent levels of around Y12 trillion. It should be noted that there is still far to go if the Y40 trillion levels last seen during the previous 'quantitative easing' era are to be hit.

Surging Commodities

The last two years surely underscore the fact that commodities are a sound gauge of the economic cycle, but a poor predictor of future core inflation rates? Looking ahead, firmer commodity prices will provide a decent clue about up-coming economic activity and prospects for a rebound in the industrial profits cycle.

Commodities typically move relatively early in the monetary transmission process. The first commodities to response to a liquidity change are the precious metals, most obviously the gold price, although it is often suggested by experts that silver frequently sees the initial move.

Other commodities, such as oil, base metals and foods, follow the moves of precious metals, typically within a 6-12 month period. We think of commodities as having two moving parts: (1) a currency of denomination effect (as measured by the nominal gold price, and (2) a real exchange ratio, reflecting physical extraction costs (as measured by the gold/ commodity ratio). Thus, oil gravitates towards a real exchange ratio of around 12-15 barrels per oz. of gold, although it ranges between 5 (economic boom) and 25 times (major recession).

Today, the gold/oil ratio stands at close to 28 times (970/35). See Figure 13. Assuming a move back towards 15 times, and assuming a massive and enduring quantitative easing by Central Banks propels the gold price to test US$1,500/oz., then we will again see US$100/bbl oil. Viewed from another angle, real assets should rise in value relative to paper assets given the huge volumes of debt outstanding. **The only ways that debt can be realistically reduced is via default or monetary devaluation. Since mass default is unlikely on a national or even global scale, devaluation of paper monies is the most likely outcome.**

Conclusion: La Belle Japan?

We are always watchful about adopting consensus opinion. Today's key choice is between adopting either *inflationary trades* – pro-equities, commodities, sterling and gold – or *deflationary trades* – pro-bonds, dollar and yen cash. We figure that with high cash weightings alongside still lacklustre equity and commodity markets, the bulk of investors are still betting on future deflation.

Our analysis suggests that the investment choice is a little less binary. **Investors should distinguish inflations and deflations by monetary and cost factors.** Thus, a monetary inflation, caused by printing too

much money, is very different to a cost inflation, caused by falling productivity or rising wage claims. **Today, we face the curious combination of monetary inflation, fuelled by Western Central Banks, on top of a cost deflation, caused by massive excess capacity, much of it in Asia.** This combination also described the late-1930s recovery, which featured soaring commodity prices but a more prosaic climb in consumer prices. US commodity prices jumped by some 80% between 1933-38, whereas consumer prices inched higher by barely 12%. Moreover, currency market volatility also became a hallmark of the 1930s. Both will feature over coming months and years. In short, *monetary inflation* will drive gold, commodities, and ultimately equities higher, and crush deflationary currencies. **Some 75 years ago the deflationary Franc collapsed – today all eyes are on the equally deflationary Japanese Yen.**

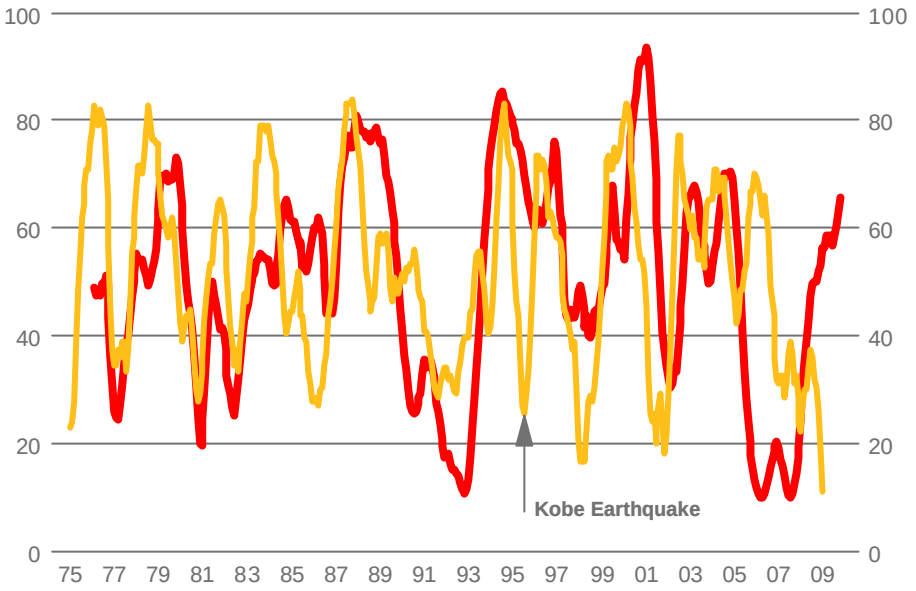


Figure 2
Bank of Japan Liquidity and the Japanese Leading Economic Indicator
Monthly 1975-2009
Source
CrossBorder Capital, Bank of Japan, Japan Cabinet Office

	Currency vs. US$	CPI Inflation	Real GDP Growth
Argentina	-64.3%	25.0%	32.7%
Brazil	-43.2%	33.3%	40.3%
Chile	-57.3%	80.0%	84.7%
Mexico	-56.4%	36.0%	51.5%

Figure 3
Latin American Devaluations
1932-1940
Source
CrossBorder Capital; One Hundred Years of Economic Statistics, The Economist

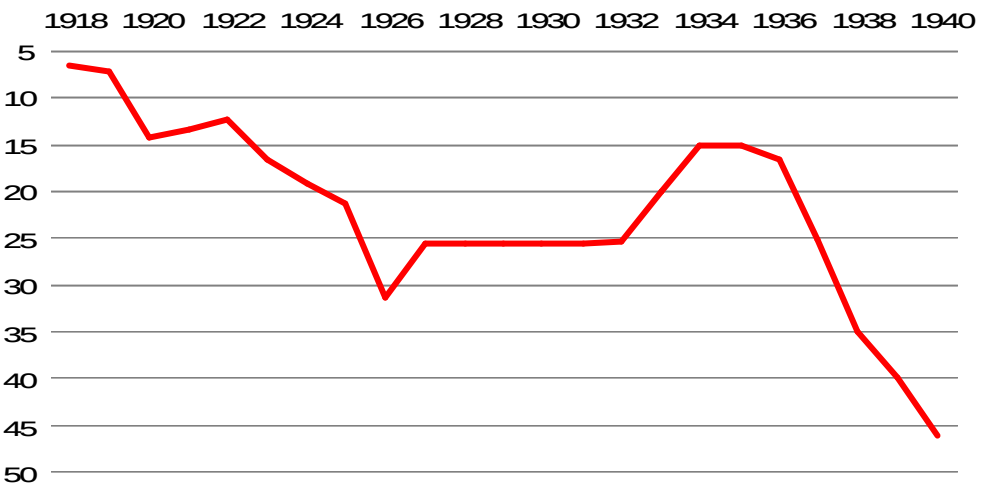


Figure 4
The Gyrating French Franc/US dollar
1920-40
Source
CrossBorder Capital; One Hundred Years of Economic Statistics, The Economist

	Ratio of Value At Peak To 6 Years Earlier			Ratio of Terminal Value to Peak		
	US 1920s	Japan 1990s	US 2000s	US 1920s	Japan 1990s	US 2000s
Money	1.27	1.59	1.44	0.70	1.07	1.25
GDP	1.26	1.43	1.37	0.47	1.04	1.18
Stocks	3.33	3.86	3.20	0.17	0.37	0.58

Figure 5
The Differences between Policy Responses
1920-2000
Source
Milton Friedman, *Journal of Economic Perspectives*, Fall 2005

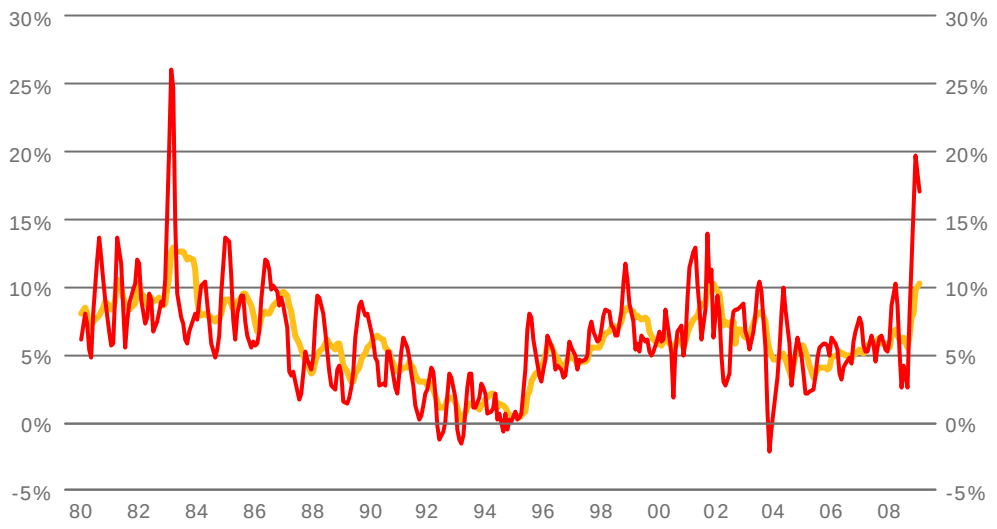


Figure 6
US M2 Money Supply Growth
Annual and 3-month Annualised % Change 1980-2009
Source
CrossBorder Capital, US Federal Reserve

Annual
3-month Annualised Percentage Change

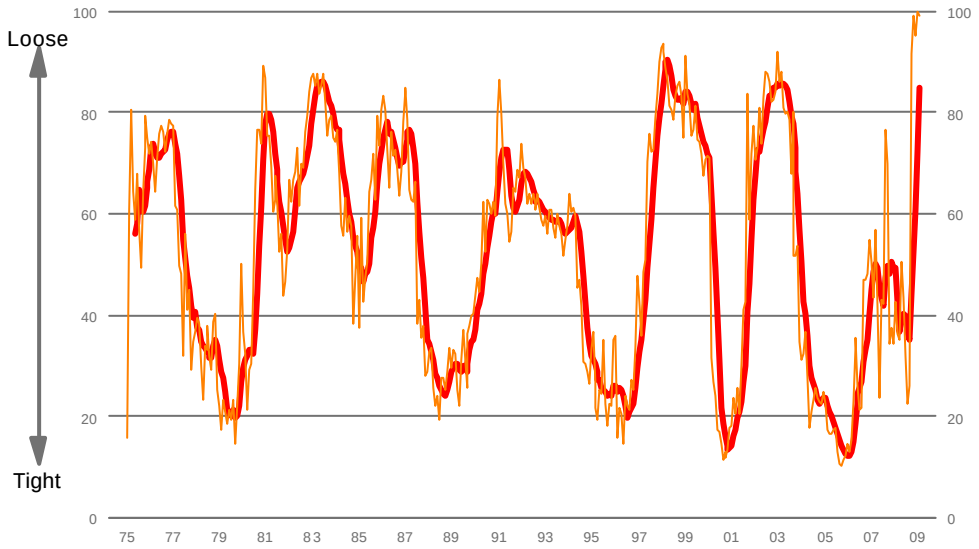


Figure 7
US Federal Reserve Liquidity
Index 0%-100% 1975-2009
Source
CrossBorder Capital, US Federal Reserve

Actual
6-month Moving Average

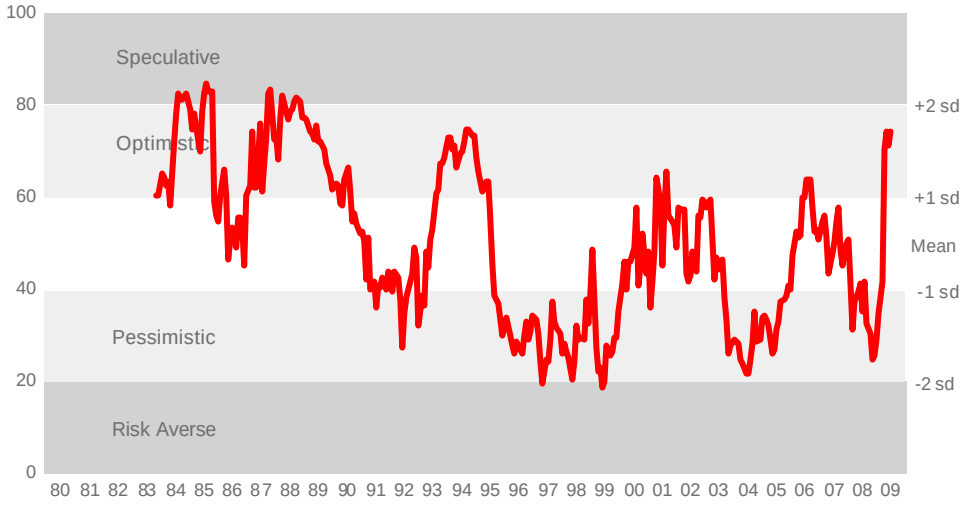


Figure 8
Investor Exposure to US Dollar Instruments
Based on Holding Patterns versus 5-year Averages 1980-2009
Source
CrossBorder Capital

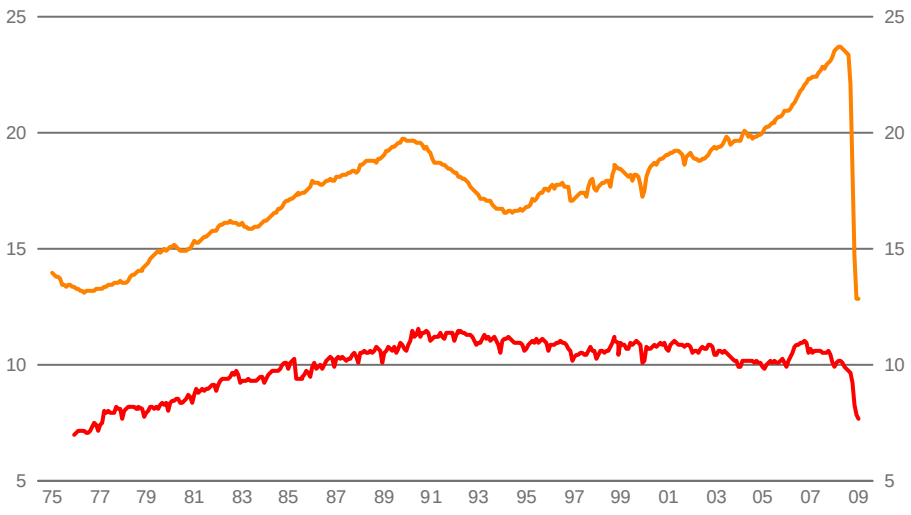


Figure 9
Leverage of US and Global Financial Systems
Times 1975-2009
Source
CrossBorder Capital, US Federal Reserve, Bank of Japan, ECB, Bank of England, IMF

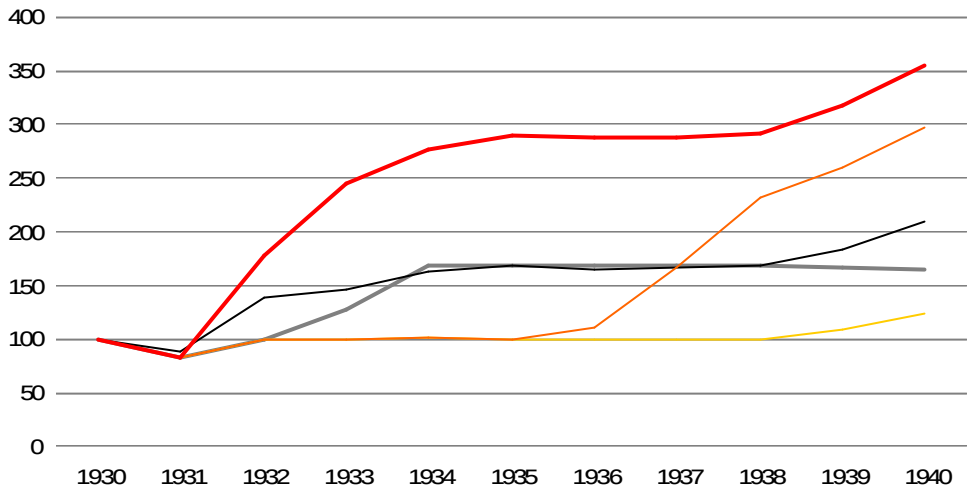


Figure 10

Major Currencies versus US$ (Gold Terms)

1930=100 1930-1940

Source

CrossBorder Capital; One Hundred Years of Economic Statistics, The Economist

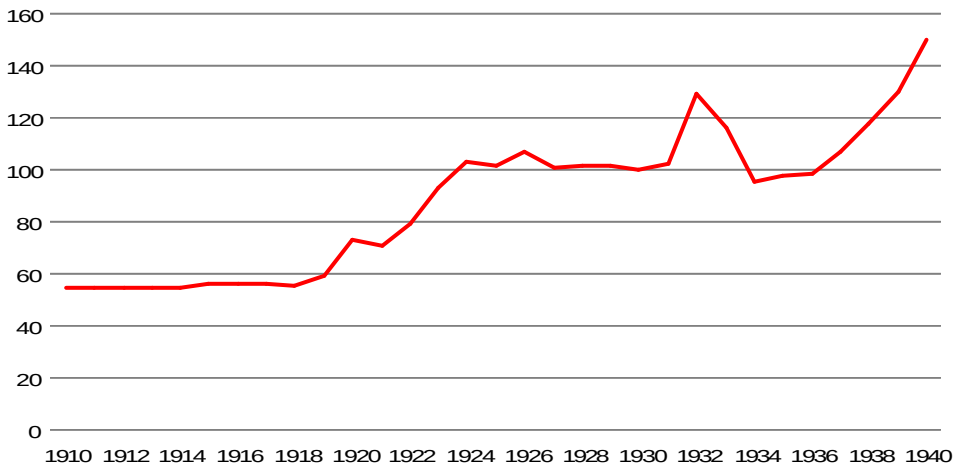


Figure 11

US dollar Trade-weighted Exchange Rate Index

1920-1940

Source

CrossBorder Capital; One Hundred Years of Economic Statistics, The Economist

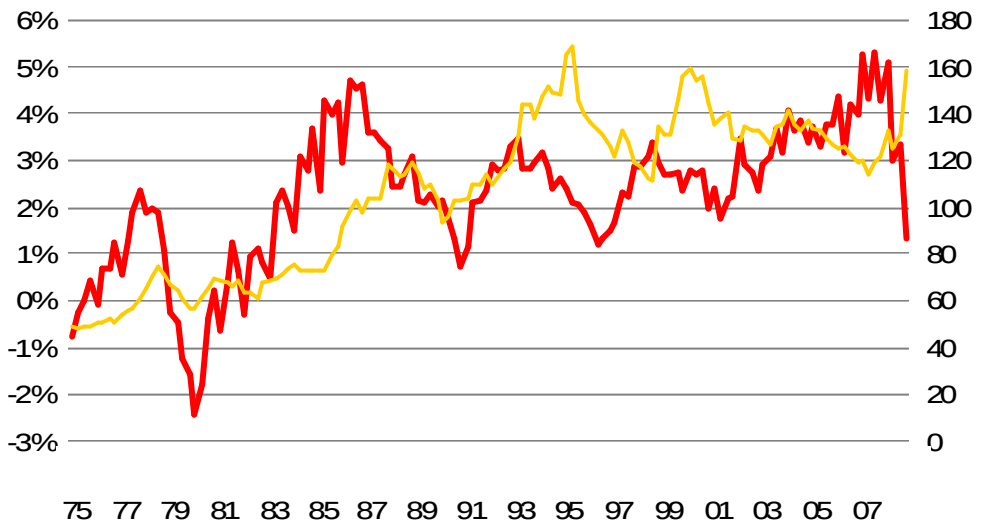


Figure 12
Japanese Trade Balance (as percent of GDP) and Yen Effective Exchange Rate
1975-2009
Source
CrossBorder Capital, Bank of England, IMF

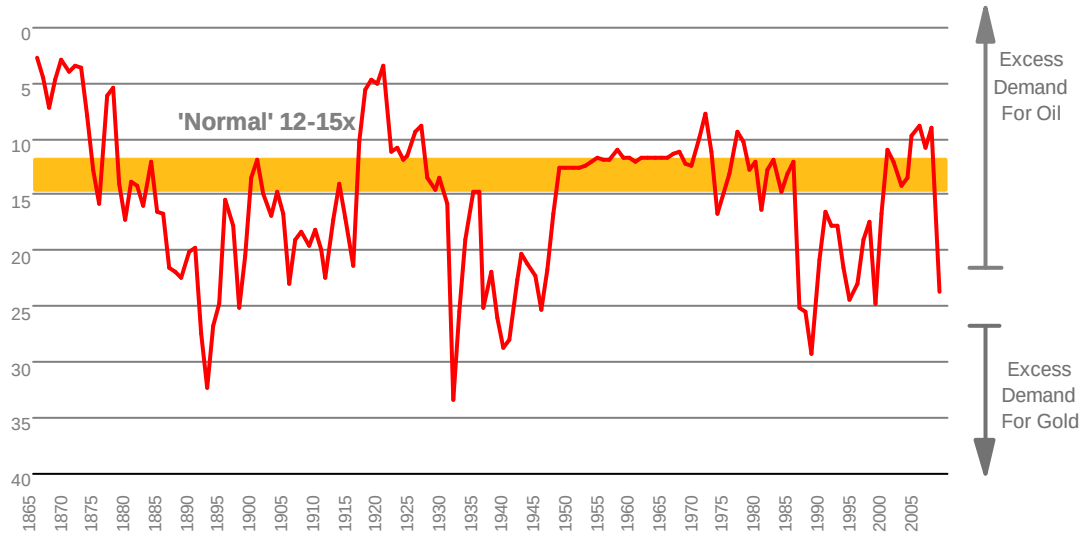


Figure 12
Gold / Oil Ratio
1865-2009
Source
CrossBorder Capital

CrossBorderCapital
Implementing Insight

Global View

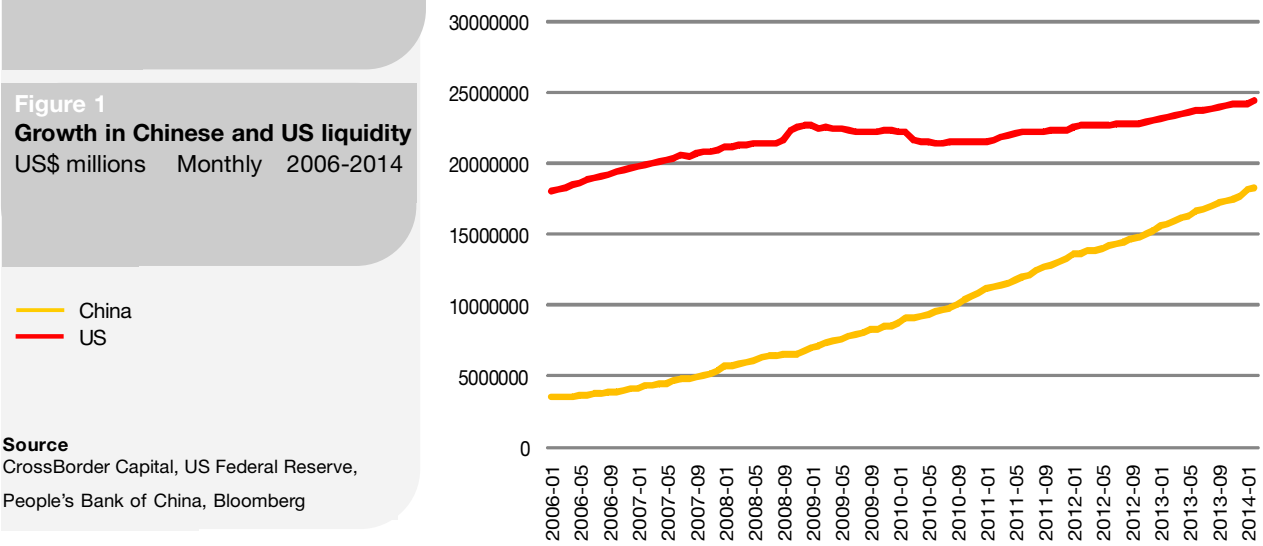
March 2014

Chinese Liquidity and China's Shadow Banking Sector

Chinese monetary policy is dominated by quantitative actions. The growth in Chinese Liquidity has jumped by 430% since end-2005, compared to an 88% rise in World Liquidity and a more pedestrian 36% expansion in US Liquidity over the same period. Even dated from the Lehman-induced turmoil in October 2008, Chinese Liquidity is ahead by 180%, easily outpacing the 38% rise in Global Liquidity and the puny 9% rise in US Liquidity. All eyes have been on Washington, but they should have been focussed on Beijing. See Figure 1.

The contribution of China to the expansion in Global Liquidity can be seen in Figure 2. In the period since end-2005, China contributed 34.8% of the US$42.7 trillion rise, in Global Liquidity, compared to 15.2% contributed by the US. A further breakdown shows that the Central Bank (PBoC) made up 9.4% points of this rise; commercial banks contributed 16.3% points and shadow banks made up a further 9.1% points (9.4+16.3+9.1=34.8). Since the Lehman Crisis, China's shadow banks (+169%) have grown their lending slightly faster than conventional banking (+159%). In terms of the outstanding stock of loans, shadow banking comprises in excess of one-quarter of total lending of US$18.1 trillion, or one-third of flows since 2005. Figure 3 highlights the breakdown of Chinese banking and shadow banking operations, averaged over the last decade. Compared to the popular *Total Social* Financing metric published by the PBoC, we make adjustments to eliminate double-counting and concentrate on 'liquidity'. As a comparison, US shadow banking totals US$10.3 trillion, or roughly half of total US private sector lending of US$20.5 trillion. In short, Chinese shadow banking at US$4.8 trillion stands at around half of its US counterpart, but it is growing much faster. (US shadow banking activity peaked at US$11.6 trillion in October 2008, since when Chinese shadow banking has grown by 170%).

Figure 1
Growth in Chinese and US liquidity
US$ millions Monthly 2006-2014



Source
CrossBorder Capital, US Federal Reserve, People's Bank of China, Bloomberg

The two main categories of shadow banking activity are: (1) acceptances (8.4%) and (2) entrust (or entrusted) loans (9.9%). The former are corporate bills that are endorsed by the 'credit' of a commercial bank, i.e. guaranteed, so that they can be used in transactions as means of payment. The latter consist of intra-corporate sector credits typically brokered by banks in return for fees. Because the banks take on no credit risk, these transactions are treated 'off-balance sheet'. These entrust loans are different from the similar-sounding 'trust loans', which are credits provided by asset managers. These 'trusts' are forbidden to accept deposits directly, but they can manage assets for the private sector.

Funds are often raised through banks from wealth management products (WMPs). These products are not guaranteed by banks, but they command higher yields that often sit well-above the regulated deposit rates. Foreign currency loans (5.4%) are simply loans raised, say, in US dollar terms and converted back into RMB. The 'other' category is an estimate of 'private lending' by smaller financial intermediaries. This lending activity is a grey area, on the fringes of legality, sometimes family-based and often associated with usurious interest rates.

Figure 4 shows the growth in Chinese shadow banking activity since 2003. It has slightly outpaced the growth in conventional commercial banking over the period, but interestingly it appears to move counter-cyclically. This may be accidental rather than deliberate because the surge in commercial loan growth from late-2008 through to early-2010 was the purposeful result of policy to stimulate the Chinese and World economies following the Great Recession. However, it is clear since this date that shadow banking has been growing at a much faster rate.

The role of the PBoC in spuring lending is curious. Not only is it by itself a major direct lender, notably to the State-Owned Enterprises (SOEs), but the PBoC will attempt to influence traditional commercial lending

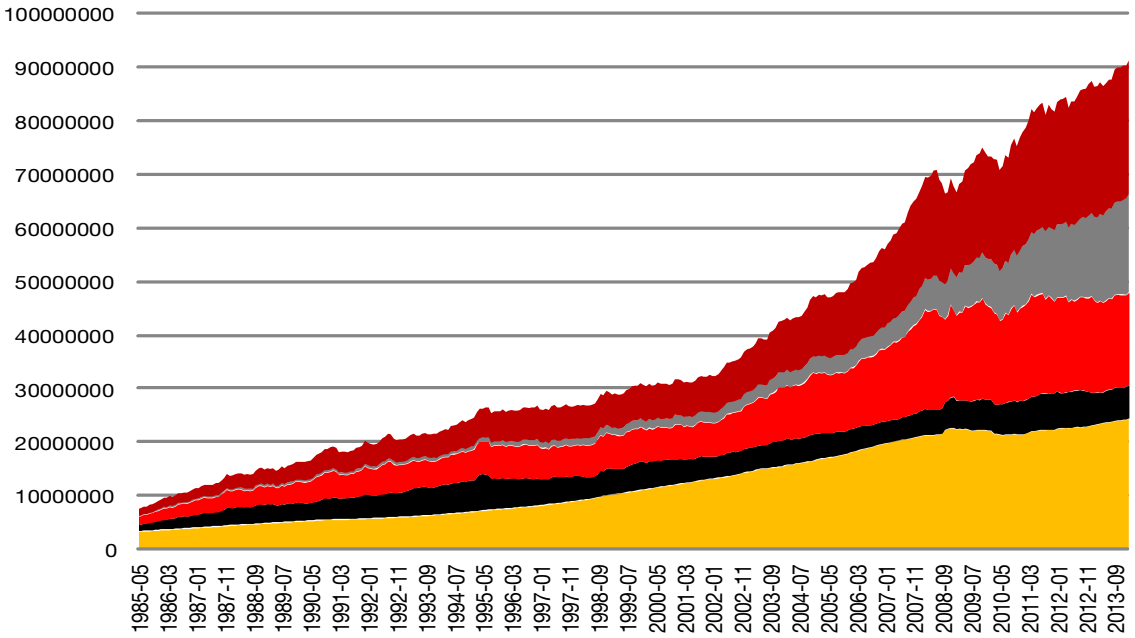


Figure 2
Major Contributions to Global Liquidity
US$ in millions Monthly 1985-2014
Source
CrossBorder Capital, US Federal Reserve, Bank of Japan, ECB, Bank of England, People's Bank of China, IMF, Bloomberg

through both directives and incentives to the high street banks. However, the fact that the PBoC itself provides means of payment, ie. legal tender, into the market will also enable the shadow banks to lever up their operations. In other words, an active PBoC should go hand-in-hand with strong growth in shadow banking. This indeed appears to be the case from Figure 5, which correlates the growth in the PBoC's balance sheet with the rise and fall of shadow banking activity. It seems clear that the current slow growth in the PBoC balance sheet is consistent with a much lower rate of expansion (and even no net expansion) in Chinese shadow banking.

What does this mean for Chinese Liquidity? Figure 6 shows annual growth in total Chinese lending alongside our aggregate liquidity index for China. The two series correlate closely, as they should. However, we prefer to use the index because it comprises part of a broad family of such indexes, using a standard template and covering 80 economies Worldwide. These indexes standardise the annual growth rate data relative to the size of the nominal economy – this makes credit growth less important to financial markets when consumer inflation is high and economic growth strong – and they normalise the result relative to a rolling 41-month moving average and standard deviation. These adjustments facilitate better comparisons across countries and between time periods. They highlight the fact that Chinese Liquidity at an index score of 24.5 is significantly below its index average of 50 and showing no sign of improvement. We fear that Chinese Liquidity will remain in the doldrums for some long-time, and at least until the growth in shadow banking noticeably reduces. Figure 7 shows a more detailed breakdown. We have previously argued that:

- Policy targets are to 'rebalance' the Chinese economy away from over-reliance on capital spending and an over-development of shadow banking

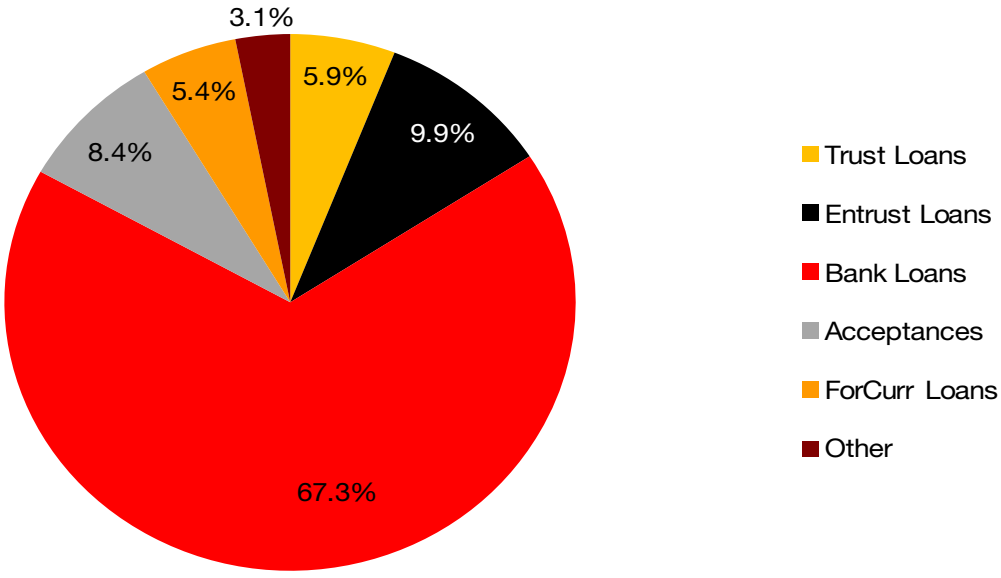


Figure 3
Breakdown of Chinese Private Sector Lending
Per Cent Average 2006-2014
Source
CrossBorder Capital, Bloomberg

- Communist Party is keen to exercise greater control over the indebted regional governments and the often bankrupt and loss-making SOEs
- PBoC is likely operating a medium-term policy to curtail liquidity that should be measured in years not months
- China, like Japan in the 1990s and 2000s, will suffer no major headline financial defaults or bank failures, but will see through a long-running credit squeeze
- The economy will skid to a sub-5% real GDP growth rate (below trend) and economic adjustment will be pushed out to the Emerging Market rim.

We conclude that much 'bad' economic news is still to come for China itself, and for the EM, given the close correlation shown in Figure 8 between cross-border financial flows to EM and Chinese Liquidity. The fat lady has yet to sing….

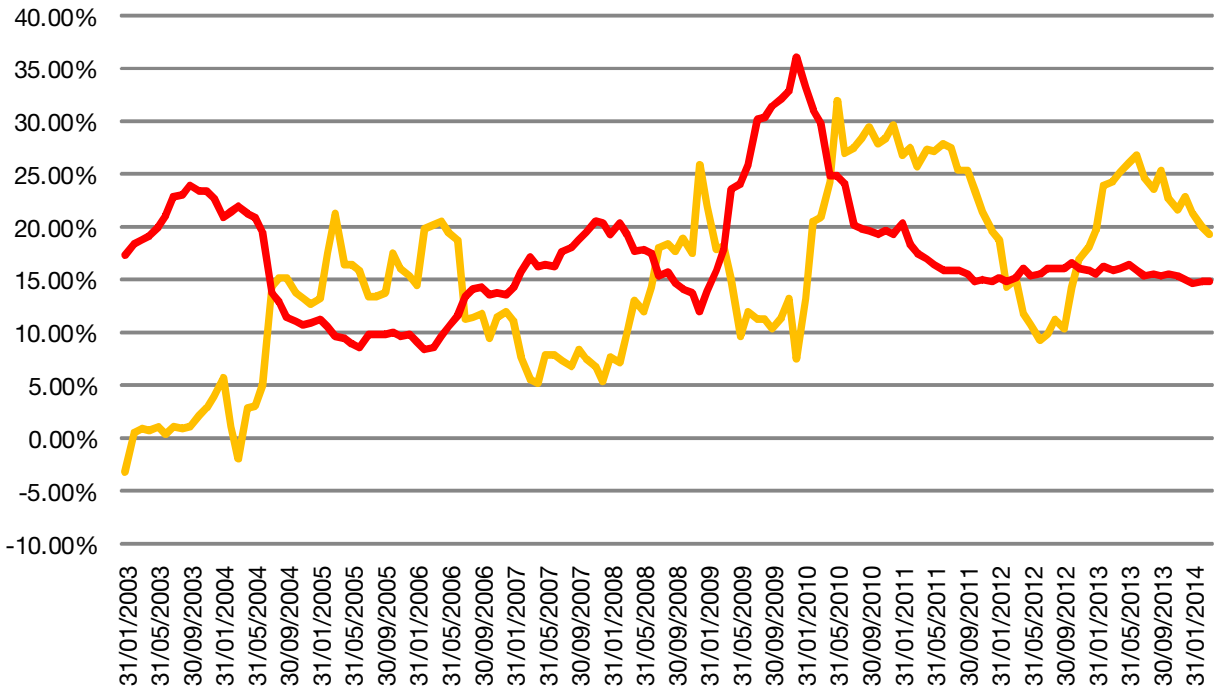


Figure 4
Growth in Chinese Commercial Lending and Shadow Banking
Annual% Changes Monthly 2003-2014

Source
CrossBorder Capital, Bloomberg

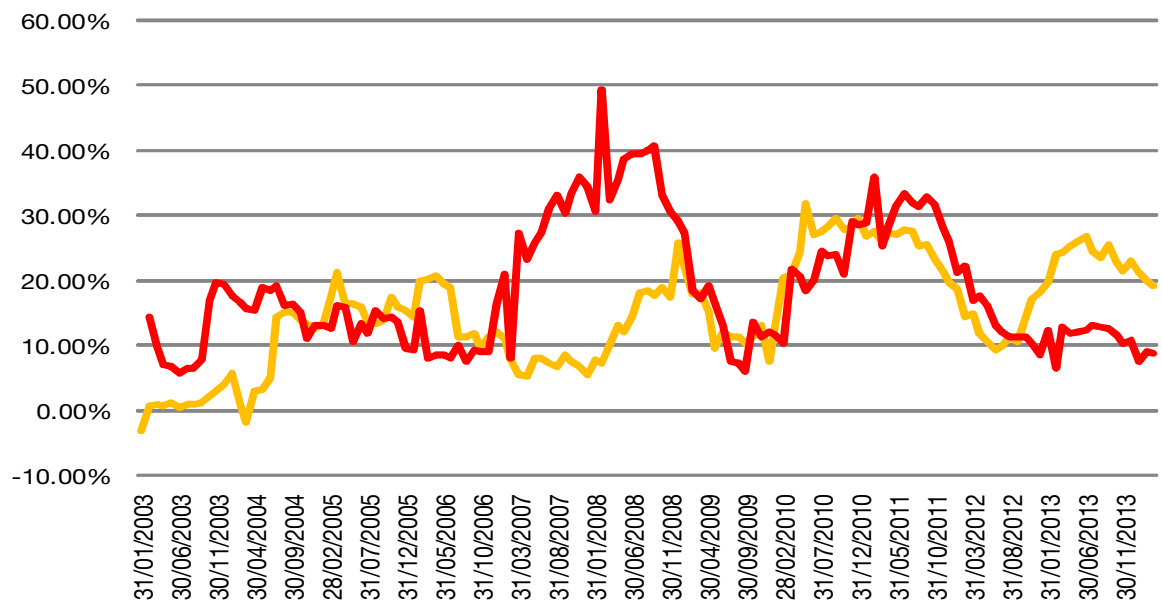


Figure 5
Growth in Chinese Shadow Banking and PBoC Balance Sheet
Annual% Changes Monthly 2003-2014
Source
CrossBorder Capital, Bloomberg, People's Bank of China

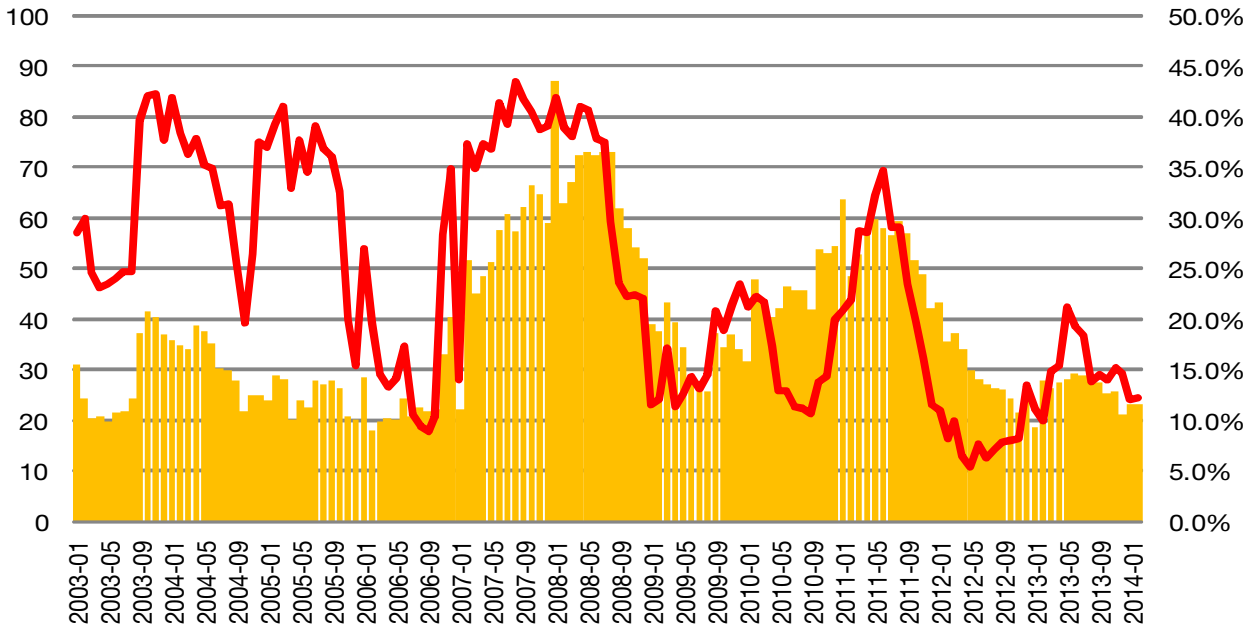


Figure 6
Growth in Chinese Liquidity and CBC China Liquidity Index
Index 0-100 Monthly 2003-2014
Source
CrossBorder Capital, Bloomberg, People's Bank of China

China GLI Summary ('normal' range 0-100)	CrossBorderCapital	Latest Month	Previous Month
TOTAL LIQUIDITY	Decrease, slower rate	**24.5**	**24.2**
- Central Bank	Decrease, slower rate	40.1	39.2
- Private Sector	Decrease, slower rate	18.3	18
- Cross-Border Flows	Increase, slower rate	68.5	70.1
- Financial Conditions	Improvement, faster rate	55.9	55.5

The GLIs are normalised statistical series comprising carefully selected financial flows. A reading above 50 shows an expansion of liquidity and a rise or fall in the index indicates a change in speed.

Figure 7
Chinese Liquidity Data (Global Liquidity Indexes - GLIs)
Summary February 2014
Source
CrossBorder Capital, Bloomberg, People's Bank of China

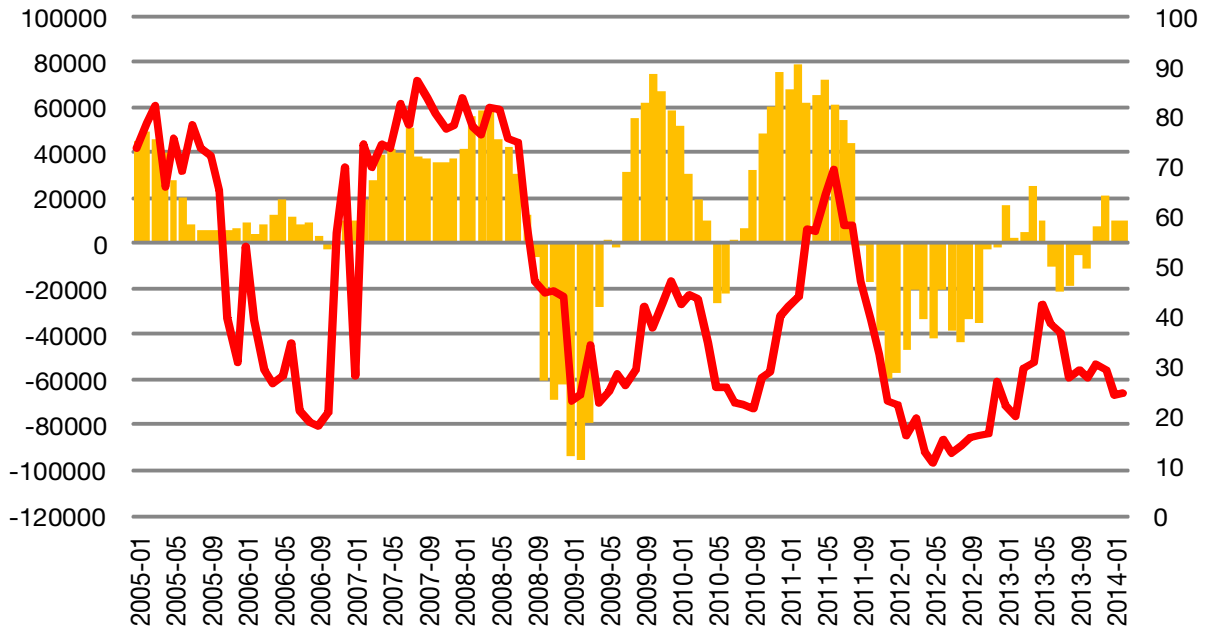


Figure 8
Cross-border Flows to EM and Chinese Liquidity
US$ Millions Index 2005-2014
Source
CrossBorder Capital, Bloomberg, People's Bank of China, IMF

CBF to EM
Chinese Liquidity

Section 3
(How China Controls World Interest Rates)

- How China Sets World Interest Rates – *March* 2007
- How China Controls World Interest Rates (Part 2) – *June 2013*
- Good Money, Bad Money and the Chinese Elephant – *September 2013*
- China, America and Collapsing Capital Flows to EM – *September 2013*
- Gross Interest Rates and the End of QE2 – *April 2011*
- The New 'Old' Yield Curve – *December 2013*

CROSSBORDER CAPITAL®

Global View

March 2007

How China Sets World Interest Rates

Most market conundrums are explained by understanding the difference between the credit cycle and the level of interest rates. The level of interest rates is largely independent of the credit cycle, although credit flows do determine time spreads and quality spreads. Interest is a category of income that is related to the size of the profits pool generated by new capital, and thus interest rates should move with rates of capital productivity. So, China as the World economy's 'swing' producer determines marginal productivity and the level of World interest rates. G7 Central Banks become more-and-more frustrated: investors turn more-and-more to gold, the one asset that shines when real interest rates are low and credit growth rapid. US$1,000/oz. gold is fast approaching!

Goldspan's Puzzle: A Tale Of Two Markets

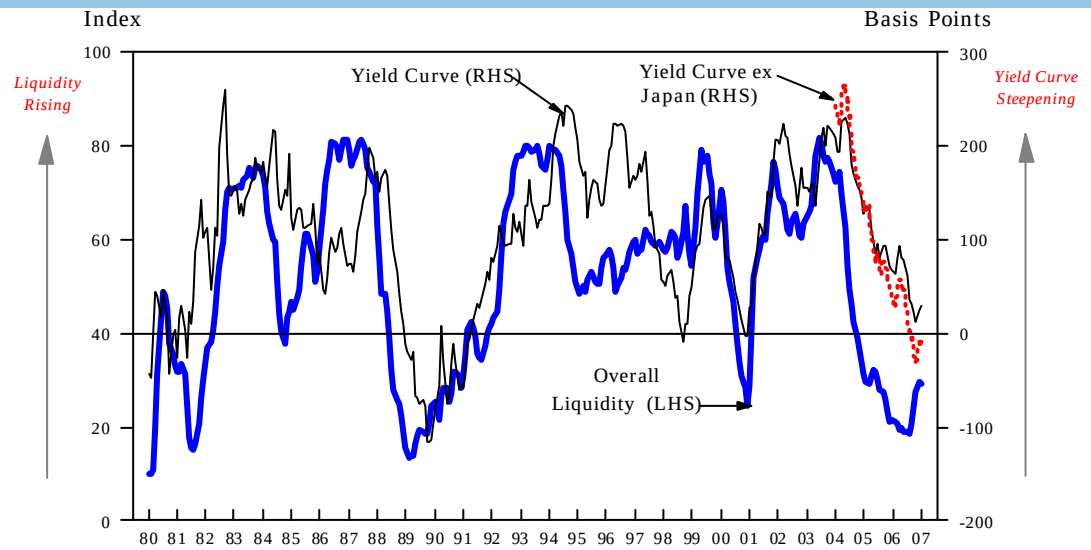
"It is the best of times, it is the worst of times, it is the age of wisdom, it is the age of foolishness, it is the epoch of belief, it is the epoch of incredulity, it is the spring of hope, it is the winter of despair …" **it is the period of low real interest rates, it is the period of abundant credit … it is the time for gold.**

Alan Greenspan (a.k.a. 'Goldspan'), the former Fed Chairman, will be partly remembered by financial markets for his celebrated *Conundrums*. Two particular conundrums have foxed policy-makers over the years:

(1) *Yield Curve Conundrum* – why Fed monetary tightening, i.e. hiking short-term interest rates, led to falling long term yields in 2005, and

(2) *Growth Conundrum* – why bond yields often don't reflect the pace of nominal GDP growth?

Figure 1. World ('G7') Yield Curve And Global Liquidity Cycle, 1980-2007



Source: CrossBorder Capital, Datastream

Marcol House
289-293 Regent Street
London W1B 2HJ

www.liquidity.com
Tel: (020) 7535-0400
Email: www@liquidity.com

The legacy remains unresolved and strangely it has persisted despite being bad economics. First, short-term interest rates do not determine long-term rates; rather the causation runs in reverse. Second, long-term interest rates are related to the rate of capital productivity and not simply to the rate of economic growth. And, as we will see later, this is where China comes in.

We have long questioned the power that the G7 Central Banks have over interest rates. In practice, no Central Bank actually sets interest rates. At best they set interest rate targets: this is not just a subtle difference. **What's more, in quantitative terms, even the influence they have on rates has been diluted by the rise of private sector credit institutions.** The US Federal Reserve's balance sheet now represents barely one sixtieth of the entire private sector stock of debt. Thus, whether, say, Goldman Sachs and the large hedge funds are more powerful than the Fed is a question that can no longer be easily dismissed? It is a moot point, and one likely coloured by the appointment of former Goldman boss Hank Paulson as new US Treasury Secretary.

Notwithstanding, we argue that interest rates are not truly set in credit markets anyway. Rather they are determined in the real economy. This is because interest represents an income category that is related to the size of the profits pool generated by new capital. Liquidity is money waiting to be turned into capital. The rate of profit measures the return from tying liquidity up as capital: it is directly related to productivity, adjusted by the extent of any overproduction, and it is largely independent of the liquidity cycle. The rate of profit is likely to closely determine the yield on equivalent duration bonds. Short-term interest rates measure the access 'price' of liquidity, i.e. the rental cost of using credit to turn into capital. Thus, when liquidity is relatively scarce, short-term interest rates will likely stand at a premium to the rate of profitability; and when liquidity is relatively abundant, they will trade at a discount.

The close relationship between the liquidity cycle and the yield curve, or term spread, is shown in Figure 1. As liquidity contracts, so the yield curve flattens and inverts. Similarly, rising liquidity causes the yield curve to steepen. The data in Figure 1 refer to the 'G7' or major developed economies, with each market weighted by its economic size. Liquidity is defined as the flow of money as means of purchase, i.e. 'sources' of funds and consists of changes in the stock of cash and credit. We measure liquidity as an index ('normal' range = 0%-100%). According to the chart, a neutral liquidity reading of 50% on our index is consistent with a positive 70bps time spread between 10-year bonds and 3-month money.

Thus the liquidity cycle drives the yield curve, NOT the level of interest rates. In other words, short-term interest rates measure the *premium* on money rather than the *price* of money, which is strictly the exchange rate. In our view of the World, China (as the swing producer) sets the level of real interest rates from its (low) rate of capital productivity, and financial institutions drive the tempo of the Global Liquidity Cycle.

An important corollary is that the long-end of the interest rate curve determines the short-end, via the liquidity cycle. **Put bluntly, the market not Central Banks set short-term interest rates.** Short-term interest rates are not 'set' by policy-makers and they do not determine long-term rates via an expectations mechanism, as many commentators seem to think. Consequently, attempts to hike short-term interest rates will have a minimal effect on real long-term yields and may only affect nominal rates with a long lead-time, and then likely in the opposite direction if higher rates ultimately lower core inflation.

Savings and savings gluts also don't figure here. Just because I save doesn't mean that the world becomes more liquid. Liquidity must be created. Thus, it is important to distinguish sources (i.e. liquidity) from uses of funds (e.g. savings), and differentiate capital from liquidity. **Low real rates and inverted yield curves likely tell us that 'too much'**

liquidity has been converted into capital. This potential source of overproduction may pose future problems, although unlike past cycles the bulk of this capital has been installed in China and other emerging economies, and not in the West.

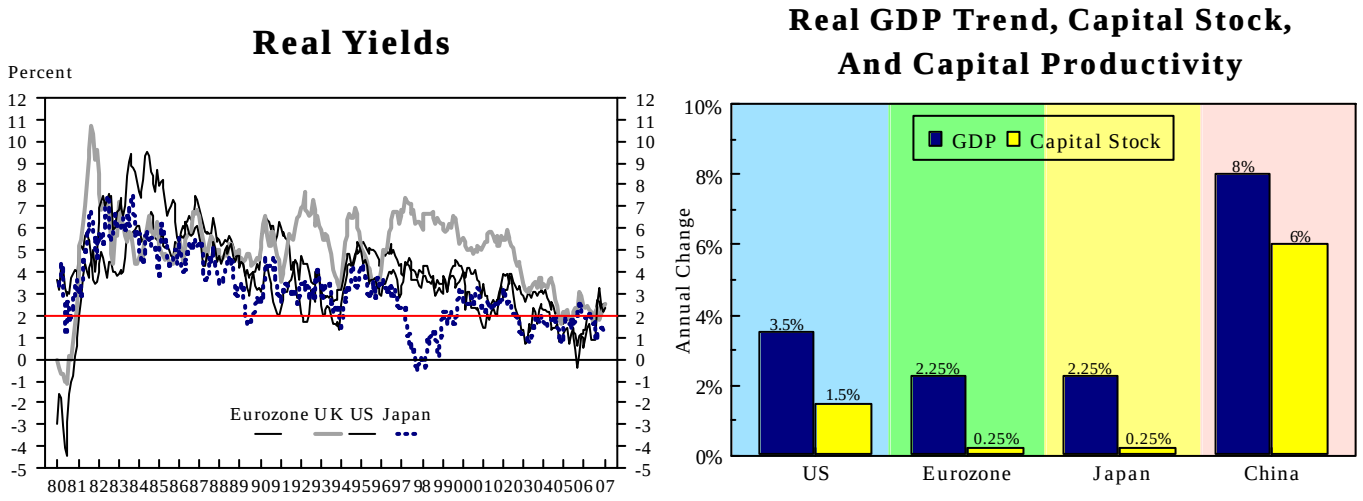
Chinese Real Economy Sets Tempo Of Western Financial Markets

Low real bond yields are, therefore, the result of the similarly low circa 2% (marginal) productivity of global capital, itself the consequence of Chinese mercantilism and overproduction. This structural feature is unlikely to quickly change. In fact, looking ahead, there is a compelling case that capital productivity may fall further if politicians succeed in restraining industry's exploitation of the natural environment. Concern for *Green* issues may stimulate specific investments and could bolster GDP, but it will probably cut into general profitability. **Low real interest should persist.**

Figure 2 shows the recent convergence of world real interest rates (measured by 10-year bond yields less core inflation). Convergence has occurred before, but convergence at low 2% real yields is highly unusual. As the right hand chart illustrates, this 2% real yield matches the spread between the trend rates of real GDP growth, economy-by-economy, and the underlying net expansion of the physical value of the capital stock. This spread measures net economic output less net capital input and represents the marginal rate of capital productivity. The fact that the rate is common across all major economies simply illustrates that a single global capital market exists. Thus, current low 2% real long-term interest rates have little to do with prevailing rates of GDP growth as many pundits and even some Central Banks claim. World real interest rates would diverge rather than converge, if they did. And US and Chinese real interest rates would stand nearer their respective economies' trend GDP growth rates of 3½% and 8%.

Low rates of marginal productivity mean a low return on capital, which, in turn, means a low real rate of interest. High profit margins and recent bumper profits reported by many Western Corporations do not detract from this argument. There is a difference between marginal returns on new capital investments and average returns on existing capital. Marginal returns are low, but average returns have been bolstered by cost-restructuring; by sweating assets more intensively, and, paradoxically, because of cheaper inputs from China. Nonetheless, these may prove to be temporary and will not prevent an inevitable convergence of average returns to the prevailing low marginal rates. Equity returns may look like the bond yield chart in Figure 2.

Figure 2. Real 10-Year Bond Yields, 1980-2006 And Estimated Capital Productivity (Various Economies)



Source: CrossBorder Capital, Datastream

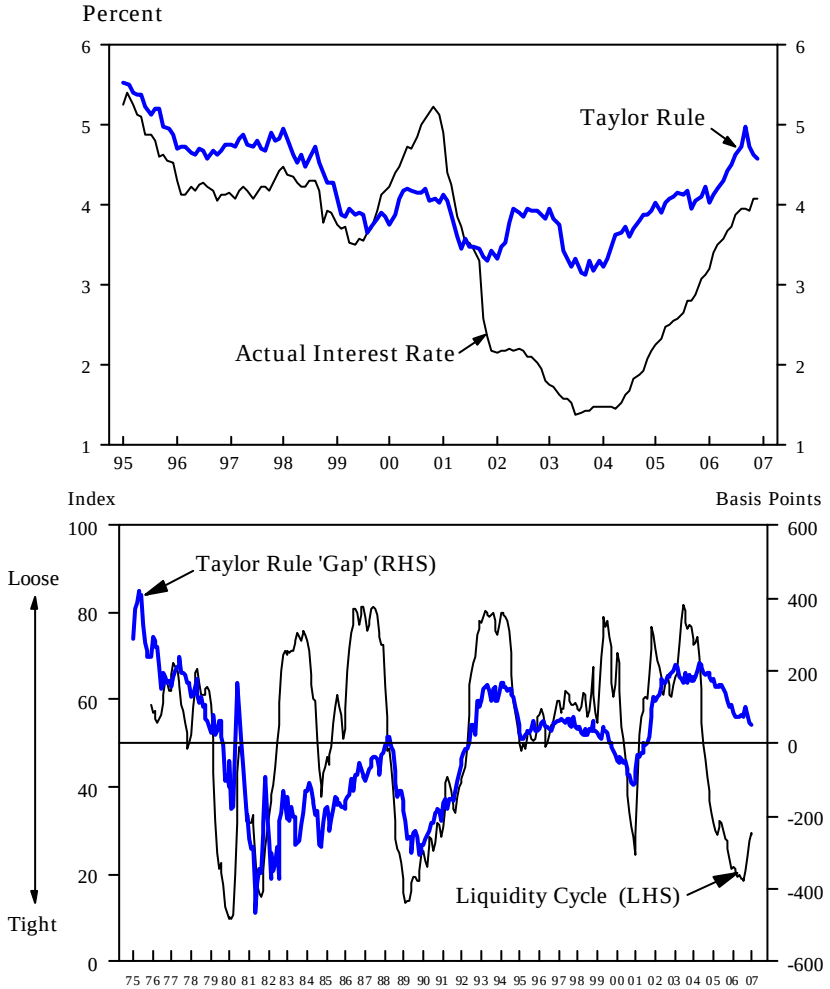
Low rates of return from physical capital drive down real yields on bonds of similar maturity in financial markets. Nominal yields differ from real yields by a rate of core inflation and by a risk premium that guards against unpredictable future price level swings. Credit growth influences these latter two terms since it can affect both the rate and instability of inflation (and hence credit spreads). **However, it is more likely that, on this basis, rapid credit growth will be associated with rising rather than falling nominal interest rates because of its positive correlation with general inflation.**

The 'So What?' Test

Why does this matter? If the Fed, ECB and Bank of England don't control interest rates, what effect do their actions have? Surely, movements in Central Bank credit and their announced intentions must show up somewhere? Or are the regular FOMC and Bank of England MPC meetings just pantomimes?

We have often argued that no Central Bank has the power to set short-term interest rates because these are market determined rates. Rather Central Banks set interest rate 'targets'. It is true that the 'discount rate' is a pre-announced rate, but this policy lever is only used *in extremis* and normally tiny amounts of money are lent at discount rate. Since the market is all powerful, policy-makers must battle against the private sector in order to make a specific target interest rate stick. However, not only are Central Banks increasingly swamped by the size of private sector flows, but there are second round effects, notably, in the forex markets that further muddy the waters.

Figure 3. Major Developed Economies ("G7") Interest Rate And Taylor Rule; and Major Developed Economies ("G7") Liquidity Cycle And Taylor Rule 'Gap',



Source: CrossBorder Capital, Datastream

Figure 3 records the difference between the Global Liquidity Cycle and the Taylor Rule 'gap'. The latter measures the quantum by which market interest rates differ from a target level devised to roughly mirror the underlying or 'natural' rate. Periods when the Taylor Rule gap is zero are frequently still associated with abnormal liquidity conditions. This mismatch highlights Central Banks' inability to control the credit markets.

For example, say the Federal Reserve desires to raise its Fed Funds target. Instructions will be sent to the Federal Open Market Desk to reduce the amount of liquidity in money markets through, say, outright sales of US Treasuries or via temporary repo operations. There rarely exist unconnected events, and this reduction in US dollar liquidity, by causing a general shortage of US dollars, will push up the value of the US unit on foreign exchange markets. A rising paper currency value represents a *monetary deflation* that will begin to reduce the overall nominal price structure. Lower prices make debt holdings unattractive, which will lead to a fall in the demand for domestic credit. Lower credit demand reduces the upward pressure on interest rates, thereby thwarting the Fed's initial attempt to raise interest rates.

On top, the growing size of the private sector and its newfound ability to source funds from the wholesale money markets and via overseas markets, means that from another standpoint, the Fed has less potency. Today, the Federal Reserve's balance sheet stands at barely US$0.8 trillion, compared to total US Credit Market Debt of some US$45 trillion. A whopping difference. Influencing market interest rates is therefore a job that is often best done through trying to change investors' expectations rather than through directly changing the volume of credit in private hands.

Monetary textbooks describe an archaic version of financial control through a rigid reserve/ deposit constraint. Today, the limits on financial expansion come via a more elastic credit/ capital link. Derivatives, securitisation and off-balance sheet transactions stretch-and-stretch this link, allowing credit to grow well-beyond normal and prudent capital limits.

Of course, this does not say that the volume of credit is unimportant or that monitoring credit flows is a pointless task. Rather it says that Central Banks are being forced to act in different ways. Specifically, they have become more reactive than proactive in setting monetary conditions. Moreover, paradoxically they probably have more power over currencies than over interest rates.

Note the recent words of former Fed Governor Jerry Jordan[1]:

"The tools available to Central Banks to influence the purchasing power of their currency are quite few. Since it is their own liabilities that serve as money, altering the size of the central bank's balance sheet is the essential monetary tool … Central Banks can, if they choose, control the size of their balance sheets very precisely … Currently, there is only one source of dollars: the liabilities of Federal Reserve Banks."

Writing some years ago, the American academic and later Goldman Sachs partner Fischer Black similarly believed that Central Banks exercise more power over exchange rates than over interest rates. He argued that Central Banks operated on the yield curve. Outright Treasury sales would pull up long-term yields and push down short-term rates as extra liquidity flowed in. This time spread between long-term and short-term rates, in a perfect market, should equate to the anticipated depreciation of the exchange rate. Thus, a steep yield curve engineered by increasing liquidity will depress the value of the currency.

[1] Jerry Jordan, *Monetary Policy in The Twentieth First Century*, Federal Reserve Bank of St Louis Journal, November/December 2006.

Conclusion: Gold Soon At US$1,000/oz?

We have argued that the level of interest rates is different from the swings in the credit cycle. In turn neither have much to do with Central Banks. Liquidity booms and slumps are largely driven by the private financial sector, and probably these days more by the non-banks than the traditional money-centre banks. Rapid credit growth is ultimately inflationary. Meanwhile, the level of real interest rates is determined by the marginal productivity of capital in the real economy and this is currently in the gift of China, the world's swing producer of many manufactured products. The interface between liquidity and interest rates appears in the yield curve.

Admittedly, the major listed equities have lately out-performed bonds thanks largely to bumper profits (on existing capital). Looking ahead, it will be difficult for Western corporations, and thus Western equity markets, to de-couple from the negative effects of Chinese overproduction. Thus, today's real marginal returns of 2% on new investment should become tomorrow's more widespread 2% returns on existing capital, as more-and-more plant, equipment and buildings wear out and have to be replaced. Equity returns (not necessarily equity markets) have a long way to fall!

These economic challenges may prove tougher because the policy framework itself has been compromised by economic and financial change. Future policy-errors are more likely if Central Banks wrongly believe they can still set interest rates. Central Banks may be too small to control the money markets, but they are still big enough to cause trouble when they try. Using now popular Taylor Rules to establish interest rate targets, or trying to hold interest rates above market levels to protect their wobbly currencies, policy-makers are committing serious crimes. The Taylor Rule implicitly incorporates a wrong-headed Phillips Curve philosophy whereby less unemployment can be traded-off against more inflation. Moreover, widespread concerns over rising trade deficits seemingly ignore the fact that we live in a world dominated by capital flows (which prefer stable currencies) and not trade flows (which enjoy competitive currencies).

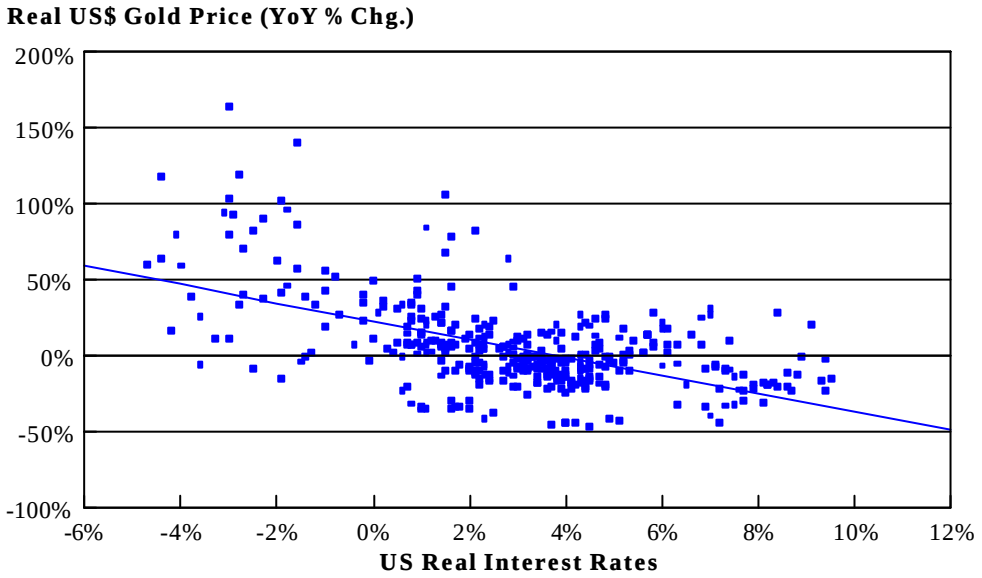
This mis-placed concern that currency fragility is directly related to size of current account deficits has forced some Central Bankers to worry when the interest rate premiums enjoyed by deficit economies begin to widen significantly. Lately, in the case of the Yen, this is believed to encourage a 'carry trade' that forces capricious speculative flows into the US dollar, thereby exposing potential funding problems and threatening future instability. In our view, such attempts to eliminate the 'carry trade' by interest rate change may actually worsen the underlying problem of weak domestic demand for Yen.

Overall, what is really needed is better or simply more liquidity management. The forces shaping the World economy are simultaneously stretching the elasticity of credit and reducing real interest rates through more dynamic production. This is nothing new. It is the very history of Capitalism. The late nineteenth century economic boom combined the implementation of new technologies (e.g. railways, turbines, Bessemer steel), and the rise of banking and stable currencies with a post-war political impetus (e.g. following the American Civil War and the Franco-Prussian War). Equally, post-Cold War initiatives, new forms of credit, stable currencies and technological advances are today driving the World economy forward.

Fast economic growth does not guarantee a high return on capital, but it likely fuels hopes and expectations, and thus facilitates rapid credit growth. Because of the tumbling prices of manufactured imports, more-and-more of this credit serves to fuel rises in the prices of domestic services and assets. Thus, inflationary pressures are increasingly being hidden and ignored.

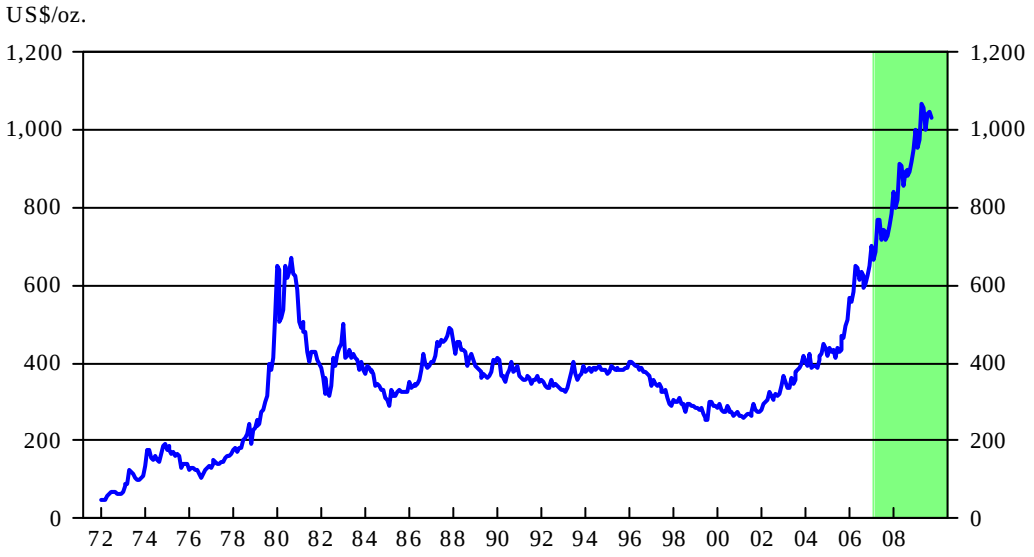
We are facing a world of excess production, low real yields, surging credit, latent inflation, rising odds of policy-error and probably more bad debts as industry is forcibly reshuffled. **Where to invest?** Gold is the one asset that shines when real interest rates are structurally low and credit growth cyclically rapid. See Figures 4 and 5. It's also not too bad as an inflation hedge and serves well in uncertain times. We have argued before that gold is rising against all paper currencies – dollars, yen and euros. Against the US dollar, it is compounding at 10-12% per annum and should, therefore, hit US$1,000/oz by 2009.

Figure 4. Percentage Change In Real Gold Price and Real Interest Rates, 1974-2006



Source: CrossBorder Capital, Datastream

Figure 5. Projection Of US Dollar Gold Price, 1972-2009



Source: CrossBorder Capital, Datastream

CrossBorderCapital
Implementing Insight

Global View

June 2013

How China Controls World Interest Rates (Part 2)

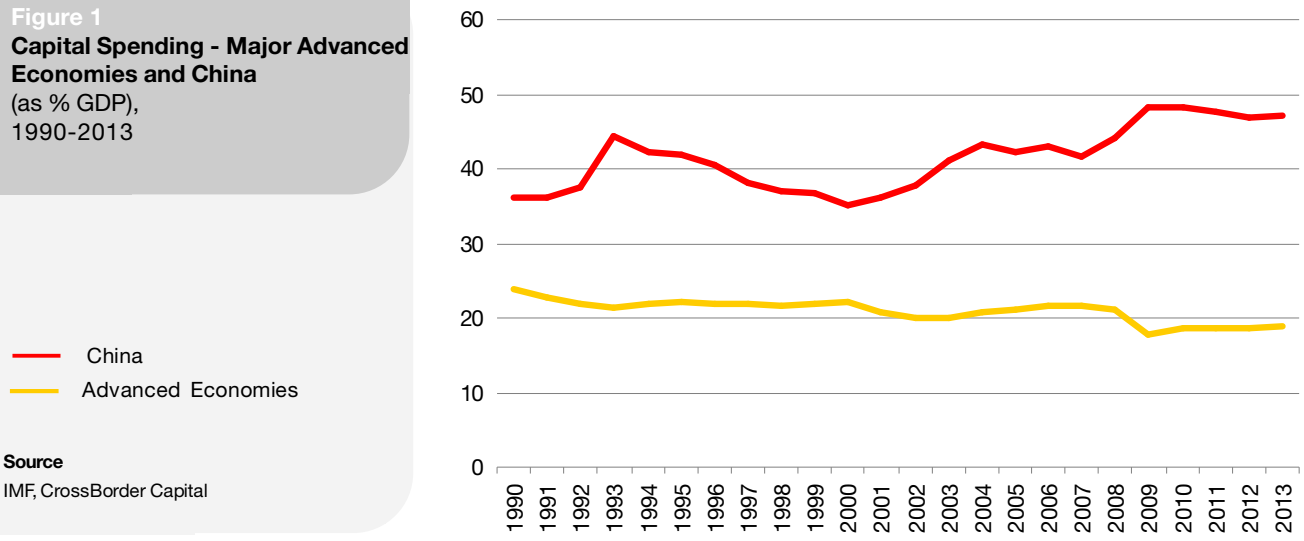
Around ten years ago in 2005 we wrote a research piece with the above title. This argued that China controlled the level of World interest rates, pushing the major Central Banks into second place. It was a riposte to the myth of the *Savings Glut* and the equally popular later fiction of a *Balance Sheet Recession*.

The Wall

The World changed between June and November 1989: the events in Tiananmen Square in China and the Fall of the Berlin Wall signalled the arrival of the Emerging Markets. These events effectively economically enfranchised 2-3 billion new producers (not consumers). They led to a vast increase in the supply capacity of the World economy and among other things established the US dollar as the predominant monetary unit Worldwide. Capitalism was re-lauched with new impetus, but behind the scenes Chinese policy-makers were meddling with the cost of capital. China's explosive capital spending boom was financed by State banks in a purposeful attempt by former leader Deng to rapidly industrialise. More attention was paid to getting urban employment up than in earning a return on capital. **The bottom-line was that the marginal return on capital collapsed and output leapt.** Everything that analysts had criticised Japan for in the 1980s, was becoming truer and on an even greater scale in mainland China.

China exported this swelling production. **The main winners were US multinationals and high streets Worldwide because procurement costs could be slashed, profit margins fattened and retail prices still be cut.** The biggest losers were the capital goods suppliers.

Figure 1
Capital Spending - Major Advanced Economies and China
(as % GDP),
1990-2013



Source
IMF, CrossBorder Capital

96 Baker Street
London W1U 6TJ
Tel (44) 20 7908 2800
crossbordercapital.com

China was investing for the World. Her actions, fuelled by abundant PBoC credit, hammered down the marginal returns on capital from new investments in competing economies and caused Western capex to skid to a virtual halt (barring replacement spending). **Japan and Germany were key losers.** Japan the more so because her cost structure being dependent on small/ medium-sized firms, often located in the backstreets of major cities like Tokyo, simply could not compete. Germany could at least fall back on newly available cheap East German labour; a coming decade of labour law reform and a captive market in the Rest of Europe that could be titillated by cheap credit. Therefore, the *Great China Cost Shock* can be seen in three ways: (1) low Western capital investment (see Figure 1); (2) outperformance of US large cap shares against Japanese small cap (see Figure 2), and (3) a collapse in World real interest rates (see Figure 3). Interestingly, the capex data in Figure 1 compares China with the Major Advanced Economies and reveal a minus 0.78 negative correlation. **In other words, the more China invests, the LESS the West does.**

No Savings Glut; No Special Balance Sheet Recession

Therefore, the big problem the World economy has faced is 'too many producers'. **In short, it is a Capacity Glut NOT a *Savings Glut*.** Excess capacity financed by abundant Chinese credit pushed down the marginal rate of profit on new capex and this drove down real bond yields. Figure 4 shows the change in the share of capex in Chinese GDP alongside our PBoC index of liquidity injections some 18 months earlier. There is a clear causation between PBoC liquidity and more Chinese capital spending. **In equilibrium, real bond yields must match this real return from industry. This is the explanation behind falling World bond yields.** In other words, the marginal producers' (e.g. China) real returns determine the term structure of World interest rates through the long-end. This also means that,

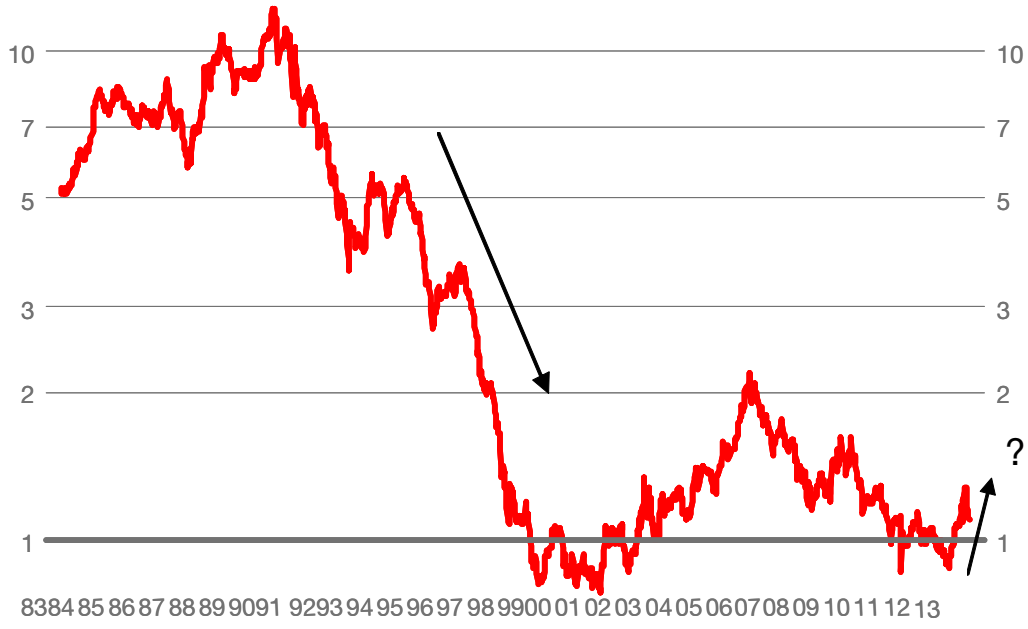


Figure 2
Japanese Small Cap (Topix Second Section) Vs US Large Cap (S&P 500), Ratio (Log Scale)
1983-2013
Source
CrossBorder Capital, Tokyo Stock Exchange, Standard & Poor's

contrary to the consensus belief, the long-end of the bond market determines the short-end and not vice versa. It is the surges of Chinese production that cause yields to drop, not waves of Chinese buying of the US bond market. In addition, the whole notion of *Balance Sheet Recession* makes nice headlines, but is really a misinterpretation. All recessions are balance sheet recessions, surely? **The problem concerns not necessarily too much capital, but too much unprofitable capital.** Therefore, first-and-foremost, we need to understand why profitability has been destroyed. This, as we argue, is the result of China's push to industrialise, fuelled by a Socialist banking system with little regard for either profitability or concern over bad debts. Yet we understand that it is difficult to see at the same time that many large Western corporations are reporting bumper profits! The simple reason here is a confusion between the average return on existing capital (what is reported in P&L statements) and the marginal return on new capital (which often get sidelined). Major corporations, by changing procurement policies and slashing costs, can generate fat margins and report large profits on existing capital, but they cannot grow organically.

Real Rates Up, Up, Up

We have argued elsewhere that the biggest anomaly in World financial markets today is 'too low' real interest rates and not too little inflation. According to long-run trends (since 1870), the average World real interest rate is 2.1% and average inflation rate 2.7%. With World inflation currently around 2.5% and real interest rate 0%, the latter is the number out of line.

Real interest rates in bond markets are not set by policy-makers as standard finance theory seems to suggest, but by private sector industry according to the marginal return on capital. Thus, China's entry into the World economy effective around 1990 not only capped World inflation, but more significantly altered the trend in World real interest rates. **In short, falling real interest rates in the West**

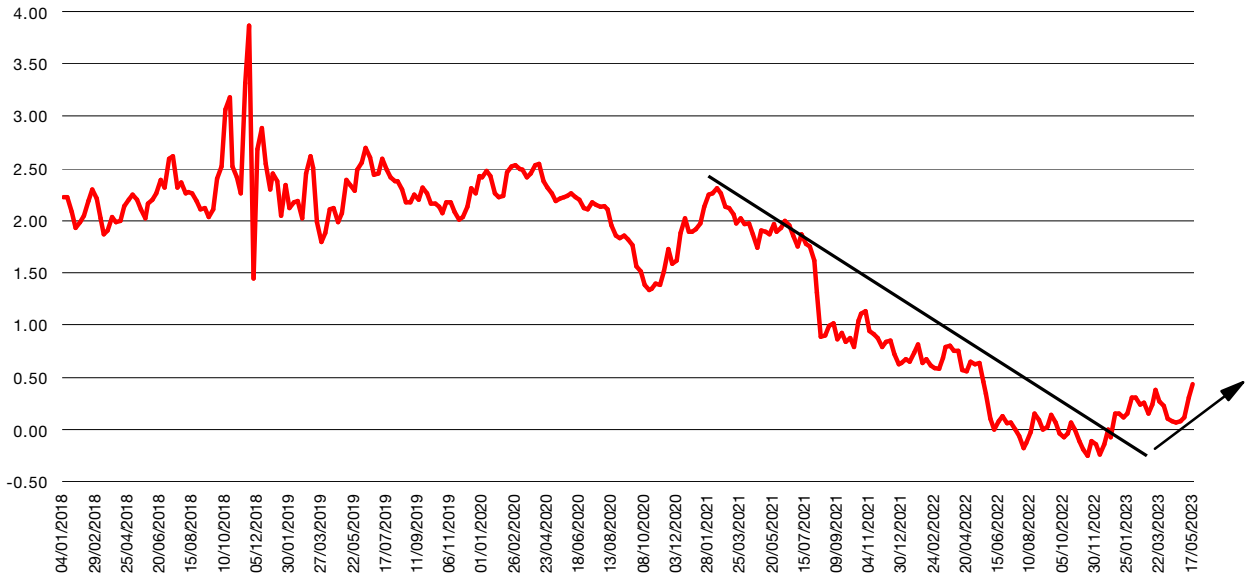


Figure 3
US 5-Year Real Interest Rates (TIPS) 5 Years Out, Percent
Monthly 2018-2023
Source
US Federal Reserve

owe more to the legacy of Deng than the errors of Greenspan.

In our view, the latest policy twists in China matter a lot. Short-term interest rates are spiking because the PBoC (Peoples' Bank) appears reluctant to continue funding the commercial and shadow banking system: they may not default but they cannot grow. In turn, this suggests that the easy money that fuelled two decades of abundant capital spending is over. **The *Great China Cost Shock* is probably consigned to history.** This will have profound implications for the World and, particularly, for the West.

Above all, the three trends we earlier identified as the result of the Great China Cost Shock should now reverse. Therefore, in no particular order, we should expect to see capital spending rising as a proportion of GDP; real interest rates increasing, and Japanese small cap shares beginning to outpace the shares of large cap US corporations. There is little doubt that Western corporations have the available cash to spend on more capex. The last 2-3 years have seen huge inflows into Corporate Treasury departments as costs have been cut and profit margins widened. **Now, looking forward, in order to get further profit gains they must reinvest rather than rely on continually falling procurement costs.**

So, where does this leave Bernanke et al? Are Central Bankers no longer Gods? **We have always argued that Central Bankers are critical for determining the risk premia in financial markets through their balance sheet operations.** Here is where *liquidity* enters the equation. The Capitalist system is at its heart a massive refinancing system that requires the consistent rolling of positions because most institutions lend short and borrow long. This process is inevitably fragile and uncertain and needs an outside balance sheet that can provide ample quantities of legal tender, i.e. means of settlement, when crises occur. **This is the role of Central Banks.** When they

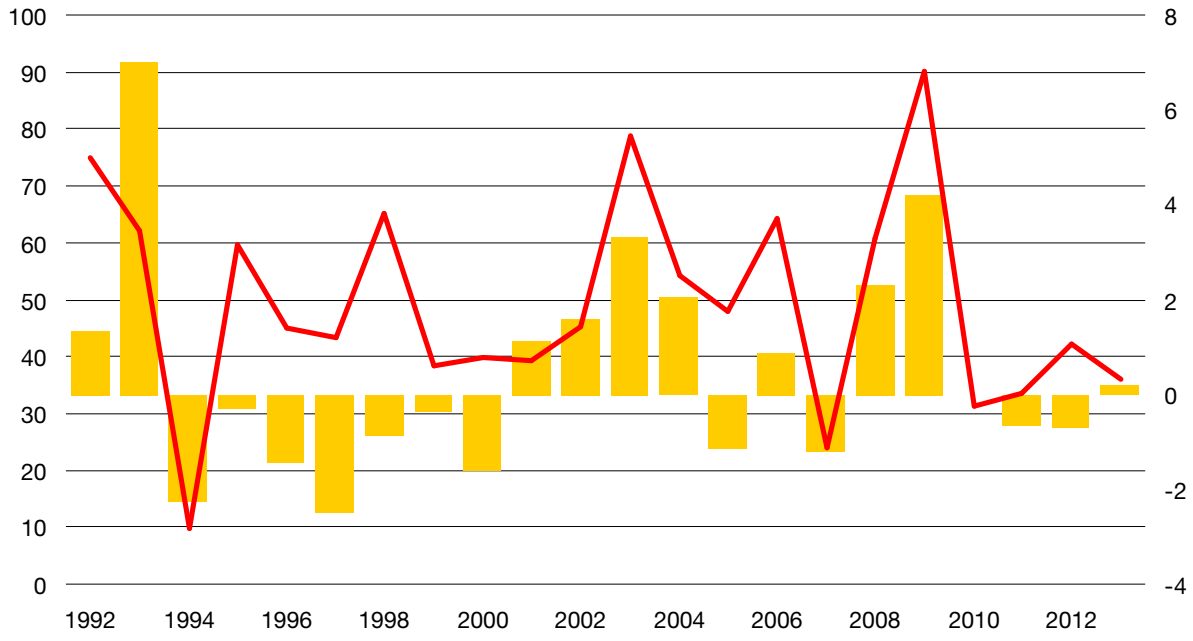


Figure 4
Chinese Capital Spending as Share of GDP (annual change) and PBoC Liquidity (18 months earlier), 1992-2013

Source
IMF, CrossBorder Capital

expand their balance sheets they reduce system risk premia, causing yield curves to steepen, and when they reduce balance sheets, they increase risk premia and yield curves flatten and sometimes even invert. **Bond risk premia always move oppositely to other assets because they are the low risk asset.** This is shown in Figure 5 by the strong correlation between US liquidity and the US yield curve, read: bond risk premium. Thus, as investors move out along the risk curve, bond risk premia rise and equity risk premia, say, fall. Currently, policy-makers are easing. Yield curves are steepening; risk premia on most assets are falling but those on bonds (the low risk assets) are rising. Hence, the bond markets face a double-whammy. China's actions are sending real interest rates up, and QE policies are adding a rising bond risk premia. **With or (most likely) without faster inflation, bond yields are heading back to 4-5%.**

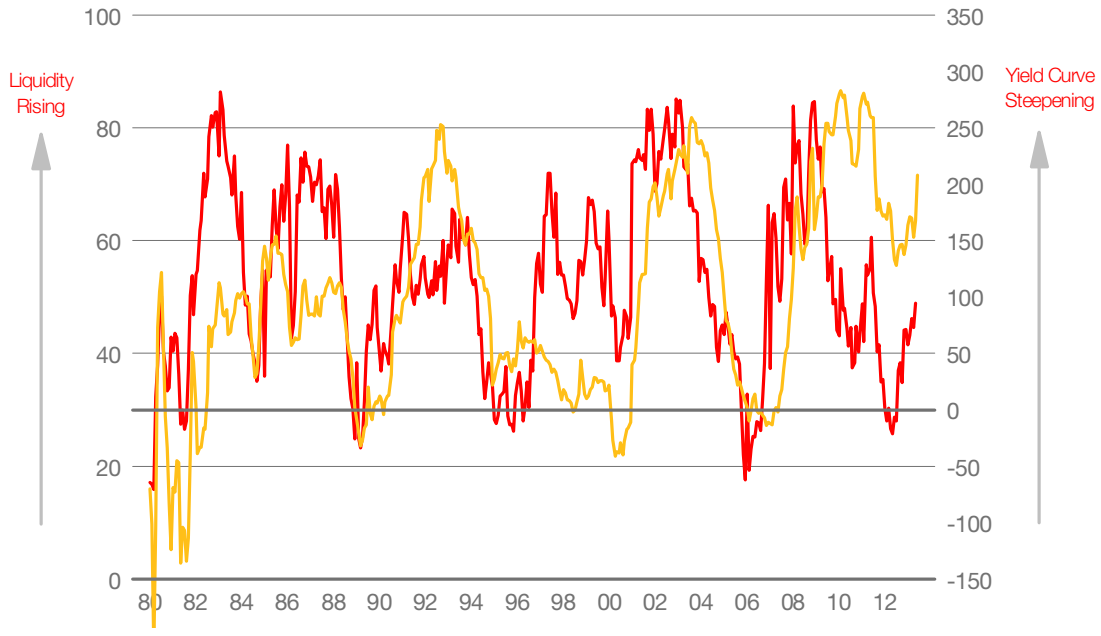


Figure 5
US 10y-2y Yield Curve and US Dollar Area Liquidity
Basis Points and Index Monthly 1980-2013
Source
CrossBorder Capital, US Federal Reserve, IMF

CrossBorderCapital
Implementing Insight

Global View

September 2013

Good Money, Bad Money and the Chinese Elephant

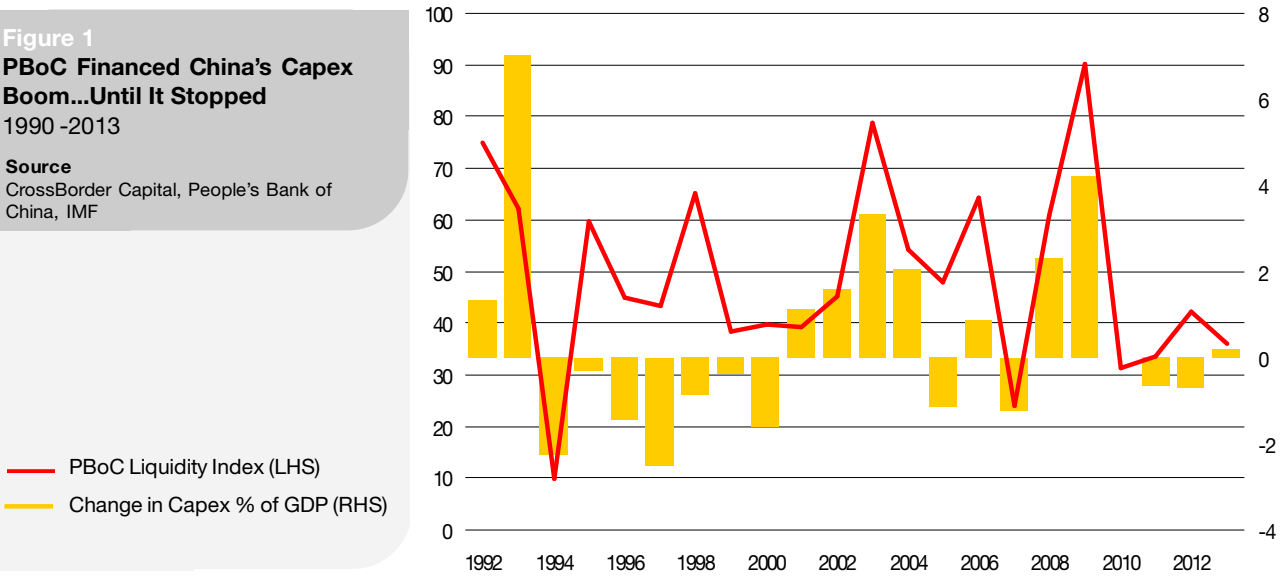
Markets are becoming obsessed with America's *tapering debate*: the efficacy of QE versus 'forward guidance'. Neither really matter since investors are missing the elephant in the room. This elephant is Chinese. Its presence warns of big changes in China's economy and largely explains the current plight of Emerging Markets. The truth is that US Fed tapering matters little because the far more important tapering by China's PBoC is already well underway.

China Finally Loosens Its Grip on World Real Interest Rates

We have previously expressed doubt and concerns about the path of China's economy. **We have labelled the Chinese economic growth path 'Soviet-like' because it has largely come from the massive corralling of inputs into production, rather than genuine value-added through innovation and technology.** To draw an analogy, China produces lots of low value-added sausages by pumping huge volumes of sausage meat into the hopper. Result economic indigestion. **The People's Bank (PBoC) largely underwrote this process by financing a whopping expansion in China's capital base, virtually regardless of its profitability.** Figure 1 highlights the correlation between China's changing investment share of GDP and PBoC liquidity injections. The PBoC operates a near-pure quantity monetary policy (i.e. QE), enacted through reserve management and direct loans to State Enterprises. There are physical limits to this investment process, which the rising evidence of bottlenecks and inflation pockets across the economy likely attest to. Put bluntly, the days of 9-10% annual GDP growth are behind us and going forward China is more likely to see more prosaic annual rates of circa 5-6%.

Figure 1
PBoC Financed China's Capex Boom...Until It Stopped
1990 -2013

Source
CrossBorder Capital, People's Bank of China, IMF



96 Baker Street
London W1U 6TJ
Tel (44) 20 7908 2800
crossbordercapital.com

A major consequence of China's 1990-2010 money-fuelled boom was the collapse in the marginal return on Western capital as the World increasingly discovered that China was effectively investing for everyone else and exporting, sometimes dumping, the production. Herein lies the explanation for why World real interest rates are so low. We have written over the past decade on this theme, which we dub 'How China sets World interest rates?' The argument rests on the broad equivalence between real bond yields (e.g. US TIPS) and the marginal return on Western capital: both 'uses' compete for savings and the weaker the demand for capex in Europe, Japan and the US, the lower the cost to governments of selling Treasuries, such as TIPS. **In other words, it is the bad policies of China's PBoC and not the genius of the Federal Reserve that explains low World interest rates.** And, by not matching Western monetary policy to China's in the mid-2000s, largely, in our view, explains the backdrop to the Lehman Crisis, and not the empty notion of 'global imbalances'. See Figure 2.

There are two corollaries. **First, Japan, the geographically closest major economy, initially suffered most severely from the surge in Chinese capex.** Japan, and especially Japanese smaller companies, became de-linked from the global supply chain. This soon spread to other Western economies as Figure 3 highlights. In Figure 3 we plot the implied marginal return on capital in the US and Japan over the 1985-2013 period. **Conventional analysis is forced to ignore the marginal return on new capital and looks instead at reported profits which measure the average return on existing capital.**

Marginal returns will lie well below average returns when corporations, for example, lack new investment opportunities and/ or engage in extensive cost-restructuring exercises. The data we use is compiled by first measuring the marginal productivity of capital from National Income Accounts and

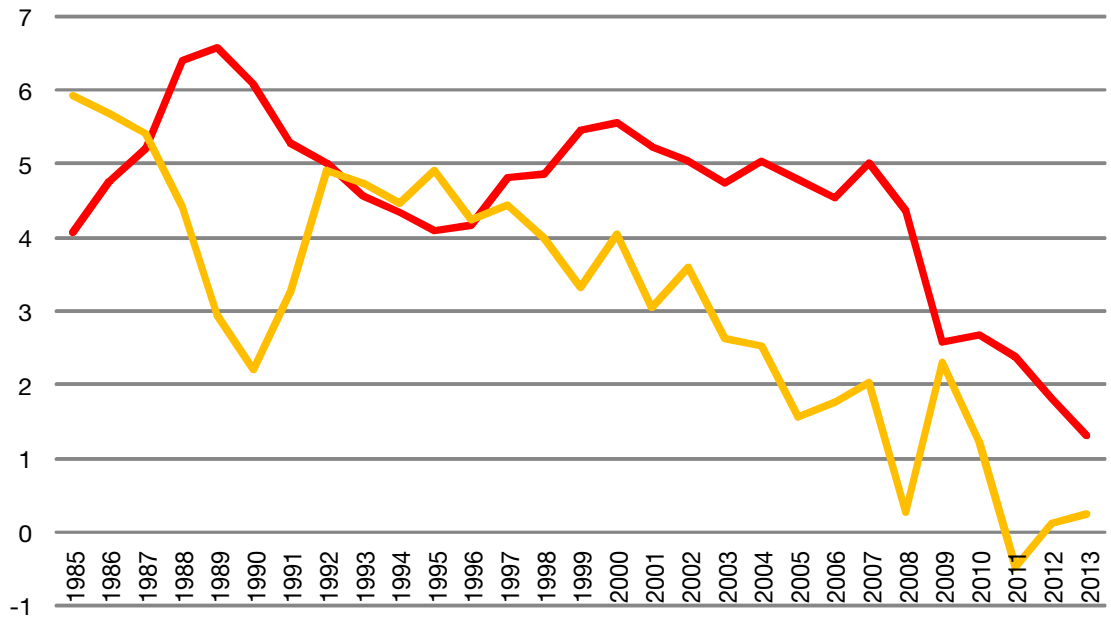


Figure 2
World Real Interest rates and Marginal Return on Western Capital
1985-2013
Source
CrossBorder Capital, IMF

then scaling this down by the (average) share of profits in GDP. The results not only show Japan's lead-time over America in suffering lower returns, but they also correspond to the contemporaneous slide in World real interest rates. Over the course of 150 years of Western economic history, real interest rates have averaged 2.5%. Recently they touched zero and, according to latest US data, although now rebounding, still remain low. This has been and remains the major anomaly in global markets, not inflation, which paradoxically stands close to its long-term average of 2.7%. See Figure 4.

Impact of 'Good' and 'Bad' Liquidity Flows

The second implication concerns liquidity. Our analysis of flow of funds accounts identifies two broad types of liquidity: (1) private sector cash flow – savings and new credit extended, and (2) Central Bank monetary injections. **It is sometimes helpful to dub the former 'good money' and the latter 'bad money'.** Economies with plenty of 'good money' work better. In other words, cash flow generation by corporations indicates rising profitability, while a pick-up in lending probably tells us that funding is available and bankers themselves see viable capital projects. Typically, private sector cash flow also leads future real economic activity by 12-15 months. By monitoring the accumulation of this cash in bank accounts and wholesale markets on a real-time basis, we can often spot major economic turning points long before they appear in the official data. Figure 5 plots the path of US and Chinese private sector liquidity (aka 'good money'). **In the early 2000s, Chinese 'good money' unambiguously outpaced US 'good money', but China's cash flow generation has since progressively slid and, today, the gap between US and Chinese 'good money' strongly favours America.** Part of this extra US cash is admittedly the result of America's Shale Oil boom, but money is money: it counts in these numbers. The evidence of a US advantage is even starker when we net-off the 'bad money' flows, which count

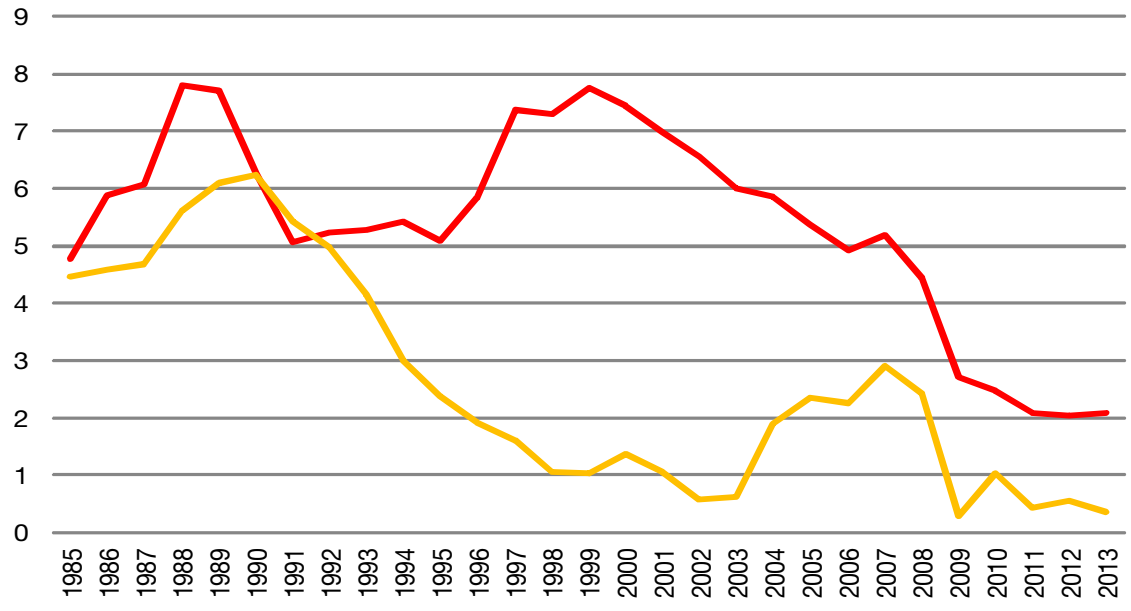


Figure 3
US and Japanese Marginal Returns on Capital
1985-2013
Source
CrossBorder Capital, IMF

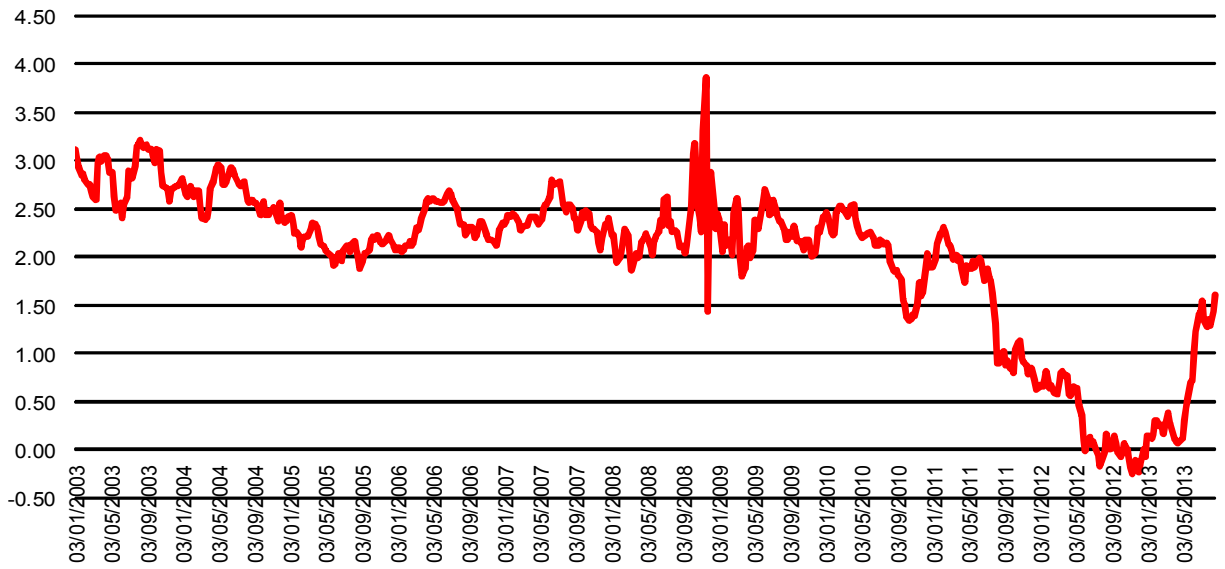


Figure 4
US 5-Year Real Interest rates, 5-Years Out
Weekly 2003-2013
Source
CrossBorder Capital, US Federal Reserve

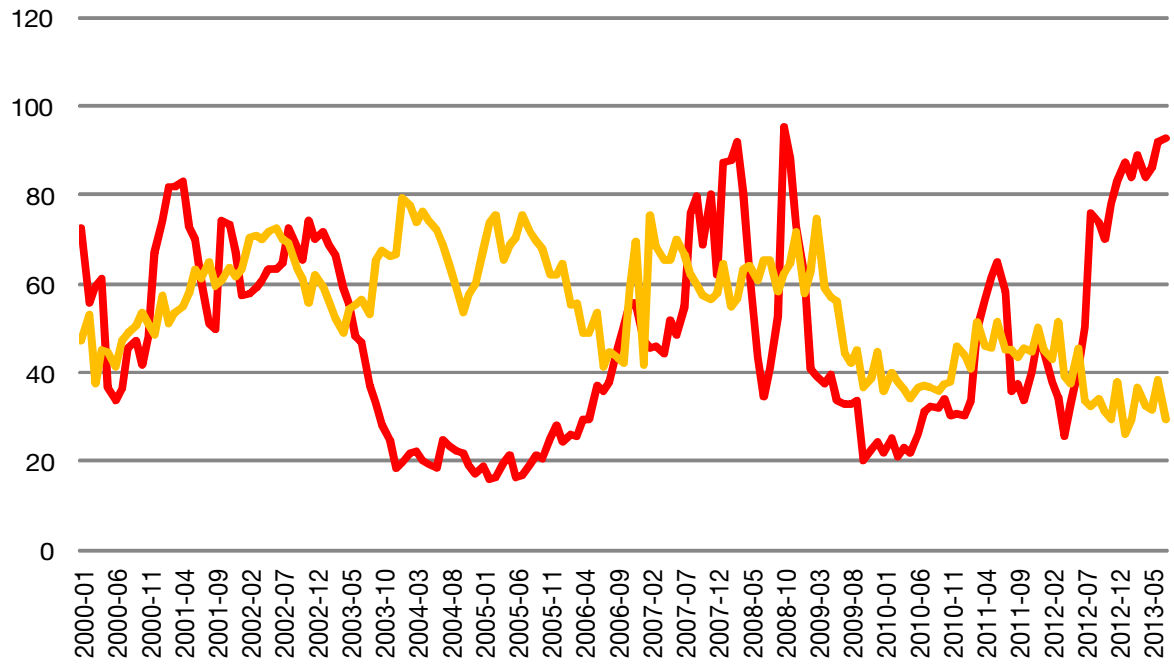


Figure 5
US Versus Chinese 'Good Money' (Private Sector Cash Flow)
Index Normal Range 0-100 Monthly 2000-2013
Source
CrossBorder Capital, US Federal Reserve, People's Bank of China

negatively any cash injections by the Fed and PBoC. The asynchronous patterns are shown in Figures 6 and 7, where the correlation coefficient between Chinese and US private sector liquidity is negative 0.49 (2000-2013). (The Chinese PBoC's liquidity policy shows a small negative correlation to Fed activity). **The two charts reveal that the fortunes of the two economies typically move in opposite directions, which may not be that surprising since they are number one and number two in the World.** What's more, the broader EM cycle is closely tied to China's as the following Figure 8 shows. Emerging Market Central Bank liquidity has a 0.60 correlation coefficient to PBoC activity, and EM private sector liquidity has a 0.76 correlation to its Chinese counterpart. This latter correlation pattern largely explains recent EM underperformance. The fortunes of EM and China often run hand-in-hand, and from the mid-1990s they appear to move oppositely to US prospects.

Real Exchanges Rates and Liquidity-Adjustment

But how should we use this flow information? Specifically, should we not take the latest divergence between the US and EM as a signal to buy EM because the two series surely will ultimately converge again? This partly comes down to a timing question and partly a China question. There are compelling arguments to suggest that the flow data will mean-revert because this is how economies work. However, we prefer to see this process underway or at least starting. So far, this evidence of any turn is slim and maybe this is because Chinese flows themselves are still weak.

Second, it is worth exploring how these flow data affect markets and dovetail with conventional economic categories. Our starting point is to consider adjustment through productivity and real exchange

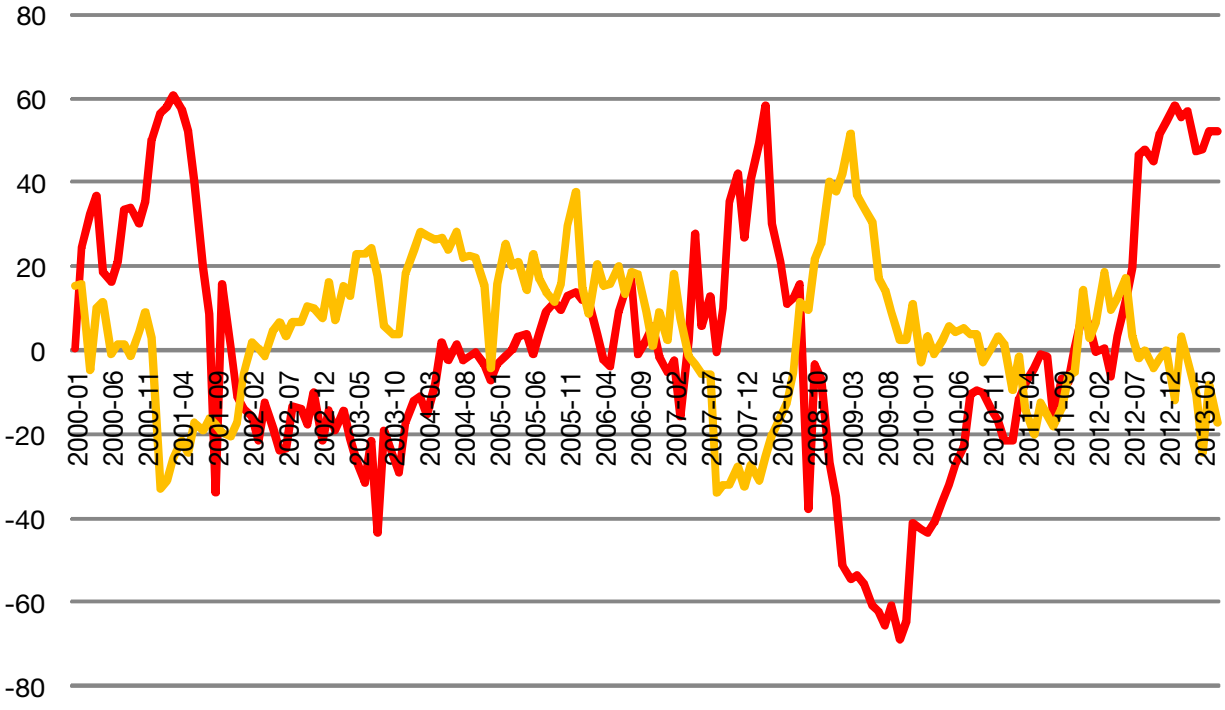


Figure 6
US Versus China - 'Good Less Bad' Money Flows
Index Normal Range 0-100 Monthly 2000-2013
Source
CrossBorder Capital, US Federal Reserve, People's Bank of China

rates. A positive jump in productivity should cause private sector liquidity ('good money') to grow and this, in turn, is likely to add upward pressure to real exchange rates. A move in the real exchange rate can either mean (a) a rise in the nominal exchange rate, if this is allowed, and/ or (b) a rise in prices, and here we must take into account all prices, both consumer and asset prices. Moreover, most price adjustment in developed economies tends to concentrate in asset markets. This twin adjustment may be itself subject to policy constraints when policy-makers target the currency and/ or seek to avoid excessive asset price swings, particularly if this adversely affects the collateral base of the credit system.

Therefore, alongside changes in 'good money' flows, economies can often face additional flows of 'bad money'.

The data show that 'bad money' tends to raise asset prices, but at the cost of weakening exchange rates. 'Good money' allows both a strong currency and strong asset markets. Specifically, consider here two cases. Continuing with an economy enjoying a productivity jump, this will lead to some combination of rising nominal exchange rates and rising asset prices. If policy-makers are reluctant to allow the nominal exchange rate to appreciate, then by increasing 'bad money' flows they can arrest its rise, but by adding more liquidity they will almost certainly cause asset prices to overshoot. **This has traditionally been the EM example, i.e. firm-to-strong currencies and strong asset markets ...at least until now.**

An opposite case concerns a negative productivity shock. Depleting private sector cash flows puts downward pressure on the real exchange rate, leading to either or both of a sliding nominal exchange rate and falling asset prices. If policy-makers want to stop the currency weakening they will reduce their liquidity injections, but this will likely trigger a collapse in asset prices. Alternatively, if they want to avoid falling asset prices for fear that by undermining collateral values this could lead to a banking crash, they will add

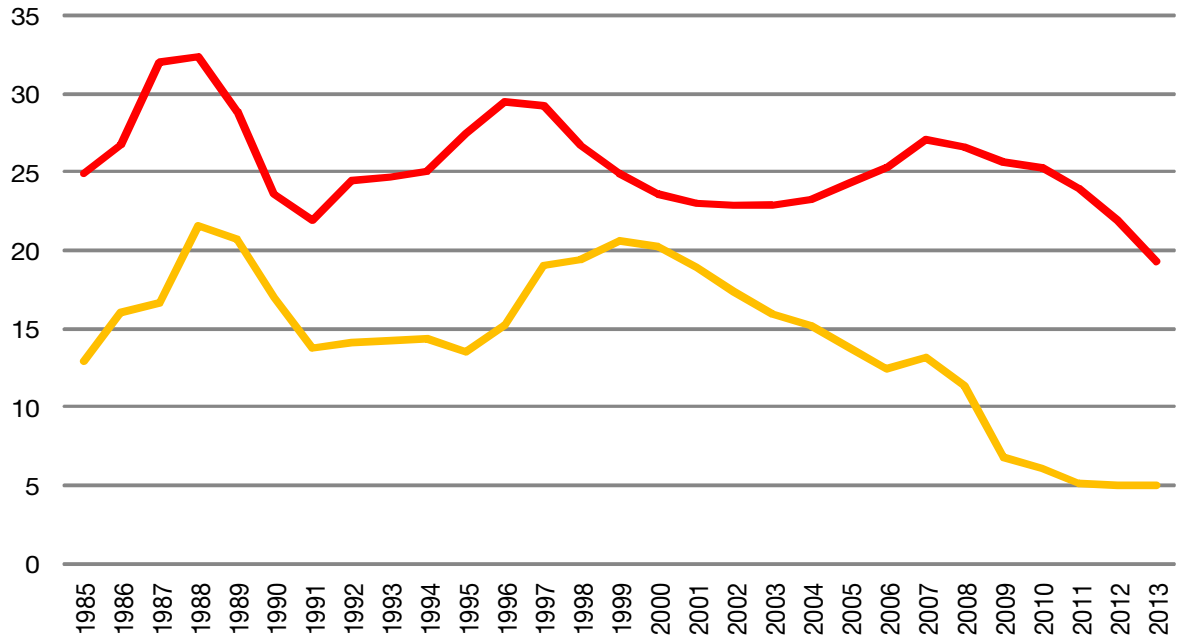


Figure 7
Marginal Productivity of Capital - China and US
1985-2013
Source
CrossBorder Capital, IMF

liquidity to support asset prices, but at the cost of a sharp fall in the exchange rate. **This latter case has been the US story, i.e. decent asset markets, but a sliding US dollar … at least until now.**

Therefore, what liquidity flows are currently telling us is that the US mix of strong 'good money' flows and decent 'bad money' inflows is that US policy-makers are keener to support asset values than to enjoy a strong US dollar, but the greater the pressure to curtail QE, the greater the risk that the US dollar rises. In short, foreign investors into the US should not hedge the US dollar.

The EM story is different. Here EM policy-makers are gradually and unevenly moving towards a realisation that they will have to allow some exchange rate weakness, especially if the China-growth model is broken. We think it is. This reality is perhaps made even starker in 2013 by the recent slide in the value of the Yen, which pre-1990 (and China's greater involvement in the World economy) was the traditional driver of the Asian business cycle. Figure 9 suggests that the mix of tight EM domestic policy and skidding private sector liquidity is likely to keep cross-border flows into EM weak for sometime yet.

Conclusion

Markets are missing the elephant in the room, which is monetary tapering by China's PBoC. This has already changed the dynamics of the World economy by ending what we have previously dubbed 'the Great China Cost Shock'. As a result, China is fast-losing its control of World real interest rates. The rebound in US TIPS yields may well be early proof of this.

In conclusion, we are moving toward a solution to the EM Crisis, but it is still too early to jump back into EM equities, save perhaps for putting a toe back into the water. However, selected EM investments may be worth considering, and here the China story takes another twist.

The fact that the PBoC is no longer financing a glut of Chinese

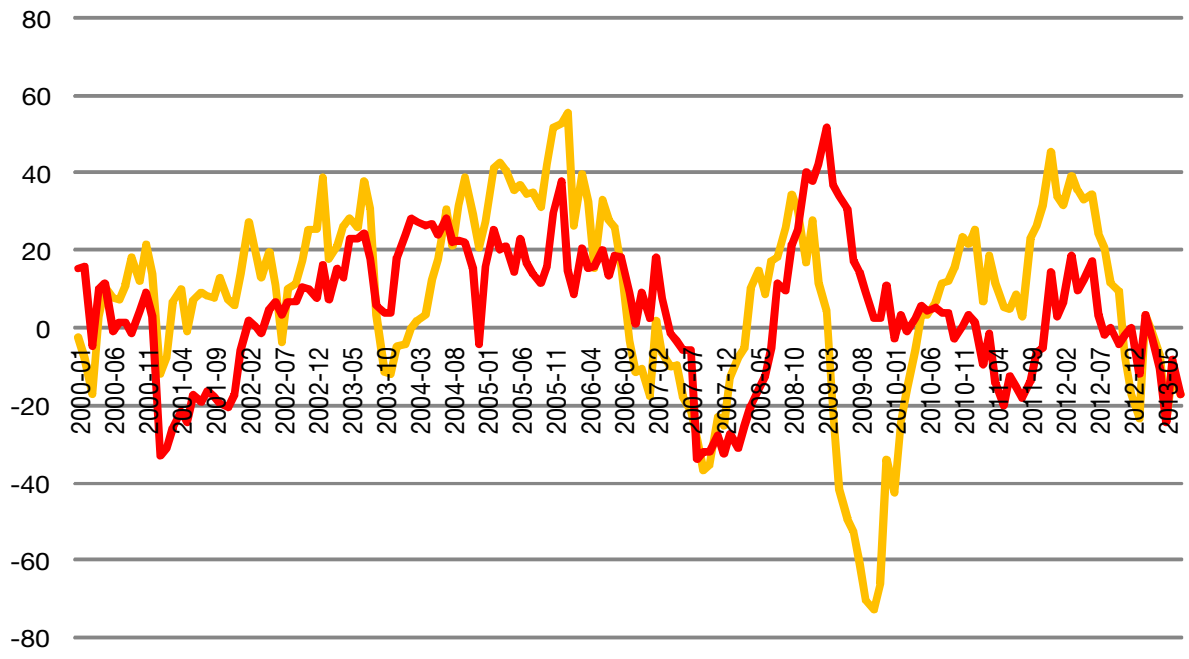


Figure 8
EM and China 'Good less Bad' Money Flows
Index Normal Range 0-100 Monthly 2000-2013
Source
CrossBorder Capital, IMF, People's Bank of China

capital is likely to pull up the return on capital in the West, but particularly in the US where capex has been depressed, and Japan where the small-cap focussed supply-chain was all but destroyed. **In other words, investing in US capital goods producers and Japanese small-cap may be the way to play this significant policy-change in China.** Taking a further step, those EM that are correlated to the US capex cycle, such as Taiwan, Israel, and to some extent Korea, are worth considering. We acknowledge that Korean prospects rest on the outlook for the Won, particularly if widespread fears of further Yen devaluation come to pass. However, based on our way of looking at the World, the latest strong rebound in Japanese private sector liquidity ('good money') makes significantly more Yen weakness unlikely.

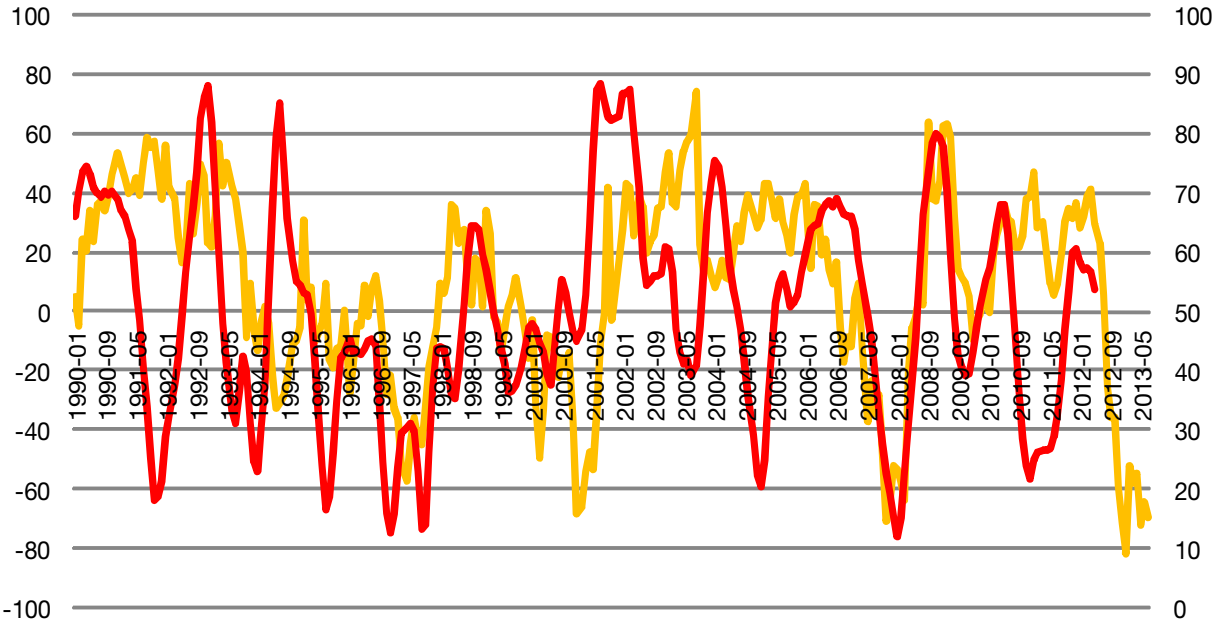


Figure 9
EM Private Sector Liquidity ('Good' Money) less Central Bank Liquidity ('Bad' Money) and Cross-Border Flows Into EM
Indexes 1990-2013
Source
CrossBorder Capital, IMF

CrossBorderCapital
Implementing Insight

Global View

January 2014

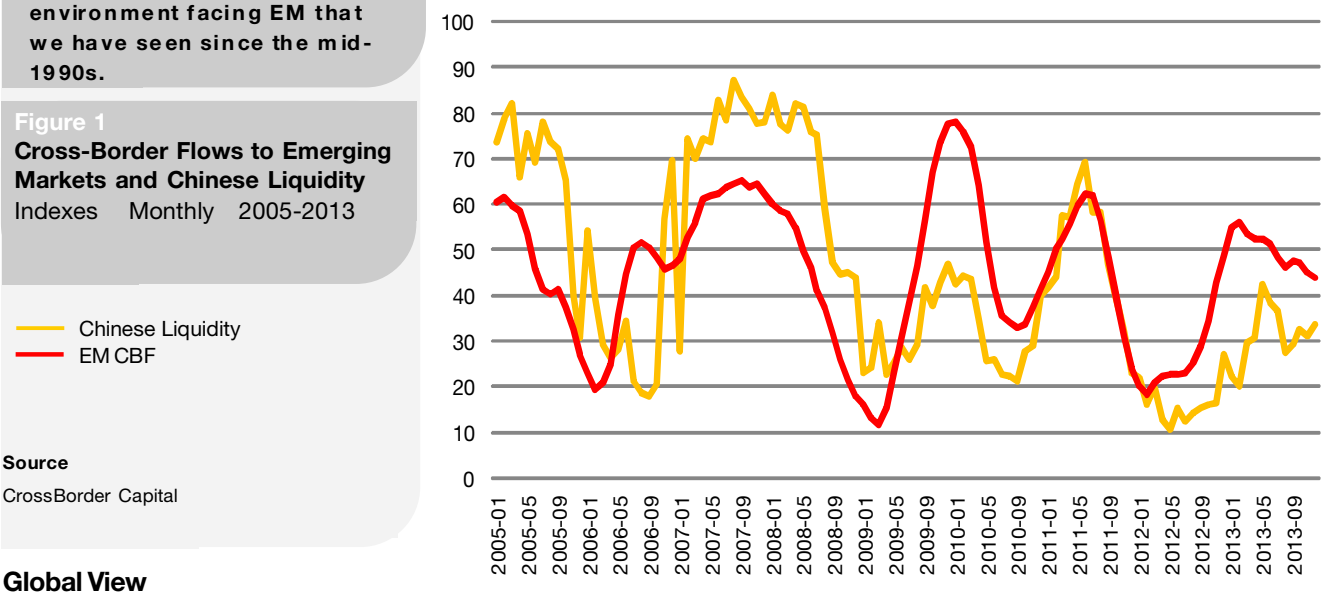
China, America and Collapsing Capital Flows to EM

For as long as we can remember, the key statistic for EM investors is the size of cross-border inflows. If foreigners are pumping in money, all must be well! Ironically, last year was not too bad for EM financial assets, since following a huge net outflow of US$166 billion in 2012, only another US$31 billion left EM stocks, bonds and credit markets in 2013. Foreign investors showed remarkable resilience last year to deteriorating economic fundamentals. For the record 2009 and 2010 were big positive years for EM, seeing nearly US$600 billion flow in. **In short, there is lots more cash to come out from EM and 2014 may be the year it happens. Put in context, this is the worst business environment facing EM that we have seen since the mid-1990s.**

Yet, the pundits are wrong to blame America and the prospect of tightening Fed policy or 'tapering'. Plainly, tapering is not a bullish act, but were it such a major threat, then surely the far more vulnerable Frontier Markets would be getting creamed? **Rather the culprit is China or, put bluntly, the reality of Chinese monetary tapering by the PBoC.** The problem surely lies with deteriorating EM balance of payments and their inability to accumulate forex reserves as a result of Chinese policy, rather than any future lack of external finance from the US? This is something we have been banging on about for some time and often in the face of opposite predictions by other commentators that the PBoC is always 'just about to ease'. **We think a Chinese monetary easing is unlikely much before 2015.** The reasons lie in the still unbalanced economy and the attempts by policy-makers to reduce the dependence on heavy capital investment. Without this latter prop, the domestic Chinese economy will likely skid to a 'true' GDP growth rate of sub-5%, with the associated negative fall-out for commodities and other supplier industries.

Foremost among these suppliers to China are many EM companies. Their axis of business activity has swung away from the US consumer in recent years towards Chinese capital. Fifteen years ago, it was safe to conclude that the US business cycle and Federal Reserve monetary policy drove EM both

Figure 1
Cross-Border Flows to Emerging Markets and Chinese Liquidity
Indexes Monthly 2005-2013



Source
CrossBorder Capital

Marble Arch Tower, 55 Bryanston Street, London W1H 7AA
Tel: 0207 868 4104 www.crossbordercapital.com

up and down. This is now far less true. Major commodity supplies, such as Brazil, South Africa and Indonesia, have become largely dependent on China. Other economies, such as Singapore, Malaysia and Thailand, are integrated into the Chinese supply chain. In short, when China sneezes, the Emerging World catches cold.

This is not to say that US recession, Fed tightening or, say, a fall in the Japanese Yen, will leave EM nonplussed, but the most obvious connection is to watch their China links. This is plainly evident from Figure 1, which measures capital flows to all EM (ex China) and the CBC measure of Chinese liquidity conditions: correlation coefficient 0.542. The relationship appears contemporaneous for the most part, but clearly highlights the close association between EM flows and the health of China.

The index of cross-border flows is a normalised data series that helps to identify the underlying trend, without the distortions of volatility and inflation. It reflects underlying US$ amounts as Figure 2 shows, but is easier on the eye! This is the series plotted in Figure 1, too.

To quickly rehearse the reasons behind our scepticism over China: First, there are several past examples of economies using the investment goods industry to drive growth. Sadly, every one we can think of hit a negative tipping-point once capital spending approached 35-40% of GDP: China's capex share is already a whopping 50%. Second, given capex's contribution to Chinese GDP is hugely lop-sided, it is hard to see how other sectors, such as consumer spending, can realistically takeover momentum, without the national growth rate tumbling below its likely 5% long-run trend. Third, the monetary adjustment may be long and drawn-out, possibly lasting well into 2015. China's economic imbalances have been exaggerated by the 2008-11 boom that was enacted to bolster regional demand in the wake of the 2007-08 Global Financial Crisis. Put another way, a tumble in Chinese growth will likely mean

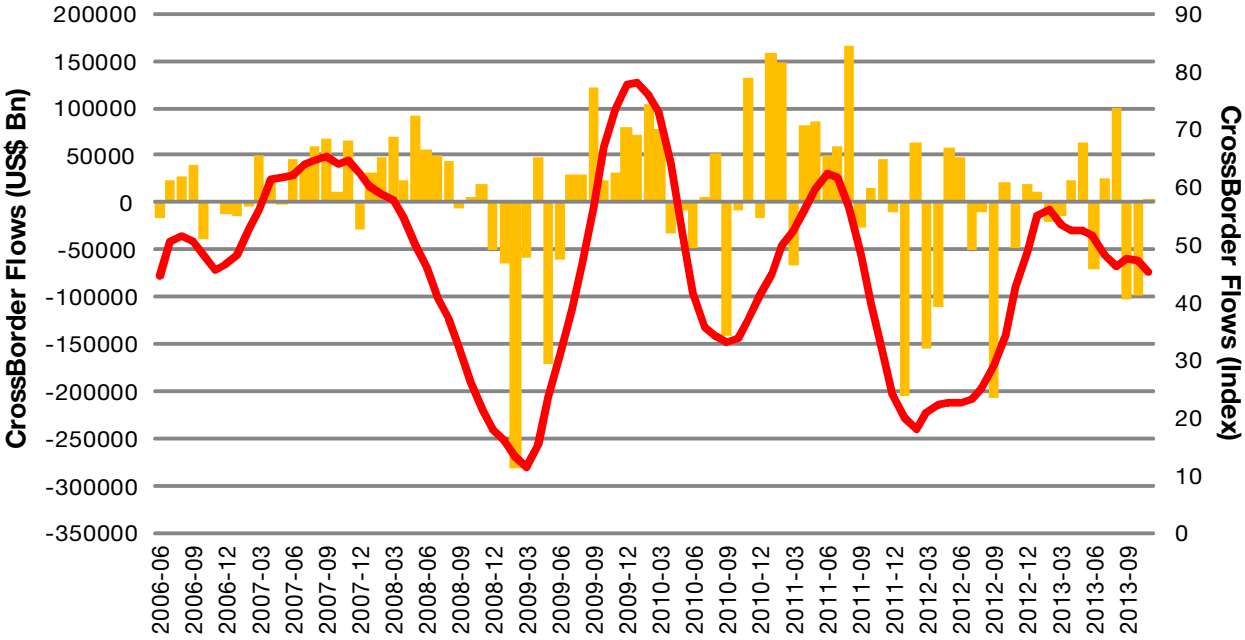


Figure 2
Cross-Border Financial Flows to EM - US Dollars (Billions) and Index
2006-2013
Source
CrossBorder Capital, People's Bank of China, IMF

an economic hard-landing for the rest of Asia and many other EM economies. In 2013, Chinese oil import volumes grew by only 4% — an unlikely figure for a developing economy supposedly growing at an 'official' 8% clip, given that crude oil is a necessity!

We restate these points not to win any merits for prescience, but to highlight the fact that the hard-landings have only just started. **More bad news lies ahead. Indeed, in the above ragged capital flow data may even lie the seeds of the next World financial crisis.** The tension point across EM, as always, is forex market weakness. First coined for Mexico in 1994/95 peso bust-up, our old maxim never wears thin "*Every EM financial crisis is first-and-foremost a currency crisis...*"

We use currency risk indicators to warn of upcoming problems. These are simple statistics taken from flow-of-fund accounts that measure the balance between private sector and Central Bank liquidity provision. When the domestic private sector is strongly cash generative, e.g. corporate cash flow is buoyant, household savings solid and profitability high, then the currency is likely to be a magnet for international capital. However, when the national Central Bank is forced to 'print money' the supply of liquidity jumps and the currency slides. It is remarkable how well this simple statistic works, often leading currency crises by around one year. All we do is to collect and 'normalise' the data into a Forex Risk Index. Figure 3 shows the relationship between the EM Forex Risk Index and cross-border flows to EM. Forex risk leads by over a year. Figure 4 extends this to show the relationship between the EM Forex Risk Index and subsequent devaluations, again some 6-12 months later.

Given that the EM Forex Risk measure leads, what does this mean for the likely pattern of actual US dollar capital flows to EM? Figure 6 shows the possible path by advancing the risk index forward. It seems that outflows of as much as US$100-200 billion at a monthly rate could occur. In other words, 2014 could be

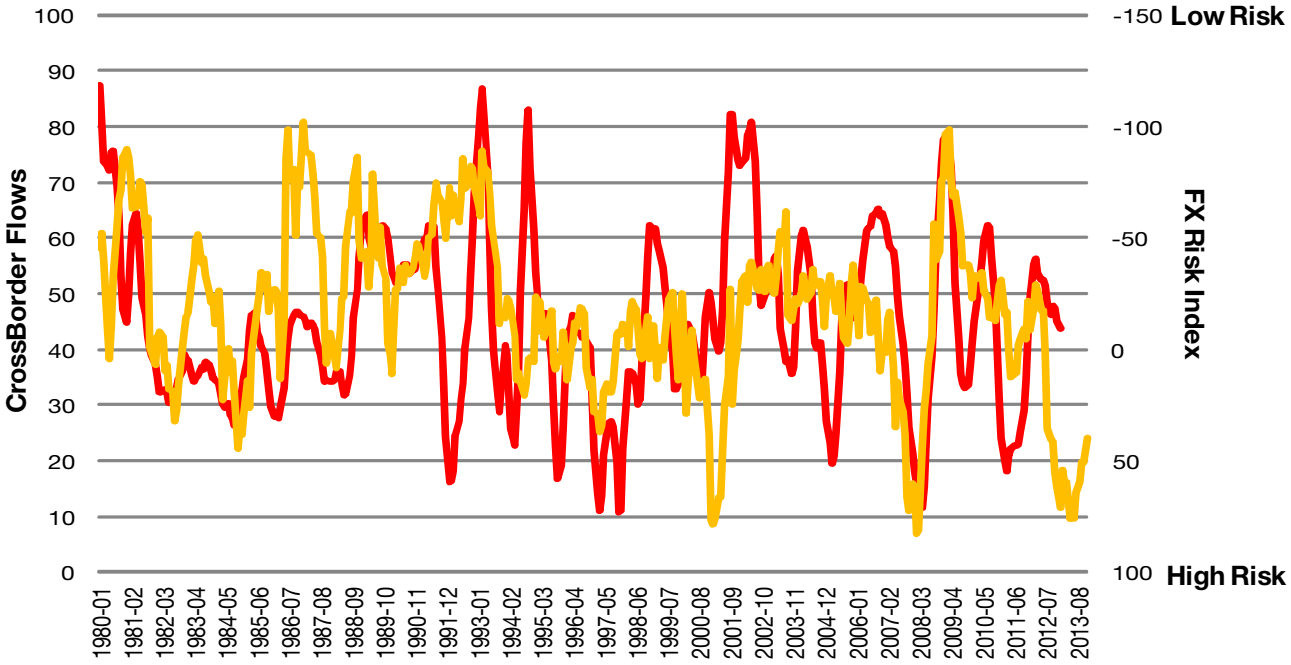


Figure 3
Cross-Border Flows to EM (Index) and EM Forex Risk Index (Inverted)
1980-2013
Source
CrossBorder Capital, People's Bank of China, IMF

worse than 2012 in terms of net outflows and possibly as poor as the US$431 billion that exited EM between mid-2008 and mid-2009. For the record, in the last Crisis in 1998 a net US$154 billion left EM.

Looking ahead, investors may be pleased that so many EM Central Banks are tightening monetary policies to help support their currencies, but this disguises the true problem. The issue is not always excess EM domestic demand, rather it is mostly the negative fall-out from China. Therefore, squeezing a domestic economy already reeling from an external shock looks to be bad economics and an unsustainable policy error. **What these economies probably need is a lower real exchange rate: this requires lower domestic asset and/or high street prices, and a weaker currency. Impatient markets often force the latter...the next EM Crisis may only just be starting.**

The following table ranks EM economies by our measures of Forex Risk based, as described, on the gap between private sector and Central Bank liquidity provision. The stand-outs among the larger EM are Turkey, Malaysia, Korea and India. The Thai Baht looks relatively stable in comparison, but it is clear just how strong the fundamentals for Western currencies are.

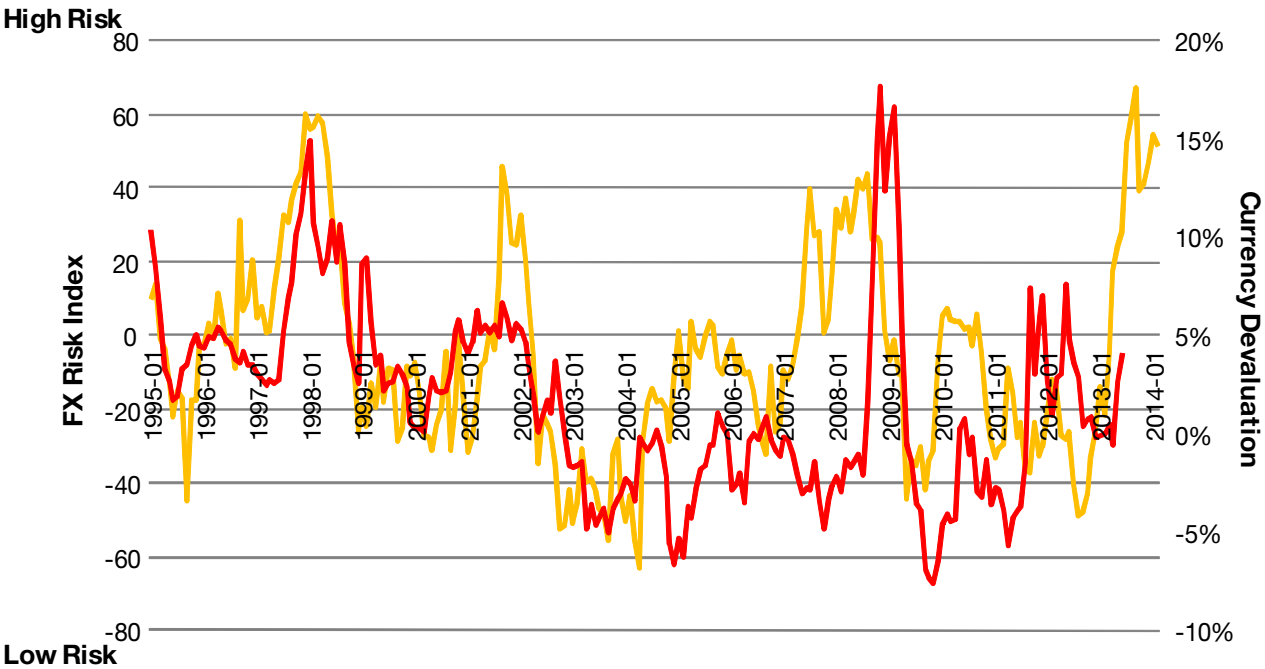


Figure 4
EM less DM Currency Risk Index (Advanced 7 Months) and EM Currency Devaluation (vs. the US dollar)
Monthly 1995-2014

Source
CrossBorder Capital, US Federal Reserve, Bank of Japan, ECB, Bank of England, People's Bank of China, IMF

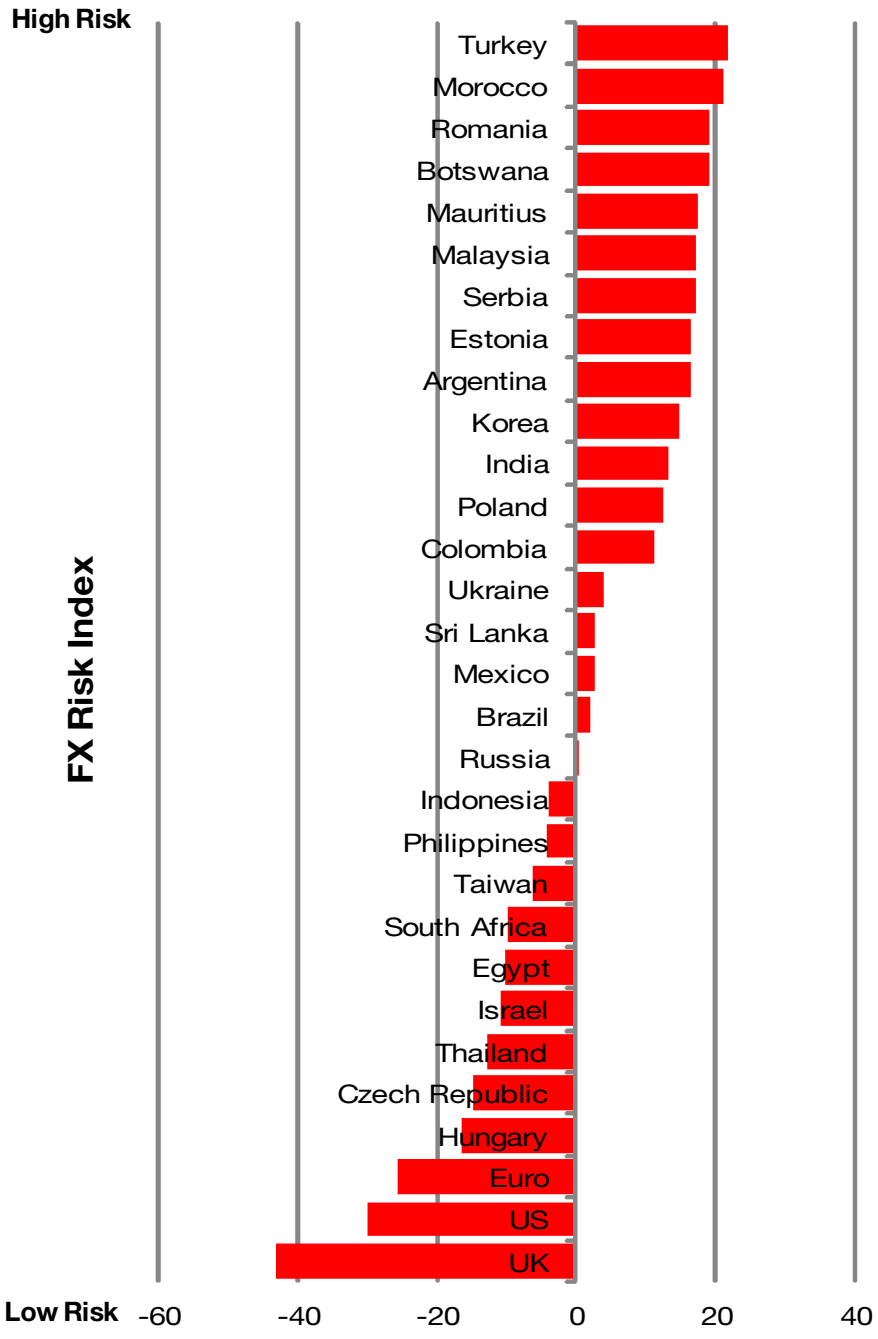


Figure 5
Ranking of EM Economies by Forex Risk

Source
CrossBorder Capital, US Federal Reserve, Bank of Japan, ECB, Bank of England, People's Bank of China, IMF

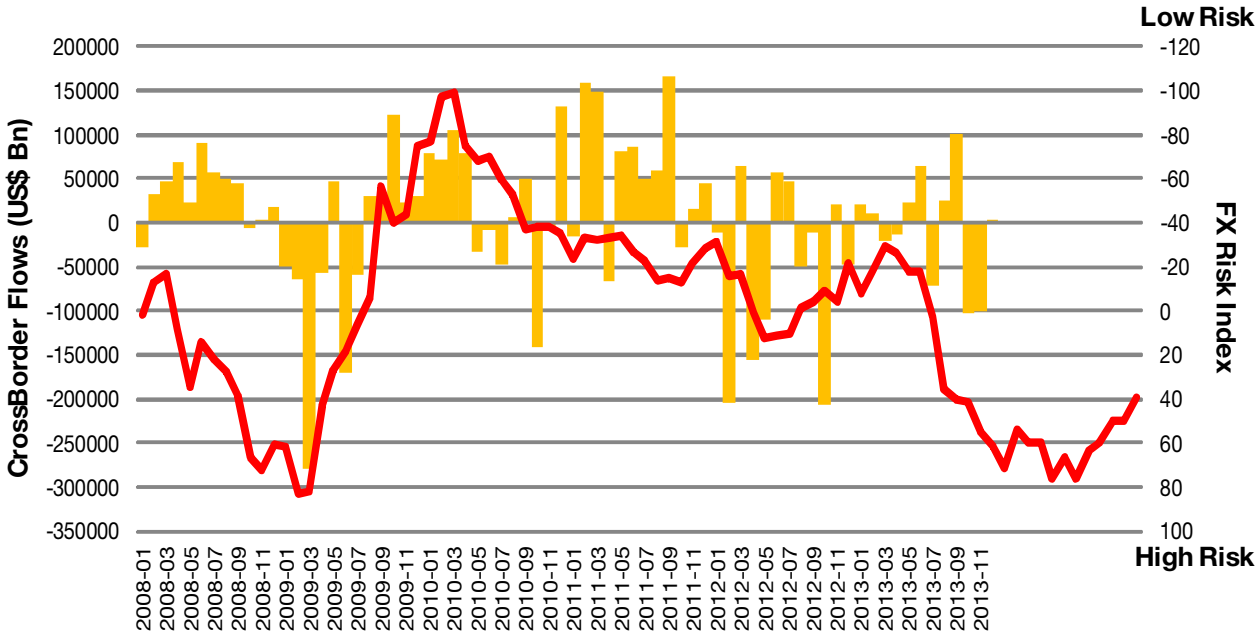


Figure 6

Cross-Border Flows to EM and EM Forex Risk Index (Inverted)

2008-2013

Source

CrossBorder Capital, People's Bank of China, IMF

Cross-Border Flows to EM

EM Forex Risk Index (Inverted)

CROSSBORDER CAPITAL LIMITED
MARBLE ARCH TOWER
55 BRYANSTON STREET
LONDON W1H 7AA
TELEPHONE 020 7868 4104 FACSIMILE 020 7868 4118

CrossBorderCapital
Implementing Insight

Global View

April 2011

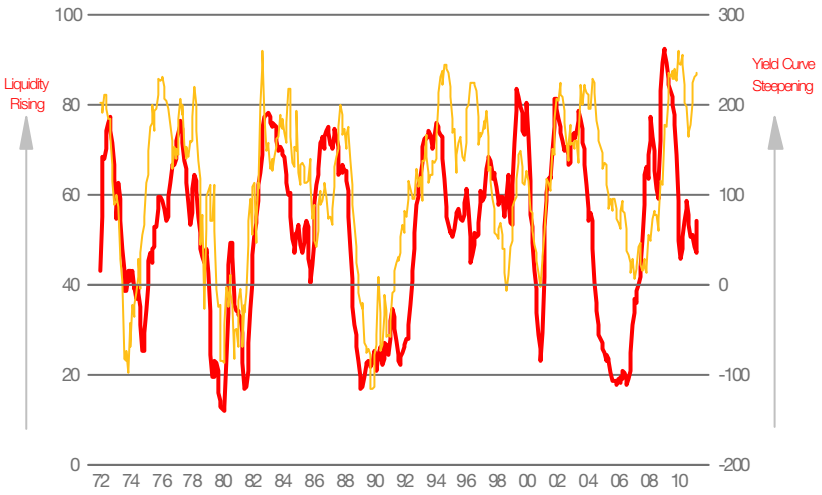
Gross Interest Rates and the End of QE2

We are not convinced by the consensus view that US bond yields will rise significantly in Q3 after the end of QE2. Bond yields have three components and in the short term the most important is the risk premium, which is measured inversely by the slope of the yield curve. Experience over the past two years, through the QE experiment, shows that the volume of Fed liquidity drives this risk premium. Therefore, less liquidity, as happened briefly after QE1, will cause this risk premium to rise again and thus yield curves to flatten. Unless, Fed Funds are also forced up, this must mean that bond yields fall.

The big debating point this quarter will be the market effect of the slated end of QE2. The World's largest fixed-income manager, Pimco's Bill Gross, has already warned that US Treasury yields will rise, and perhaps by as much as 100-150bp. Others, including Fed Chairman Bernanke, argue reassuringly that the market's efficiency will mean there will be no overall effect since this news has already been discounted. We are less convinced. In our view, the most likely case is for lower long-term yields. Here's why.

The most important price in financial markets is the price of the dominant economy's debt. Therefore, benchmark US 10-year Treasury yields are central to future World economic prospects. These key long-term interest rates show remarkable stability through time, as they must because they are the benchmark against which most other assets are priced. Ignoring short-term wobbles and changes in economic leadership, over a near 300-year history bonds have gravitated around a 4% yield base.

Figure 1
Global Liquidity Cycle and Yield Curve Slope of G20 Economies
10-Year Bond less 3-Month Interest Rates Monthly 1972-2011



Source
CrossBorder Capital, US Federal Reserve, ECB, Bank of England, Bank of Japan, IMF

96 Baker Street
London W1U 6TJ
Tel (44) 20 7908 2800
crossbordercapital.com

Our analysis of these data, highlighted in a report last year, showed that long-term bond yields have three components - a real interest rate, an expected inflation premium, and a risk premium. It is the risk premium, signaled by yield curve gyrations, that matters most in the short term because the other two, more secular forces, tend to be 'sticky' since:

- Real yields are determined by the marginal productivity of capital of the 'swing' global producer. This, today, means China, and with the Chinese economy *de facto* export-focussed and still 'dumping' goods in the West, it is unlikely in our view that real interest rates will rise much, if at all.

- Expected inflation is set by the interaction of cost and monetary inflation factors. And, specifically, either cost deflation or monetary deflation are sufficient to push down inflation expectations, but it typically takes both monetary inflation and cost inflation pressures acting together to elevate inflation expectations. Cost inflation remains subdued, largely through depressed wage costs despite recent strong gains in commodity prices.

Monetary inflation and monetary deflation are very different to high street inflation. They primarily affect asset markets and they are best signalled by movements in the nominal gold price, but they can also show up, respectively, in steepening and flattening yield curves. **This linkage is important because our wider research shows that the main impact of Central Bank monetary policy changes operates indirectly through various risk premia, such as the yield curve, the credit spread and the equity risk premium, rather than directly through the Federal Funds rate. See Figure 1.**

Consider how this transmission process recently played out, shown in Figure 2:

- The Fed initially reacted to the 2007/08 financial crisis by slashing short-term interest rates. Given no significant associated change in the volume of liquidity, this meant that the yield curve changed little and so lower short-term rates led to a similar drop in long-term rates.

- Stage two of the crisis saw the start of QE1. This extra liquidity, according to our thinking, should steepen yield curves, which it did. Thus, with short-term rates low but unchanged, this meant rising long-term interest rates.

- The end of QE1 led to a withdrawal of liquidity and this flattened yield curves. In turn, with short-term rates unchanged, long rates had to fall.

- The final stage is the re-start of liquidity injections through QE2. This led to a renewed yield curve steepening, and again with short-term rates unchanged, the adjustment came via rising long-term yields.

It follows from this that long-term interest rates can also be broken down in a second way, that better highlights the changing risk premium: (1) a short-term interest rate anchor, e.g. Federal Funds, and (2) a yield spread between long- and short-term rates that is largely determined by the volume of Fed liquidity. **Therefore, assuming that short-term interest rates remain unchanged, any variation in the volume of liquidity must force higher risk premia and this also means a flatter yield curve.** It is a moot point whether the real economy will also subsequently suffer? However, it seems likely. The end of QE1 caused an economic wobble and one arguably large enough to inspire QE2.

Perhaps, QE3 will not come quite so quickly after QE2 given the recent drop in the unemployment rate, residual fears about inflation pressures given the tick-up in core CPI rates, and pressure against more Fed action by powerful factions inside Congress. On the other hand, a serious US economic setback or persistent lack of economic traction surely will trigger a further liquidity surge?

In turn, any extra liquidity will again force the yield curve to steepen. The pattern of future US yield curve movements will therefore remain cyclical, but importantly the amplitude of these swings will be muted compared to recent history, and most significantly the steep average curve slope will likely embed a sizeable 'carry'.

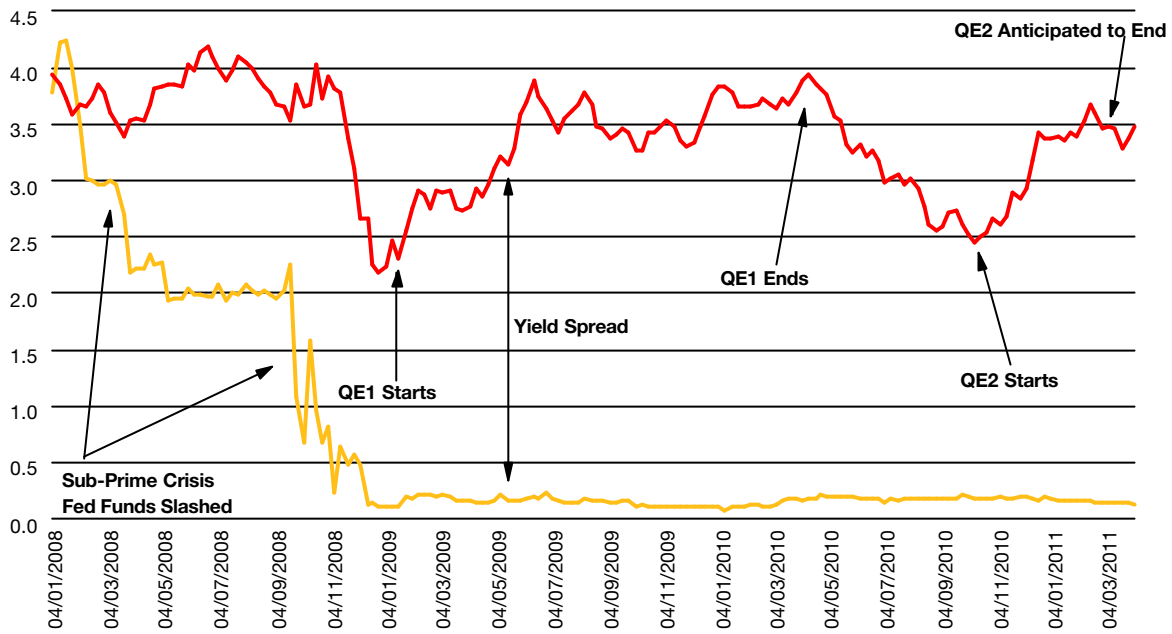


Figure 2
US 10-Year Bond Yield and Federal Funds Rate
Percent Weekly 2008-2011

Source
CrossBorder Capital, US Federal Reserve

CROSSBORDER CAPITAL LIMITED
96 BAKER STREET
LONDON W1U 6TJ
TELEPHONE 020 7908 2800 FACSIMILE 020 7908 2835

CrossBorderCapital
Implementing Insight

Global View

December 2013

The New 'Old' Yield Curve

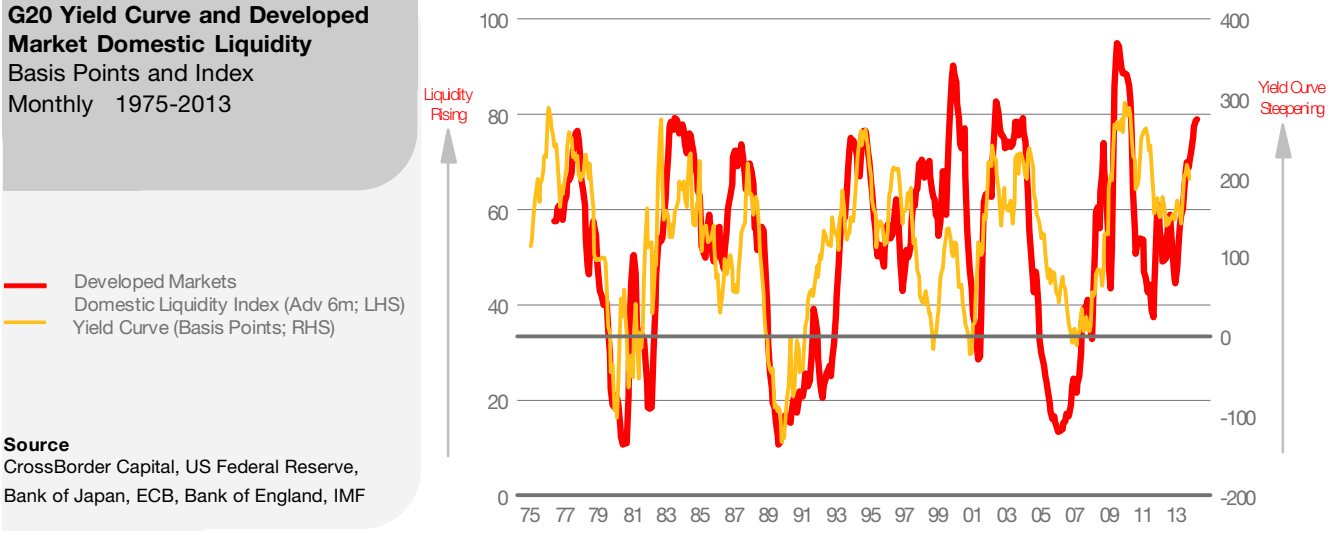
Bond investors have faced a bearish yield curve steepening over the past year or so. This 'risk on' move has simultaneously pushed them into credits and high yield debt. The credit bull market is well-advanced. Next up will be an inflection in US private sector liquidity growth sometime before mid-2014. This will warn about excessive exposure to credit risk, but should ultimately signal a future rally in Treasuries later in 2014.

The most important price in Western financial markets is the yield on the dominant economy's government debt. The Netherlands, France and Britain previously shared this honour, but today, unquestionably, the yield on US Treasury debt is every investor's focus. The US yield provides a neutral benchmark against which to price all other securities of varying durations, risks and provenances. But what determines American yields? One vital component is the behaviour of the term structure. Viewing this over time, we can identify two key traits:

1) the slope of the yield curve, or the spread between long-term and short-term Treasury yields, varies and pivots through time, but both the amplitude of its swings and their scale and connectivity to liquidity inflows seem to remain remarkably constant.

2) the timings of shifts of the entire curve up and down are not constant, but appear to vary considerably and almost by regime. Twenty-years ago, for example, the entire yield structure often tended to move oppositely to the direction of the spread between long- and short-term rates. In short, bullish steepenings were then more common.

Figure 1
G20 Yield Curve and Developed Market Domestic Liquidity
Basis Points and Index
Monthly 1975-2013



Source
CrossBorder Capital, US Federal Reserve, Bank of Japan, ECB, Bank of England, IMF

Thus, twenty-five years ago, Wall Street economist Henry Kaufman (see: *Interest Rates, the Markets and the New Financial World* (1986)) was able to shatter the conventional belief about yield curves and bond trading strategies. **No longer was it always profitable to buy Treasuries when the yield curve was strongly inverted.** Often Kaufman noted, the yield curve renormalised through long-rates staying put and short-rates falling. Moreover, a strategy of buying Treasuries when the curve was upward sloping and set to flatten was pretty certain to lose money and buying an already flat curve that might invert was simply idiotic. Times may have changed.

Although evidence strongly links curve movements with overall flows of liquidity, the key to a better understanding lies in analysing the relative movements of private sector liquidity and Central Bank liquidity. We regularly monitor these two indexes, economy-by-economy. The information contained in this split also happens to be critical for currencies too. Leaving inflation expectations to one side for now, we tend to think of the Treasury yield curve comprising two moving parts: Real long-term rates and short-term policy rates. The latter moves inversely with our indexes of Central Bank liquidity and the former moves closely with our private sector liquidity indexes. When private sector liquidity is strong, real interest rates are typically high and rising, reflecting the increased profitability of capital. When policy liquidity is being tightened, short-term rates tend to rise. **Thus, the yield curve is likely to move pro-cyclically and slightly ahead of the business cycle.** In finance-speak, the greater available liquidity reduces risks, pushes investors out along the notional risk curve and so demands a greater premium to hold low-risk Government debt.

The new, post-Lehman financial World is more like the pre-Kaufman period and largely because, for now at least, inflation does not figure. What distorted the markets two decades ago was the likelihood that 'sticky' inflation caused long-dated yields to behave abnormally. For example, the low point of the credit cycle, when today's investors might envision a bullish curve flattening, was then transformed into an even sharper policy tightening to crack stubborn inflation expectations, with the result that long-dated yields took some time to fall. Inflation tended to move acyclically with liquidity conditions, and so the upswing of the liquidity cycle often saw falling yields, leading perversely to a bullish steepening.

What is unchanged throughout is the link between the slope of the curve and the ebb and flow of liquidity. Indeed, remarkably the amplitude of yield curve swings has also remained pretty stable. This relationship is highlighted in Figure 1 for the entire G20 group of rich developed economies. What has changed is how we interpret curve shifts. Thus, a steepening curve today is one that is likely to shift upwards, whereas in the 1980s it frequently shifted downwards because policy easings then coincided with lower inflation expectations. **We are more likely to see bear curve steepenings and bull flattenings today than the reverse, i.e. bull steepenings or bear flattenings.** This has implications for convexity.

Convexity, or the bulge in yields around the mid-duration years, largely reflects expected movements in long rates. If a curve steepening precedes or coincides with rising long-term rates, as now, a steeper curve should mean that convexity rises with the yield curve, and convexity becomes more negative as the curve flattens. However, earlier periods of falling inflation have tended to mean the reverse with greater convexity sometimes coinciding with a flattening curve.

The rationale can be explained using our funds flow division between Central Bank, or policy liquidity, and private sector liquidity, which comprises both credit provided by banks and shadow banks and the savings of the corporate and household

sectors. Strong private sector liquidity typically coincides with rising profitability and a higher return on industrial capital, which, in turn, drives real market rates upwards. Policy liquidity, however, has varying goals. During periods of high inflation, Central Banks keep liquidity tight and often tighten more. This withdrawal of policy liquidity causes the yield curve to flatten against a backdrop where inflation expectations may cause the nominal yield structure to rise. This leads the level of yields to correlate negatively with the direction of the yield spread.

However, in a structurally low inflation environment, like today, policy-makers are more likely to ease liquidity during times of slow growth and low profitability. **In other words, a steeper Treasury yield curve should correlate (if policy is successful) with rising real interest rates (and maybe a tad more inflation).**

The Future

Looking ahead, what does the future yield curve hold for today's investors? The US curve is already elevated. The current spread of 258bp between 10s and 2s lies at the top of a broad +250bp to -50bp historic range. **Admittedly, we figure that 'forward guidance' may have artificially added 125bp to this spread, but not withstanding it is hard to envision much further widening.** On the other hand, stronger US economic growth in 2014 and a likely rising return on capital should force real interest rates higher. In other words, the yield curve may stay steep and shift higher along its entire length as investors discount some return to 'normality' in rates. These potential capital losses at longer durations will be also felt through convexity, which should begin to diminish. A Treasury term structure characterised by a steep yield curve and relatively 'less' convexity is one that is typically associated with risk-seeking investors. In other words, they discount a permanent return to a higher structural level of rates and do not build in any prospective, future rate falls.

This backdrop is characteristic of

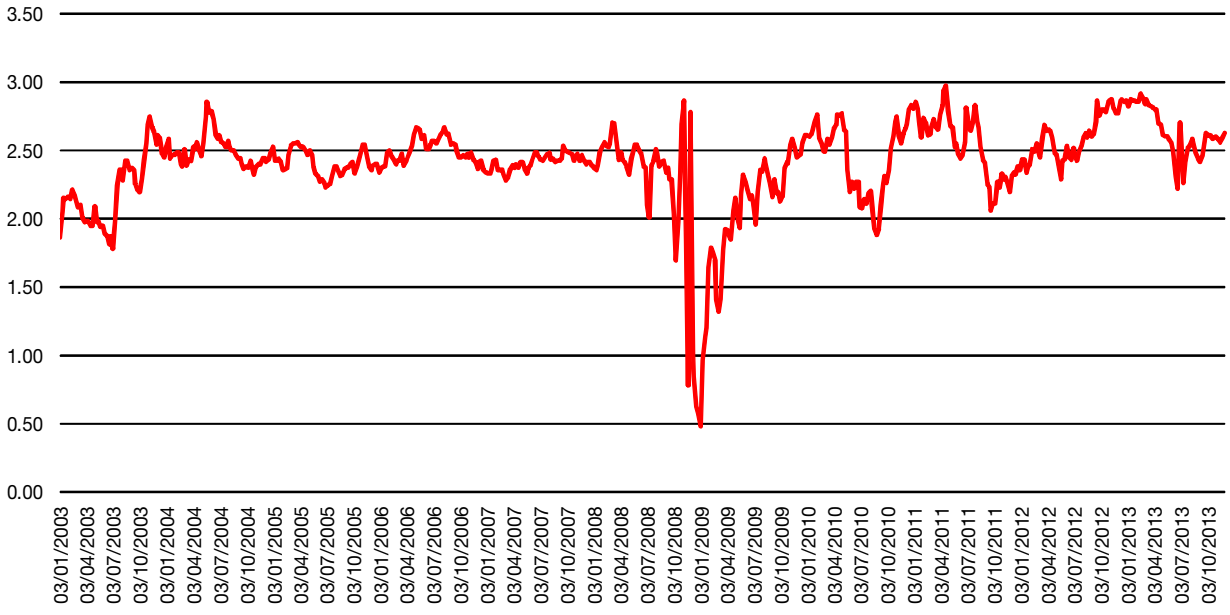


Figure 2
US Medium-Term Inflation Expectations, 5-Years Forward, 5-Years Out
Percent Weekly 2003-2013
Source
CrossBorder Capital, US Federal Reserve

two economic features**. First, US inflation expectations appear stable and well-grounded.** Despite some fears that we are returning to deflation, the implied US inflation rate 5-years forward, 5-years out is lately ticking slightly higher not lower. See Figure 2. **Second, the real yield picture is being driven, we think, by the changing dynamics of the Chinese economy.** In a series of research studies over the past decade—all broadly entitled 'How China Sets World Interest Rates' – we argue that by competing head-on with Western capital using (once) cheap and abundant State funds, Chinese firms have forced down the marginal return on investment in the West, thereby crunching real interest rates in TIPS markets. See Figure 3. Latest evidence suggests that as China has forcibly shut off the money tap to her capital goods industry, so Western real returns and capital investment prospects have jumped, and with it TIPS yields. Further rises in TIPS yields may be in prospect and, *pace* dampened inflation expectations, this should push up long-dated Treasury yields. **Since we are believers in the idea that 'long-term interest rates drive short-term interest rates', rather than the reverse, these trends may be sufficient to raise the entire yield structure.**

Although these comments are largely directed at US Treasuries, they will also apply to other Western bond markets to varying degrees. Real interest rates may see less of an uplift in the Eurozone, and the Japanese yield curve is likely to steepen more. However, these are largely timing issues, since all are likely following the US lead set by QE3.

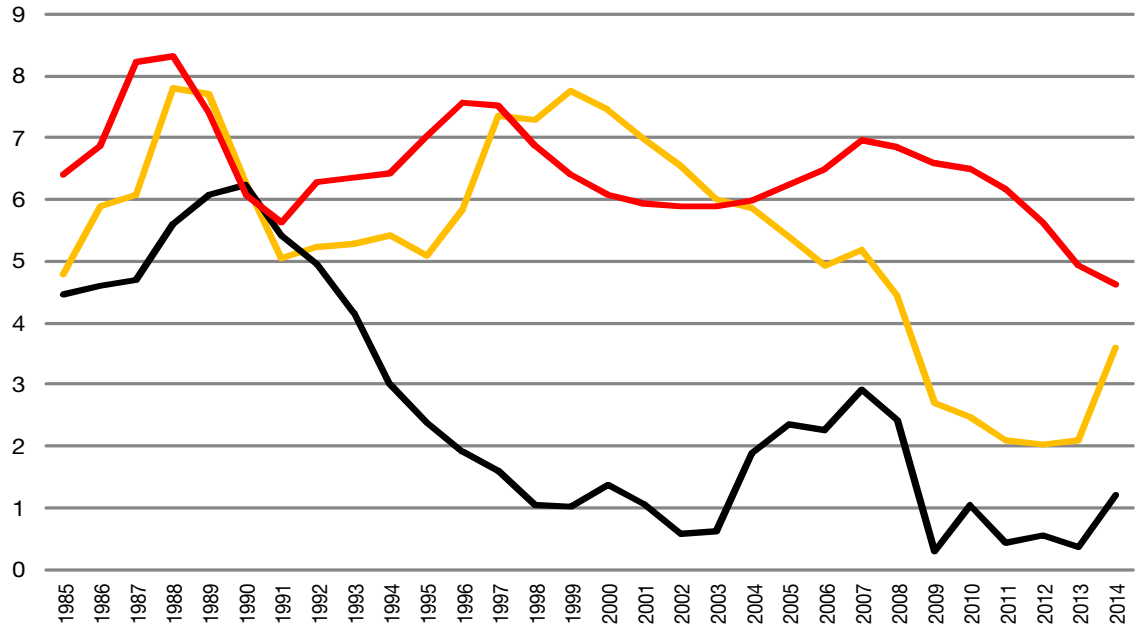


Figure 3
Marginal Returns on Capital : US, Japan and China
Percent Annual 1985-2014E
Source
CrossBorder Capital, OECD

Wither Corporate Debt?

One step further on along the risk curve we find investment grade corporate debt and two steps on high yield and EM debt. **We have argued elsewhere that our concerns about the current fragility of EM currencies (itself partly the result of the changes we are seeing in China) makes local currency bond investment unappealing, at present.** However, the outlook for domestic Western corporate debt, at least over the first half of 2014, looks to be somewhat better supported.

The two key factors behind the corporate credit market are: (1) macro-liquidity conditions and (2) risk appetite. **Risk appetite is an obvious factor that matters increasingly more, the more that investors extend out along the notional risk curve.** Thus, it has greater importance for high yield than for Aaa credits and is even more important for equities than for high yield. We can measure risk appetite through the relative positioning of investor portfolios. See Figure 4. These data show the 'normalised' portfolio exposure of investors to US equities less US bonds. (We could equivalently show this exposure data for different economies and for the World). Risk appetite data are persistent and, according to latest readings, there appears ample scope for risk appetite to increase further, given that exposure to risk assets stands well-below past extremes.

However, looking at the macro-liquidity conditions, the other moving part noted earlier, there may be less scope, or at least more factors to watch out for. Liquidity conditions tell bond investors two important things. **On the one hand, by steepening the yield curve and lifting risk premia, rising liquidity pushes investors out along the risk curve, thereby narrowing spreads between, say, US high yield and 5-year Treasuries.** But within the overall liquidity mix, the more that private sector liquidity is depleted by rising demands for more capex, the greater the risk premia that needs to be built into

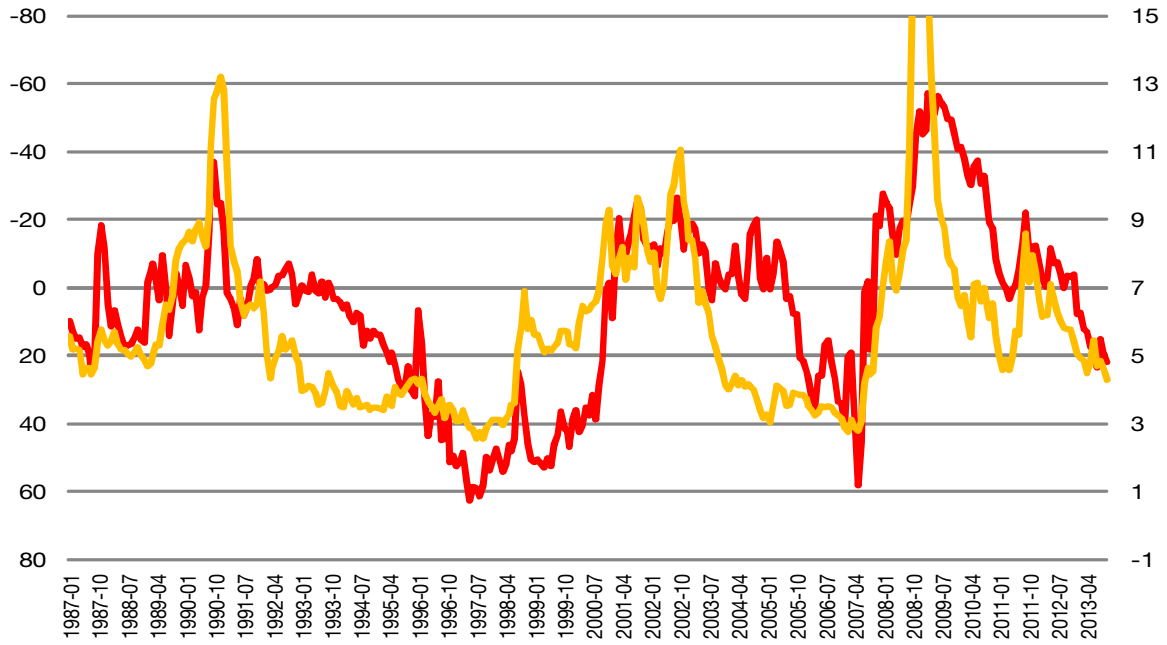


Figure 4
Risk Appetite of US Investors (inverted) and US High Yield Spread
Monthly 1987-2013
Source
CrossBorder Capital, US Federal Reserve, Datastream

high-yield spreads to guard against rising capital demands from issuers and greater balance sheet leverage. **Therefore, a key signal for the high-yield market to be wary of is when our data series on private sector liquidity starts to inflect downwards.** This is rarely a good time for high yield, and it may or may not coincide with a more general downturn of liquidity data.

Figure 5 summarises the prevailing yield spread picture. We think of each spread component as an incremental step along the risk curve. Thus, high yield versus 5-year Treasuries comprises a series of spread subcomponents, including Baa-Aaa. Most credit spreads are moving towards their lows, although the Aaa component has been distorted by a shift of issuance towards longer duration bonds.

Figure 6 shows the net balance between US private sector liquidity and US Fed liquidity to highlight the sensitivity of the credit market. **The long period of recent sharp gains in net US private sector liquidity have matched the rally in US high yield credits.** Therefore, investors must watch for signs that this could turn lower. We are fairly convinced that it will sometime before mid-2014. Already the ISM new orders data series is pointing much higher, as Figure 7 shows, suggesting that purchasing managers are getting ready to spend big. Good news for the economy is rarely such good news for financial assets.

	R10-R5	Aaa-R10	Aaa-R5	Baa-Aaa	High Yld-Baa	EMBI$-Baa
Mean	0.814	1.570	2.384	1.164	2.748	0.942
-1sd	0.387	1.077	1.509	0.668	0.565	-0.156
+1sd	1.241	2.063	3.259	1.660	4.931	2.040
Latest	1.250	1.910	3.160	0.780	0.330	0.416

Figure 5
Latest US Yield & Credit Spreads & Historic Ranges
Percent 2000-2013
Source
CrossBorder Capital, US Federal Reserve

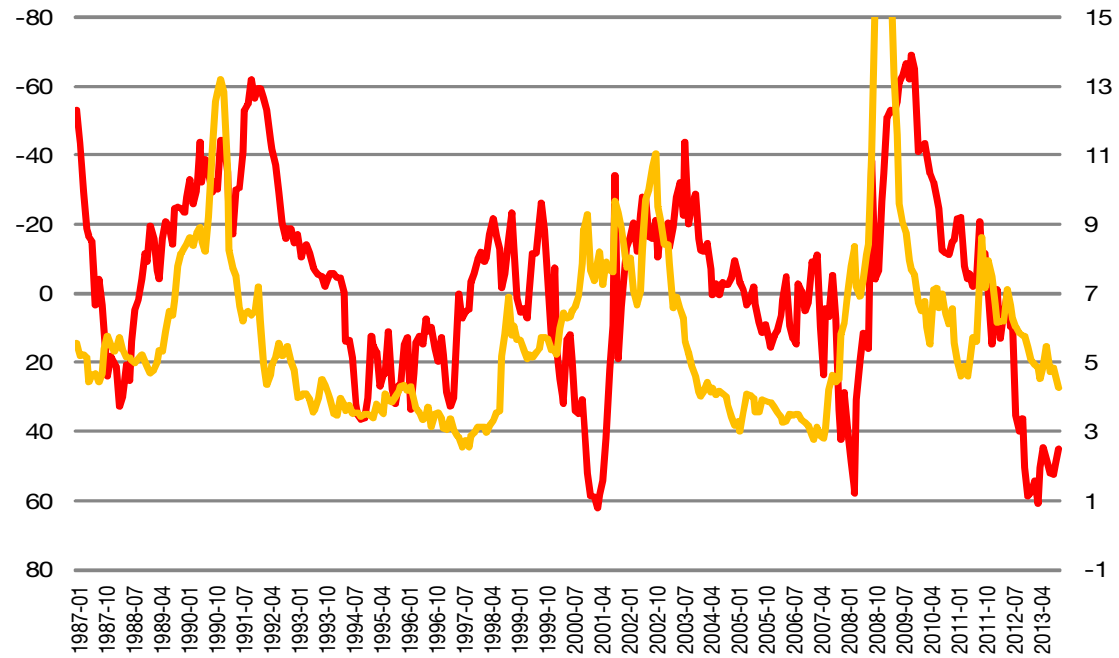


Figure 6

US Fed Liquidity less Private Sector Liquidity and Movements in US High-Yield Spread

Monthly 1987-2013

Source

CrossBorder Capital, US Federal Reserve

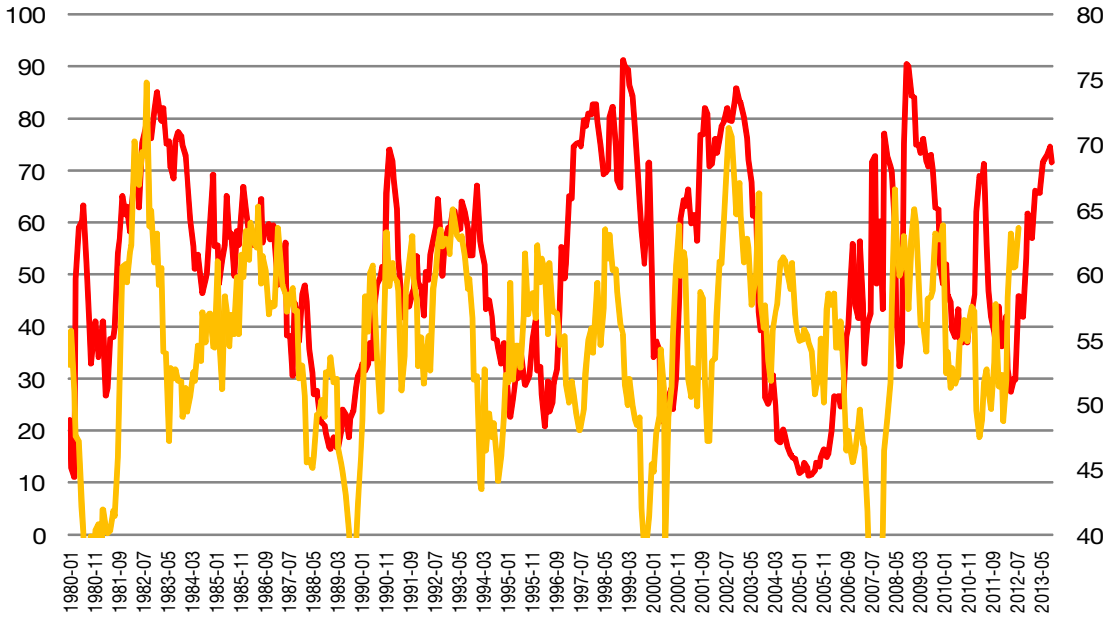


Figure 7

US ISM New Orders and US Liquidity (advanced 15 months)

Monthly 1980-2013

Source

CrossBorder Capital, US Federal Reserve, Institute for Supply Management

Section 4
(Style Selection Vs Asset Allocation)

- Money, Money, Money….A Different Asset Allocation – *August 2006*
- Macro-Finance – Or What They Don't Teach You at the Chicago Business School – *September 2010*
- Styles vs. Assets – The Quantum Theory of Money – *June 2004*
- What Can Yale Teach Us? – *July 2011*
- The Volatility of Volatility – *May 2010*
- The Return of TAA? – *December 2012*
- Liquidity and Modern Finance, Looking Inside the P/E - *August 2004*
- Lost in the Bretton Woods – *May 2010*
- The Bear Market in Valuations and the Bull Market in History – *June 2011*
- The Bear Market in Valuations….Part 2 – *September 2011*

CROSSBORDER CAPITAL®

Global View

August 2006

Money, Money, Money ...
A Different Asset Allocation

This report examines economic and financial development. It explains why we use financial rather than economic variables for asset allocation. The relationship between stock market value and either GDP or earnings is shown to be unbounded (and therefore unusable) at the aggregate level. The ratio between market cap and money is stable, and therefore a better asset allocation benchmark. Latest data reaffirm our cautious equity outlook.

Stock Markets And GDP

Financial and economic development does not always go hand-in-hand: frequently, financial development races ahead. Global stock market data reveal a non-linear relationship that points to a more than one third additional expansion in stock market capitalization per head for every percentage point increase in nominal per capita GDP.

Figure 1 shows the regression analysis between market cap per head and GDP per capita for 53 developed and emerging economies. Average cross-sectional data for 2004-06 has been used and converted into US dollars and expressed in natural logarithms.

According to the chart, each US$1 increase in per capita income leads to a larger US$1.38 increase in per capita market cap as the marginal savings rate rises. Looked at another way, the ratio between market capitalization and GDP is not constant but itself tends to trend higher over time, and seemingly without limit.

This is an important result in two respects. First, it tells us that mature economies are heavy in financial assets and rich in financial infrastructure. Second, it questions whether P/E multiples are the appropriate tool with which to value stock markets because they too (like the market cap/GDP multiple) are likely to be unbounded. The aggregate market P/E multiple is derived by dividing the market cap/GDP multiple by average profit margins.

$$P/E = \frac{P/GDP}{m}$$

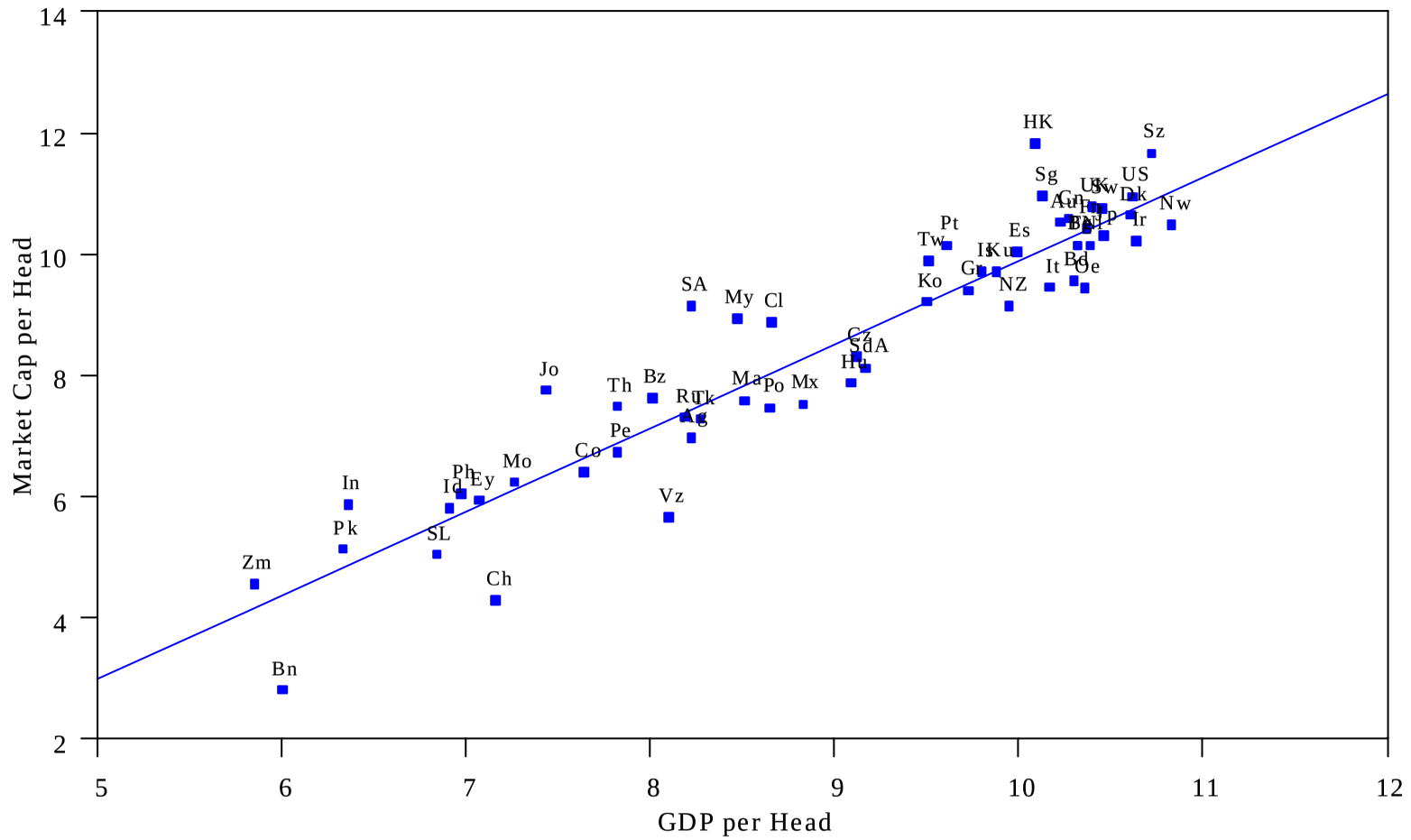
where m = E/ GDP, and E represents post-tax earnings

If the market cap/GDP ratio can rise without limit, so can the aggregate market P/E multiple. This makes it impossible to say whether a market P/E of 20x or 15x or 35x is expensive or not. P/Es may work at the micro-level for individual stocks, but the above result suggests that they may not work efficiently at the market level.

Marcol House
289-293 Regent Street
London W1B 2HJ

www.liquidity.com
Tel: (020) 7535-0400
Email: www@liquidity.com

Figure 1. Financial And Economic Development, 2004-06 (US Dollar Terms)



Austrlia Au
Austria Os
Belgium Bg
Canada Cn
Denmark Dk
Finland Fn
France Fr
Germany Bd
Ireland Ir
Italy It
Japan Jp
Netherlands Nl
New Zealand NZ
Norway Nw
Spain Es
Sweden Sw
Switzerland Sz
UK UK
US US
Argentina Ag
Bangladesh Bn
Brazil Bz
Chile Cl
China Ch
Colombia Co
Czech Republic Cz
Egypt Ey
Greece Gr
Hong Kong HK
Hungary Hu
India In
Indonesia Id
Israel Is
Jordan Jo
Kuwait Ku
Malaysia My
Mauritius Mt
Mexico Mx
Morocco Mo
Pakistan Pk
Peru Pe
Philippines Ph
Poland Po
Portugal Pt
Russia Ru
Saudi Arabia SlA
Singapore Sg
South Africa SA
South Korea Ko
Sri Lanka SL
Taiwan Tw
Thailand Th
Turkey Tk
Venezuela Vz
Zimbabwe Zm

log (P/ H) = -3.9039 + 1.3805 * log (GDP/ H) R-squared = 88.03%

where log denotes the natural logarithm; P refers to market capitalization; H is population and GDP national income.

Source: CrossBorder Capital, Datastream

Stock Markets and Money

How can we salvage asset allocation? There is a hope. Further analysis shows that the market cap/GDP relationship can be broken down into two sub-component ratios: (1) money (i.e. liquid assets) to GDP and (2) market cap to money. The former is usually known as by economists as inverted monetary velocity. Experience shows that monetary velocity tends to fall over time, in other words it takes a larger-and-larger quantum of money to generate each dollar of GDP. The second term shows how all investors hold their assets between quoted investments, i.e. shares, and cash. Asset allocation will likely vary over time as the risk environment changes, but this variation is likely to be regular and centred around a fixed point. In statistical terms, this is dubbed a stationary data series.

Statistical analysis of the same cross-sectional data for 2004-06 reveals a robust relationship between market cap and money:

$\log (P/H) = 0.6816 + 0.9331 * \log (M/H)$ R-squared = 84.81%

where log denotes the natural logarithm; P refers to market capitalization, and H is population.

Re-expressing this estimated equation in levels, it is approximately equal to:

$P = 1.98 * M$

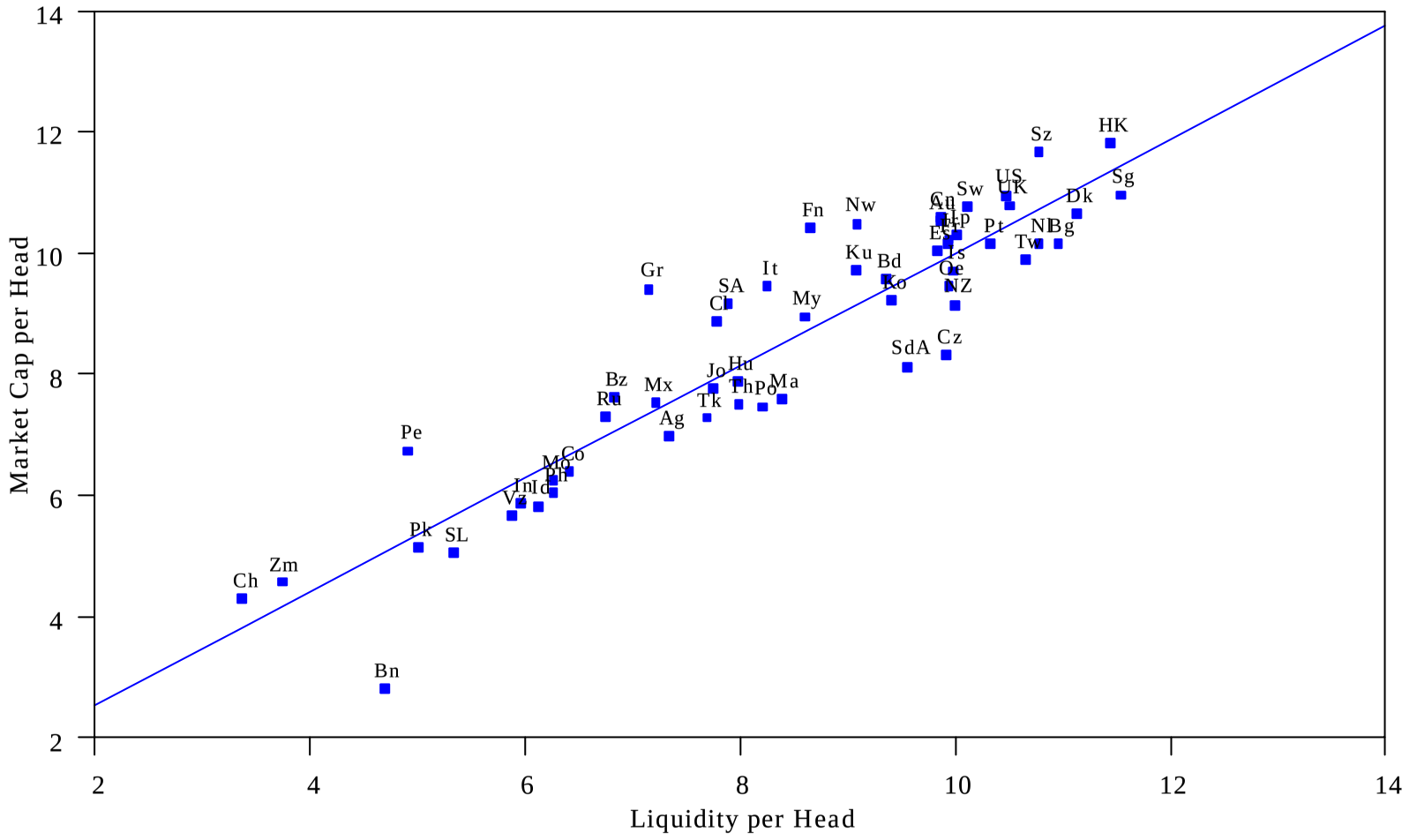
This is an important result for asset allocation. **It tells us that the market cap/money ratio is stable over the long-run.** Thus, when the market cap/money ratio is close to its target level of roughly two times, changes in the volume of money are directly transformed into similar changes in stock market capitalization. In the short term, stock market performance will be related both to changes in the volume of liquidity and to the size of deviations in the P/M ratio away from its two times trend value. These latter shifts can be explained by changes in the perceived risk environment, or what we dub sentiment effects. (Our work shows that inflation plays a key influence on sentiment). **It seems reasonable to conclude that financial market movements (P) consist largely of both liquidity (M) and sentiment (P/M) effects.**

History Of The P/M

The roots of the P/M ratio lie in the work of US economist Raymond Goldsmith of Yale University, who studied the pattern of financial evolution for several countries. According to Goldsmith the financial structure is a crucial determinant of national productivity trends and living standards; on top, each country tends to experience very similar financial development. Goldsmith's work shows that financial assets and debt both rise faster than tangible assets and national income as the economy develops.

Goldsmith analysed 200 countries spanning a time period of almost 300 years. He found that most primitive societies have a very low ratio of financial to tangible assets, or *financial interrelations ratio*. But as economies mature so this ratio rises along: "... the one major path of financial development". For most advanced economies it reaches a value of between 1-1.25 times, before levelling off. Britain first hit this value in the 1880s, while the US and Japan took until the 1920s to reach a financial interrelations ratio of unity. Few countries, apart from Switzerland, have managed to sustain higher ratios, although Britain recorded a peak or freak quotient of 2.7 times in 1939.

Figure 2. Stock Market Capitalisation Vs. Money, 2004-06 (US Dollar Terms)



Australia	Au
Austria	Os
Belgium	Bg
Canada	Cn
Denmark	Dk
Finland	Fn
France	Fr
Germany	Bd
Ireland	Ir
Italy	It
Japan	Jp
Netherlands	Nl
New Zealand	NZ
Norway	Nw
Spain	Es
Sweden	Sw
Switzerland	Sz
UK	UK
US	US
Argentina	Ag
Bangladesh	Bn
Brazil	Bz
Chile	Cl
China	Ch
Colombia	Co
Czech Republic	Cz
Egypt	Ey
Greece	Gr
Hong Kong	HK
Hungary	Hu
India	In
Indonesia	Id
Israel	Is
Jordan	Jo
Kuwait	Ku
Malaysia	My
Mauritius	Ma
Mexico	Mx
Morocco	Mo
Pakistan	Pk
Peru	Pe
Philippines	Ph
Poland	Po
Portugal	Pt
Russia	Ru
Saudi Arabia	SlA
Singapore	Sg
South Africa	SA
South Korea	Ko
Sri Lanka	SL
Taiwan	Tw
Thailand	Th
Turkey	Tk
Venezuela	Vz
Zimbabwe	Zm

Source: CrossBorder Capital, Datastream

"The creation of a modern financial superstructure, not in its details but in its essentials, was generally accomplished at a fairly early stage of a country's economic development, usually within five to seven decades from the start of modern economic growth. Thus it was essentially completed in most now-developed countries by the end of the 19th century or the eve of World War I, though somewhat earlier in Great Britain. During this period the financial interrelations ratio, the quotient of financial and tangible assets, increase fairly continuously and sharply. Since World War I or the Great Depression, however, the ratio in most of these countries has shown no upward trend, though considerable movements have occurred over shorter periods, such as sharp reductions during inflations; and though significant changes have taken place in the relative importance of the various types of financial institutions and of financial instruments. Among less developed countries, on the other hand, the financial interrelations ratio has increased substantially, particularly in the post-war period, though it generally is still well below the level reached by the now-developed countries early in the 20th century." Raymond Goldsmith (1984).

One important corollary of Goldsmith's work is that the size of the financial superstructure, as measured by the financial interrelations ratio, changes only slowly. In other words, the secular value of financial assets rarely expands by more than about 2%-3% per annum faster than national income. This may not sound dramatic, but taken over the long-term, a 2.5% annual growth rate would compound into a near 12-fold jump in the financial interrelations ratio every century.

Goldsmith's second important finding was that the relative importance of financial institutions, especially non-banks, as holders of financial assets has trended upwards over time but it also tends to flatten out at around the 40-50% level as economies mature[1]: much as we found for the P/M ratio. This ratio is dubbed the *financial intermediation ratio.* What's more, the shares of different financial assets showed some degree of consistency over time: bank credit, public debt, foreign securities and corporate stocks each roughly account for around one-fifth of aggregate financial assets, while insurance and pension claims make up a fast-growing tenth, and trade credit and corporate bonds comprise a less robust tenth.

Investor Power Vs. Earnings Power

These "stable" balance sheet trends allow us to make some judgements about other financial ratios, most importantly, the *price-to-money ratio* and to develop the concept of *investor power*. 'Investor power' measures the ability and willingness of investors to buy. It is an alternative to the conventional notion of 'earnings power', which is used to justify using P/E multiples to value stocks and maturity yields to value bonds. *Investor power* and the P/M consider asset allocation from the standpoint of investors' wealth; *earnings power* and the P/E analyse it from the less satisfactory position of the intrinsic worth of the security.

We saw earlier that the P/E multiple itself is a composite measure that can be unbundled into three sub-components with the P/M ratio 'nested' inside the P/E as one component: (a) exposure ('sentiment'); (b) financial liquidity, and (c) profitability, i.e.

$$P/E = \frac{P/M \times M/GDP}{e} \qquad \text{where } e = E/GDP$$

[1] Goldsmith noted that this ratio was less well-defined than the financial interrelations ratio. His research showed it ranged roughly between a quarter and one half of all financial assets and for the US, a financially sophisticated economy, it had a value of 26.8% in 1978. Meanwhile, Britain's ratio was 40.8%, Japan's 29.9% and Germany's 38.5%.

Or

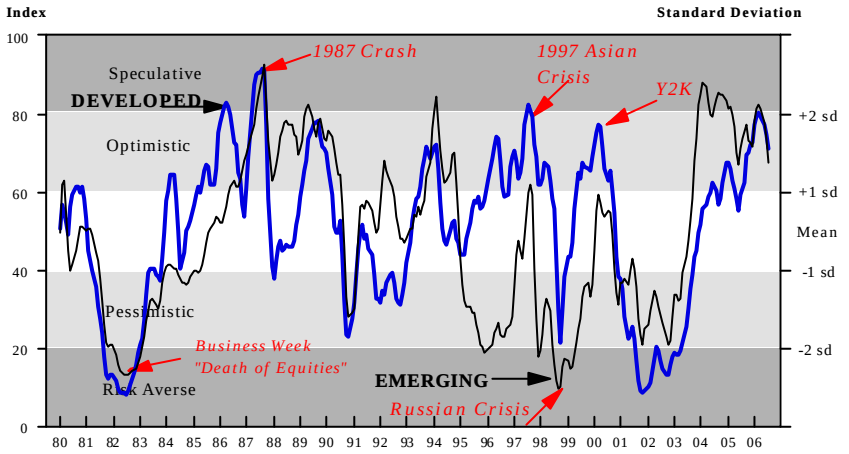
$$\text{Valuation} = \frac{\text{Exposure/ Sentiment x Financial Liquidity}}{\text{Profitability}}$$

At the market level, the P/E is defined as the market value of equities divided by total net profits. Similarly, the P/M ratio is the total value of equities divided by the available pool of liquid assets. The numerator is the same but the divisor is different. Liquidity available for financial investment is shown by the M/GDP term (or inverted monetary velocity) and profitability is measured by profit margins, E/GDP. GDP denotes National Income and E is aggregate post-tax profits. The P/M or price-to-money ratio measures 'investor power'.

Conclusion: Markets Need Cash

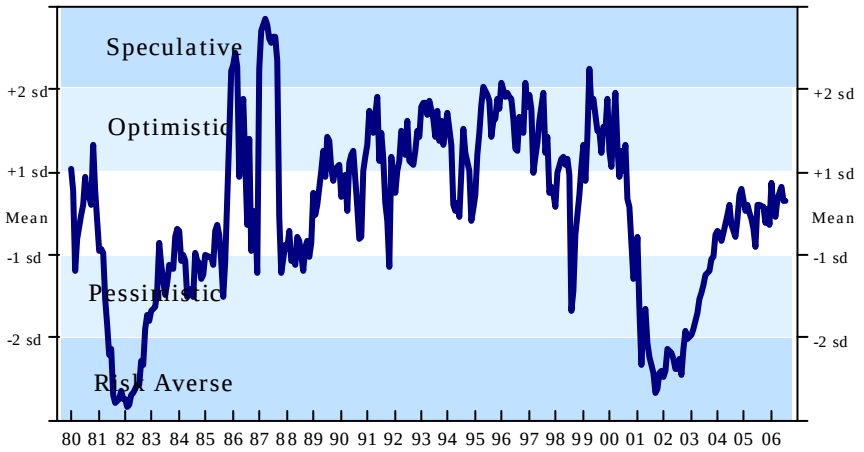
What does the P/M approach tell us about the latest market outlook? First, asset allocation remains heavily skewed towards stocks. In other words, investor sentiment is bullish and there seems little short-term scope to increase equity market exposure. One curious exception is the US stock market. Figures 3 and 4 show statistical deviations of the P/M ratios away from their trends for the developed and emerging stock markets, and Wall Street, respectively. High values show high exposure and bullish sentiment.

Figure 3. Stock Market Exposure Indexes (P/M) – Developed And Emerging Markets, 1980-2006 (Index 0%-100%)



Source: CrossBorder Capital

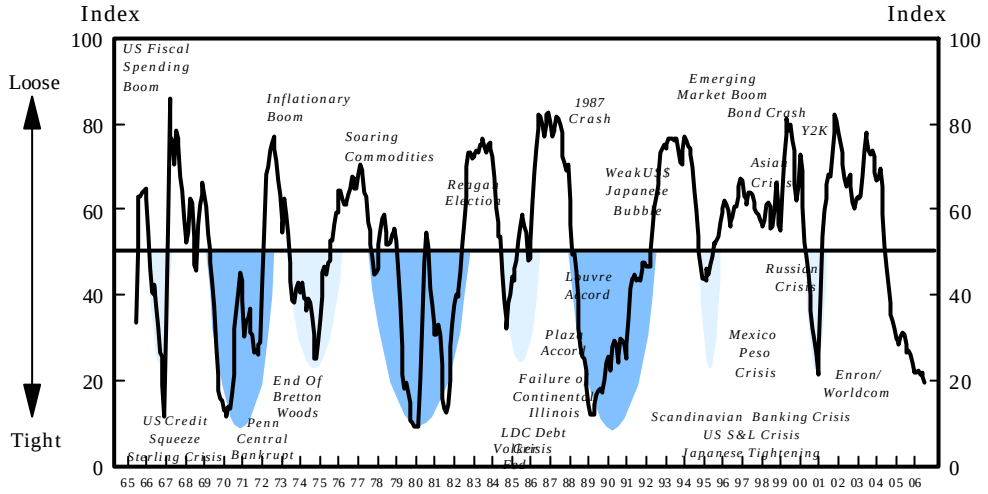
Figure 4. Stock Market Exposure Index (P/M) – USA, 1980-2006 (Index 0%-100%)



Source: CrossBorder Capital, Datastream

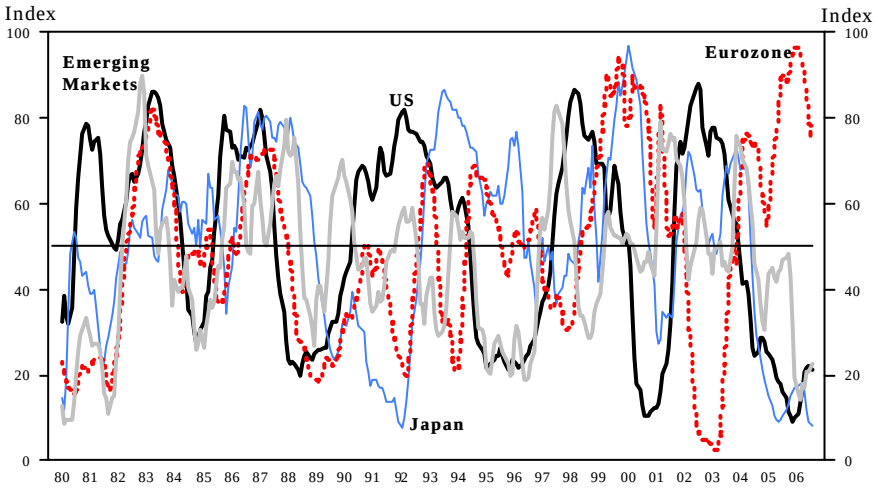
Second, liquidity conditions are generally tight (US and Japan), or tightening (Eurozone and Emerging Markets). Figures 5 and 6 show our proprietary financial liquidity indexes for the World and the Central Bank policy sub-component for the major four investment regions, respectively. **Both sets of charts tell us <u>not</u> to expect high stock market returns over coming months.** Either market exposure must first fall, by definition hurting near-term returns, or liquidity conditions must jump higher. As our research has warned elsewhere, stubborn inflation significantly clips the odds of any major liquidity expansion.

Figure 5. Global Liquidity Cycle, 1965-2006 (Index 0%-100%)



Source: CrossBorder Capital

Figure 6. Breakdown Of Global Central Bank Liquidity – US, Japan, Eurozone And Emerging Markets, 1980-2006 (Index 0%-100%)



Source: CrossBorder Capital

References:
Goldsmith, Raymond W. (1984), *Comparative National Balance Sheets: A Study of Twenty Countries, 1688-1979*

CrossBorderCapital
Implementing Insight

Global View

September 2010

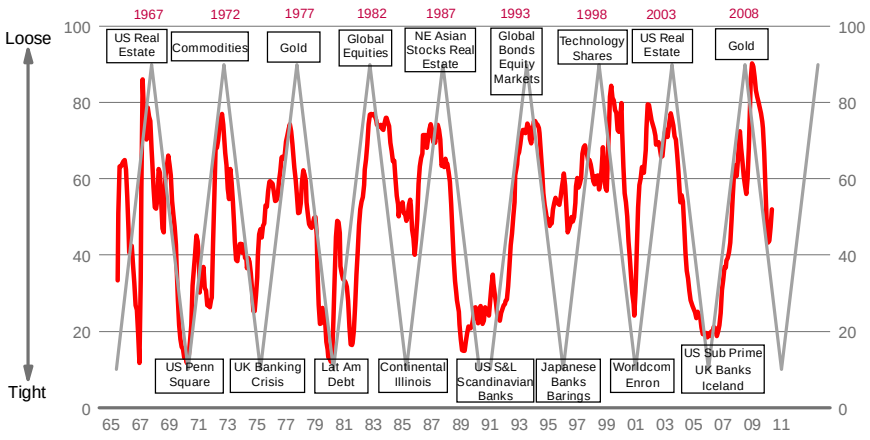
Macro Finance – Or What They Don't Teach You at Chicago Business School

So much then for the EMH and MFT. In the wake of the 2007/08 financial crisis, conventional asset pricing theories based on bond yields and stable risk premiums don't seem to work well. Something else is needed. We describe our investment methodology and show why liquidity and duration are essential components of asset allocation.

A fundamental problem with modern finance theory (MFT), highlighted by the recent market turmoil, is that valuing one financial asset (e.g. equities) against another (e.g. bonds) leaves the valuation question open-ended because there is no yardstick of absolute value. We have long taken a different path. We strongly believe in two things: first, liquidity drives markets, and particularly Central Bank liquidity injections. Second, 'top-down' country and global sector allocations account for the bulk of investment returns. In short, we subscribe to the 80:20 rule that says asset allocation is far more important than security selection.

Time, not volatility, is the real risk for investors, and so choosing their desired investment horizon is their key decision variable. Cautious investors will shorten their time horizons, whereas as they become more upbeat investors will discount news forward over a longer-and-longer span. All this becomes crystallized in their choice of assets. Thus, bullish investors hold portfolios of long duration assets and bearish investors, who demand the certainty of cash, hold short duration portfolios. Portfolio duration is at the end of the day anchored by, say, pension or future spending liabilities, and so must mean-revert.

Figure 1
Global Liquidity Cycle
Index ('Normal' Range 0%-100%)
1965-2010



Source
CrossBorder Capital, US Federal Reserve, ECB, Bank of England, Bank of Japan, IMF

96 Baker Street
London W1U 6TJ
Tel (44) 20 7908 2800
crossbordercapital.com

For example, many institutional investors currently assume an average 15-year time horizon for pension liabilities. Knowing this fact, any extreme swings in these bullish and bearish choices provide us with great opportunities to go 'against the crowd'.

Our allocation process favours asset markets which are unpopular, and therefore 'cheap'; where liquidity is expanding, and where inflation is stable. We like buying out-of-favour assets, and particularly those that normally comprise an integral part of portfolios. Thus, to understand *what to buy* we should question 'who is going to buy' (or equally 'who could be forced to sell')? Understanding the supply and demand within asset markets requires studying the behaviour of *crowds* and the movement of *money*.

The first question we need to answer is where are investors currently invested? We dub this *investor sentiment/exposure*: when the crowd is most convinced, we are most sceptical. Second, in understanding where money is subsequently going to flow to, we also need to understand where it is likely to come from. This requires analysing the 4-5 year *Global Liquidity Cycle* and closely monitoring Central Bank behaviour.

The origin of many of our ideas can be traced back to the Research Department of Salomon Brothers, the former US investment bank. Led by Henry Kaufman and Marty Leibowitz, and often inspired by the earlier scriptures of Sidney Homer (viz. 'History of Interest Rates'), Salomon's research focussed on two key ideas:

(1) *flow of funds* analysis and the structure of finance (Henry Kaufman);

(2) duration management (Marty Leibowitz).

Put them together and they become even more powerful. And they particularly help us to understand modern financial markets and the near-regular cycle of financial crises, e.g. 1974, 1980/81, 1987, 1994, 2000/01, 2007/08.

Flow of Funds Analysis

Kaufman used flow of funds analysis to understand both the credit creation process and the changing position of the yield curve through the credit cycle. Flow of funds analysis *"…provides perspective and, like double-entry bookkeeping, contains built-in features that help prevent errors in logic … the amount of funds supplied must equal the amount demanded because it is impossible to lend money unless someone borrows it … the function of interest rates is to allocate the funds supplied by lenders among those who want to borrow."*

In standard National Income accounting, income equates with expenditure, but financial assets and debts and their relationship to transactions occurring on the current and capital accounts are ignored. Similarly, financial markets are not integrated into traditional economic analysis, and this spills over into a forced reduction in the importance of finance. Flow of funds accounting, in contrast, links income and expenditure flows to their counterpart changes in stocks of assets and liabilities. In other words, flow of funds accounts are the bridge between balance sheets and income/expenditure relationships. They effectively ensure that all money that is anywhere is accounted for somewhere. The stock consequences of flows are, therefore, incorporated into the flow of funds arithmetic, e.g. government budget constraints are satisfied and the consequences of runaway government debts acknowledged.

These tools proved useful in untangling the increasing convoluted nature of finance. They gave insights that allowed Kaufman to foresee upcoming financial turmoil. He warned in the mid-1980s that:

"Vast improvements in communications and financial technology have created close linkages within the US credit markets and with markets abroad. Distinctions among institutions have been so blurred that it would be impossible to put Humpty-Dumpty together again. We need to implement the best aspects of deregulation and the best applicable safeguards of regulation. By and large, this will require injecting some friction into the debt creation process – not more lubricants."

Our liquidity analysis similarly derives from the study of flows of funds, and in particular the division between *sources of funds* and *uses of funds*. We put greatest emphasis on the sources of funds, or so called *funding liquidity*. Crises often result from abrupt 'stops' in funding liquidity that prevent essential projects and asset holdings from being re-financed. Conventional economics focuses, instead, almost exclusively on the uses of funds. Concepts such as government spending, retail sales and money supply are all different uses of funds.

Modern industrial economies are dominated by the capital expenditure cycle. Economic growth depends on capital accumulation. Capital is raised over several years and thus funding has to be frequently *re-financed* over the life of a project. This re-financing process is a key source of weakness, and this fact forces Central Banks to actively provide and manage liquidity. Central Bank errors explain liquidity cycles. The liquidity cycle measures the tempo of money flows through financial and asset markets. It moves in phases that reflect periods of monetary re-flation and monetary inflation; monetary disinflation and ultimately monetary deflation.

These phases broadly correspond to what Kaufman describes as *"…the many faces of the yield curve* …[Yield curves] *… provide a sweeping picture of credit market conditions at a glance…"* He observed that swings from an extreme negative slope to flat generally led to higher long-term yields. Flat to extreme positive, on the other hand, resulted in lower long-term yields but much lower short-term rates. Swings from extreme positive to flat and from flat to extreme negative led to higher long-term yields, with the latter, late-cycle phase *"…the most dangerous of all for investors in long bonds."*

The *CrossBorder Capital* Global Liquidity Index measures *funding liquidity*. It has been continuously refined and developed since its inception in the early 1980s. The index comprises around 30 underlying data series for each of 80 countries that are combined together. The index is measured relative to the size of economies and standardised to move in a 'normal' range of 0%-100%, with a 50% mean. Regional, national and sectoral sub-components also exist. The data are sourced from national flow of funds accounts that typically make-up the monthly reporting system for the IMF.

Liquidity is defined as the flows of all cash and credit. The analytical framework is based on the *flow of funds* identity that separates sources of funds from uses of funds.

Fundamental equation of flow of funds:

$$L = S + \Delta BC + \Delta CBC = I + I_f + \Delta BD$$

Liquidity — *Sources (Funding Liquidity)* — *Uses (Market Liquidity)*

where L represents liquidity; S is cash savings; BC bank credit and CBC Central Bank credit; I is capital spending; I_f is net purchases of financial assets; BD symbolises bank deposits, and Γ represents the difference operator.

Liquidity implies two things: (1) marketability, and (2) access to cash, i.e. means of settlement, without limit, without delay and without undue cost. A liquid market means that large blocks of stocks can be sold rapidly without significantly disturbing prices. Looked at in reverse, illiquidity implies the risk of capital loss when the asset needs to be quickly realised.

Liquidity is a characteristic of money. Money itself has two functions: (a) standard of value and (b) means of circulation, and exists in two qualitative forms as: (1) means of purchase (e.g. credit) and (2) means of settlement (e.g. savings). *CrossBorder Capital's* liquidity analysis essentially measures changes in the flow of means of purchase money. This includes both increases in pure means of purchase, such as commercial and shadow bank credit, plus any new means of settlement that can be used as means of purchase, e.g. savings and base money. The standard of value function is, probably, best

monitored in conjunction with changes in the nominal price of gold. Too much 'money' results in *monetary inflation*, i.e. the depreciation of paper money, and a rising gold price.

Our research clearly identifies a 4/5-year, or near-60 month, liquidity cycle. The last trough occurred in early-2006 and the latest peak took place in January 2009. We also find strong evidence that the sub-cycle in US Central Bank (or Fed) liquidity is dominant and it tends to lead the Global Liquidity Cycle by some 2-3 months.

The peaks and troughs of the liquidity cycle tend to precede both asset booms and banking crises, respectively, by around 1-2 years. The character of asset booms changes by instrument each cycle: sometimes the mania focuses on commodities, at other times emerging market stocks attract speculators, and more recently the bubbles have been in technology stocks and residential real estate. Similarly, banking crises tend to differ by geography. Sometimes European banks suffer most; at other times the bad debts occur in Asian banks; or, as during 2007/08, it was the British and American banks that experienced solvency problems.

Monetary theory is now starting to think about financial structure again. It was ignored by Milton Friedman monetarists. They shunned the innovations of Gurley and Shaw (1960), who argued years ago that the non-bank financial sector was not simply a passive intermediary, but actively created credit. At the time, credit as a monetary aggregate was out-of-fashion. Many argued that deposits created credits, whereas in reality credit creates deposits.

After the turmoil of the 2007/2008 financial crisis, the role of the credit markets in providing funding and liquidity for the general capital markets is now better appreciated. No single interest rate represents all asset prices, and certainly there is no one market rate that is under the unambiguous control of the Central Bank[1], as many academics still seemingly assume. General *market liquidity* depends upon so-called *funding liquidity*. It was ever thus, but too many pundits were seduced by the mathematical beauty derived from interest rate formulae. Consequently, both the asset side and, more importantly, the liability side of the financial sector balance sheet have been ignored for too long.

Portfolio Duration

Duration measures the time horizon of an asset (or liability) based on the present value-weighted average time to receipt (or payment) of income and principal. From this formulation, Hicks (1939) and Macaulay (1938) in the late 1930s demonstrated that duration is the elasticity of the value of a capital asset with respect to changes in the discount factor. The importance of duration is that it refers to the timing of the average cash payment and not the final cash payment, as with, say, the maturity date of a bond. Bond maturity will affect bond duration but it is a different and less useful concept for planning investment needs.

In the Salomon world there is a continuum between stocks and bonds, where the bridge is duration. Modern finance theory sees the market as the systematic risk factor for equities, and this, in turn, is explained by macroeconomic variables. For fixed income securities, interest rate duration is the main systematic risk factor. In turn, interest rates are linked to the credit cycle.

Equities experience many other risks, both systematic and unsystematic, although interest rate risk is also an important factor. We believe that equities are also largely influenced by this same credit or liquidity cycle. One possibility much-ignored in conventional equity pricing models is that duration, the investment time horizon, may itself change. What's more, these changes may be also systematically linked to the liquidity cycle.

The duration of a fixed income security is anchored 'close' to its stated maturity. Thus, a 10-year bond will typically have duration of around 6-7 years. Equities, being undated securities, do not conform to this rule. Their 'time horizon' varies largely according to the optimism and pessimism of investors, and according to how far forward they are prepared to discount.

[1] Discount rate is not a market rate

All-in-all, duration plays a surprisingly large role in explaining total portfolio risk.

Asset allocation is the deployment of investments whose cash returns (e.g. future dividend receipts and potential sale proceeds) best match the anticipated profile of an investor's future liabilities. The best single measure of this time profile is duration. Duration measures the investment time horizon, or *roundaboutness*, i.e. how long money is tied up for. It might be thought of as liquidity over time because it is defined as the time-weighted average cash receipts or payments in present value terms. Duration can be calculated for liabilities as well as assets, and we figure that investors have a target duration based on their expected future liabilities. These liabilities will vary according to age (i.e. demographics), inflation and tax policy, among other things. Investors' liabilities, or cash outflows, are unlikely to be greatly affected by changes in liquidity conditions, but future cash inflows will be altered significantly. This changing gap between liability duration and asset duration measures *liquidity risk*. Liquidity risk is the antithesis of possessing liquidity.

Investors attempt to match *asset duration* and *liability duration* (and thereby reduce *liquidity risk*) by buying and selling assets in varying quantities. More liquidity reduces liquidity risk and causes duration to rise. Equally, if liquidity risks rise, investors then need to shorten the duration of their assets. This, in turn, causes a reshuffling of existing portfolios as investors move from longer to shorter duration instruments and may be even to move into cash itself. Assets can be graduated by their degree of duration. Cash is the zero duration asset. Equities and real estate are typically long duration assets. Bonds lie somewhere in between.

In aggregate, these transactions will lead to a rise in the price of long-duration assets when liquidity is abundant and to a fall when liquidity is scarce. Thus, more liquidity encourages investors to lengthen their desired investment time horizon; less liquidity forces them to shorten it. For example, if the business sector is suffering a credit squeeze, the flow of corporate dividends will slow or stop completely and the need for new capital issues may rise sharply. Similarly, a system-wide shortage of liquidity will lower the marketability of existing assets and result either in the inability to sell or the chance to sell but only at greatly depressed prices. Faced with either case, investors will likely shift into more certain, more liquid and higher yielding current investments that do not require additional funding. See Figure 2.

This defensive shift is usually described in terms of investors avoiding a more risky long-term outlook, rather than correctly as their demand for a more certain short-term outlook. Equally, inflation and deflation will likely both shorten liability duration because of more uncertainty. Therefore, taken together, stable prices and more liquidity promote long investment horizons.

Thus, extending asset duration leads to higher investment returns, but the cost of tying up capital is that it cannot be used elsewhere. Industrial capital always seeks to lengthen its duration so as to reap greater productivity gains: financial capital simultaneously tries to reduce duration and make capital more 'liquid'. The tension between these two dimensions also represents 'liquidity risk'. It explains the business cycle and *in extremis* it can trigger financial crises.

Yet, contrary to popular belief, market volatility should not matter to investment choice provided that asset and liability duration are matched. Therefore, we should assume that investors seek to, at least, match asset and liability duration. In fact, a prudent investor will not want to hold an asset mix with greater duration than that required by future liabilities.

In summary, the optimal asset allocation is a portfolio structure where asset duration: (a) never exceeds liability duration, and (b) recognises that liability duration itself changes, sometimes systematically and sometimes randomly. Asset allocation must therefore retain greater than required liquidity as a margin of safety.

Liquidity, Duration and Capital Asset Pricing

Leibowitz mathematically re-worked the traditional earnings discount model into a form that explicitly incorporated asset duration:

$$P = E_0/ (r-g)$$

standard Gordon model

$$P = E_0. (1+ D.g)/ r$$

revised Leibowitz model

where P denotes asset prices; r is the discount factor; D is asset or liability duration; g is the annual growth of income, and E_0 represents the initial level of income or earnings.

In other words, stock prices rise directly with duration (D). The product of duration and growth (D.g) describes the pace of growth and the time period over which it lasts. We have argued elsewhere that typically, trend growth (g) tends to change slowly, whereas duration tends to see larger and more frequent shifts. In other words, it can be assumed that growth is constant.

To see how liquidity and flow of funds influence asset prices we need, first, to move to a more general form of the capital asset pricing model:

$$P = P(r, D, g, E_0) \qquad (1)$$

And second to re-express (1) in growth terms. Assuming that both E_0 and g are constant:

$$\%\Delta P = -D.\ \Delta r + \%\Delta D + \textit{convexity terms} \text{ (ignored)} \quad (2)$$

This is an extension of the model originally introduced by Hicks in *Value & Capital* (1939). It links movements in asset prices to an interest rate effect, scaled by a coefficient representing duration (D), and the percentage change in duration itself. We have ignored the second and higher derivatives that define convexity. In Hicks' formulation, duration was surprisingly assumed to be constant, even though he admitted that during depressions duration might be unusually low and so lessen the impact of interest rate cuts.

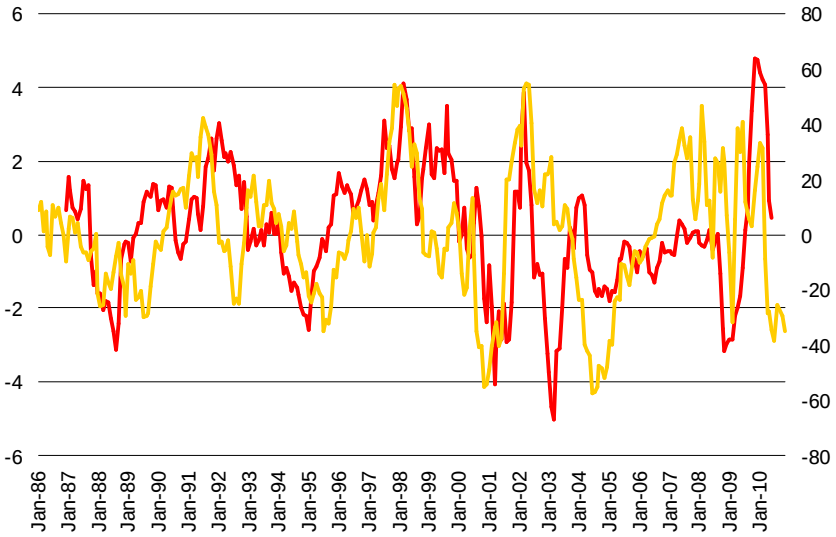


Figure 2
US Liquidity Cycle and Duration
Absolute Annual Change Monthly 1986-2010
Source
CrossBorder Capital, US Federal Reserve, S&P

Using our earlier description of the transmission process, where the adjustment of asset duration depends upon the gap between asset and liability duration, the final term in (3) can be re-written (using the subscripts A and L to refer to assets and liabilities and the asterisk to refer to desired amounts) as:

$$\%\Delta D = f(D_L - D_A)/D = f(D^* - D)/D = f'(D^*/D) \quad (3)$$

In other words, the percentage change in duration depends on the difference between liability duration and asset duration, or equivalently the ratio between desired duration (D*) and actual duration. Thus, the larger the duration gap (in years), the greater the required scale of adjustment.

Over the long term, desired duration/liability duration will be roughly fixed. Therefore, the speed of adjustment of duration largely depends upon the starting point, the reciprocal of current asset duration.

The first term in (2) involves the change in interest rates. It is reasonable to assume that the speed of adjustment in interest rates depends upon the slope of the interest rate yield curve:

$$\Delta r = f(R - r) \quad (4)$$

where R represents long-term yields

These expressions allow us to roughly re-write (2) as a linear function:

$$\%\Delta P = \alpha + \beta.(1/D) + \gamma.(R - r) \quad (5)$$

The first term (α) represents a collection of slowly changing factors that govern the underlying asset return, such as trend earnings growth. Growth, in turn, will be governed by structural factors such as the state of technology, the quality of labour, demographics, the incidence of taxation and inflation expectations, and many of the factors that also affect liability or desired duration (D*).

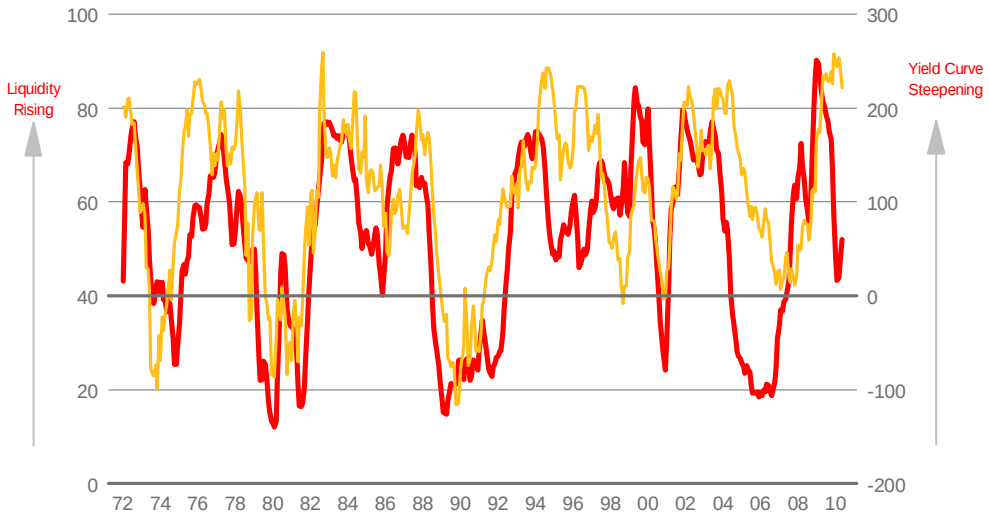


Figure 3
Global Liquidity Index and G7 Yield Curve (10Yr less 3Mth) 1972-2010
Source
CrossBorder Capital, US Federal Reserve, ECB, Bank of England, Bank of Japan, IMF

The second term is a state variable that relates future equity returns to the reciprocal of the current level of duration. For equities, duration can be measured by the P/E multiple according to the Gordon growth model. So, the lower the P/E multiple and the higher the starting equity earnings yield, the higher the prospective return.

The third term is the yield curve. This moves directly with the credit or liquidity cycle. Periods of expanding liquidity are associated with a steep yield curve where long yields trade above short dated yields. Similarly, periods of tight liquidity correspond to times of flat or even inverted yield curves. See Figure 3.

Financial Cycles

In practice, the P/E and yield curve terms often interact, sometimes creating financial turmoil. In other words, the yield curve describes so-called *funding liquidity risk* (or what some might call *credit risk*) and the P/E multiple measures *duration risk* (or what could also be dubbed *valuation risk*). Taken together these two risk components largely explain total *market risk*.

In *funding markets,* both the quality and quantity of liquidity is important. Therefore, Central Bank liquidity takes on greater importance (even outside of crisis-led lender of the last resort activities) since it alone serves as means of settlement or legal tender. Means of settlement and Central Bank credits are more likely to be easily re-hypothecated than other credits. Thus, the role of Central Banks in credit markets needs to be closely monitored. This shows again why financial structure is important.

Desired duration describes future liquidity requirements to settle liabilities. The more liquidity that is available, the more that asset duration can be stretched out. But duration and liquidity remain distinct factors. Sometimes liquidity is plentiful and sometimes, because of the business cycle, it is scarce. These different financing regimes may be stable or unstable depending on the demands for duration. Periods when duration is 'too high' (i.e. excessive P/Es) and when the yield curve is negatively sloped – indicating tight liquidity conditions – describe unstable financing regimes and so flag potential crises.

Thus, in the spirit of Minsky's *Financial Instability Hypothesis*, we argue that capitalism is essentially a financing system characterised by stable and unstable financing regimes. Our research points to four such financing regimes that we name as *Calm, Speculation, Turbulence* and *Rebound*, with each defined by its degree of *funding risk* and *duration risk*. Volatility and the correlation among assets vary by regime. Moreover, our studies show that within regimes the return distributions are approximately 'normal', whereas between regimes they are not. This suggests that asset allocation is also about understanding regime shifts. These regime shifts can explain why financial return data exhibit features such as *persistence* and *fat tails*, i.e. highly correlated extreme events, because they are really a new regime-dependent distribution not a genuine tail. See Figure 4.

This instability suggests that the two parameters (β and γ) shown in equation (5) may themselves change or interact in a non-linear fashion. For example, we suspect that duration can have a greater or smaller effect on asset returns depending on the inflation background. In other words, the β parameter may be at times skewed by inflation. We have tried to model this effect for both bond and stock markets. Figure 5 shows the results for US markets. Equity P/Es (duration) trace out a bell-shaped curve that is centred on a 'normal' inflation rate, e.g. 2½%. Both higher and lower inflation rates cause P/Es and thus duration to drop suddenly. Bond markets respond differently and, in fact, react smoothly to changing inflation rates. Low inflation, even deflation, force bond yields down to very low levels. This difference in the response of bond and equity markets to inflation is especially relevant for asset allocation because it explains why both markets are highly correlated in medium and high inflation regimes, but negatively correlated in low inflation and deflation regimes.

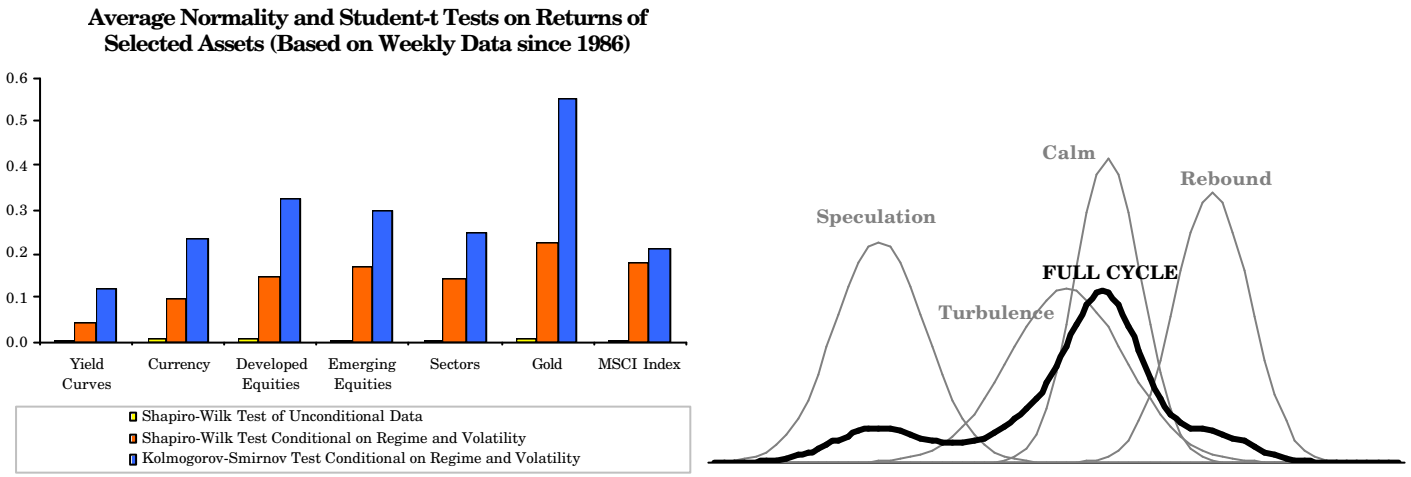


Figure 4
Statistical Tests of Normality by Risk Regime and Schematic Distribution of Returns

Source
CrossBorder Capital

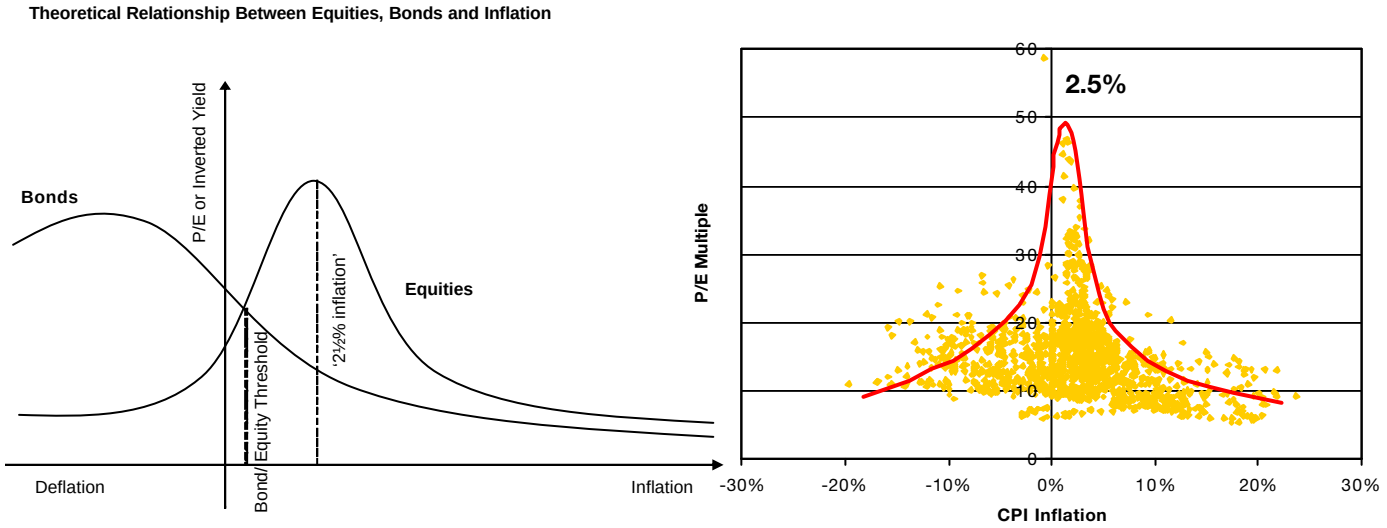


Figure 5
US P/E, Inverted 10-Year Bond Yield and CPI Inflation
1881-2010

Source
CrossBorder Capital, US Federal Reserve, Datastream

Second, the γ parameter, which measures the impact of liquidity on returns, may itself also depend upon the level of liquidity. This can be seen through movements in the VIX index, where both high and low levels of liquidity correspond to a higher VIX reading, but a lower-and-lower liquidity reading causes the VIX to spike higher, so tracing out a J-curve effect. See Figure 6. This explains what we describe as *the volatility of volatility*. It neatly describes three risk regimes corresponding to high, medium and low market risk, which, in turn, supports our previous description of the *Calm, Speculation, Turbulence* and *Rebound* risk states. [Note that *Speculation* and *Rebound* are both associated with medium risk].

Asset Allocation

Ultimately, how much liquidity goes into stocks rather than bonds depends on a number of factors, including future profit expectations, inflation and investor exposure – all of which directly affect duration – as well as the current phase of the liquidity cycle. In other words, the β and γ parameters in equation (5) will take different values for different assets. In practice, these uses of liquidity tend to follow a stable pattern. We describe this pattern as the *Investment Clock* in Figure 7. This highlights how asset and goods markets typically respond sequentially to changes in the liquidity component in equation (5). Rising levels of liquidity lead to increasing flows into assets of longer-and-longer duration.

Bonds typically have a shorter duration than equities, particularly in difficult economic times when future earnings growth becomes more uncertain. Consequently, rising financial liquidity raises bond prices before equity prices.

Portfolio managers are also more likely to buy an asset class that they have low exposure to and shun an asset class that they already have lots of. These asset exposures are what we elsewhere describe as P/M, or price-to-money ratios. They are closely related to P/E multiples and, therefore, correspond to the *duration* and *duration risk* component of equation (5) described earlier. If the investment community has a low overall exposure to stocks, even a small change in liquidity may alter the supply/demand balance in such a way that it triggers a sizeable rise in share prices.

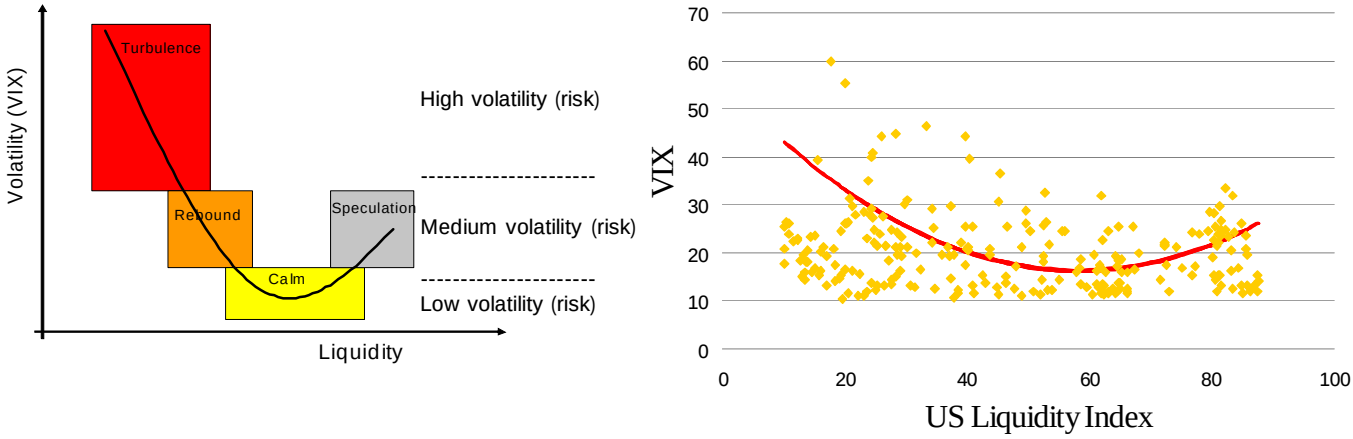


Figure 6
Volatility and Liquidity
Monthly 1990-2010
Source
CrossBorder Capital, CBOE, US Federal Reserve

A useful rule-of-thumb for Tactical Asset Allocation (TAA) is that bond markets are strongest during periods of rising liquidity, while equity markets outperform during periods of above average liquidity. It follows that rising liquidity favours growth stocks, and falling liquidity favours value stocks. Similarly, cyclicals outperform when liquidity is above-average, and defensive stocks do best when liquidity is sub-par. Thus, high and rising liquidity is associated with cyclical growth equities (e.g. technology, media) and, by corollary, directional hedge funds (e.g. global macro, emerging markets). Low and falling liquidity, in contrast, favours more short duration bonds, defensive value equities (e.g. utilities, food companies) and, again by corollary, market neutral hedge funds.

Final Thoughts: Re-Thinking CAPM?

The traditional capital asset pricing model (CAPM) relates risk to investment returns. In an efficient market, higher returns require taking on more risk, where risk is measured by return volatility. This framework has value, but it is incomplete. First, risk is not return volatility, but a duration shortfall, where the required duration of liabilities falls below the available duration of assets. Second, all volatility is not necessarily 'bad'.

Upside volatility is plainly 'good', as is systematic and predictable volatility, e.g. if markets always rise strongly on Mondays and fall heavily on Tuesdays. Third, if asset and liability duration are matched, the volatility of investment returns should not much matter up to the investment horizon.

All this suggests that rather than relating returns and volatility, returns should be linked to duration. The capital market line, in this revised CAPM, will likely slope upwards to the right, indicating that higher returns require a longer-term commitment of capital.

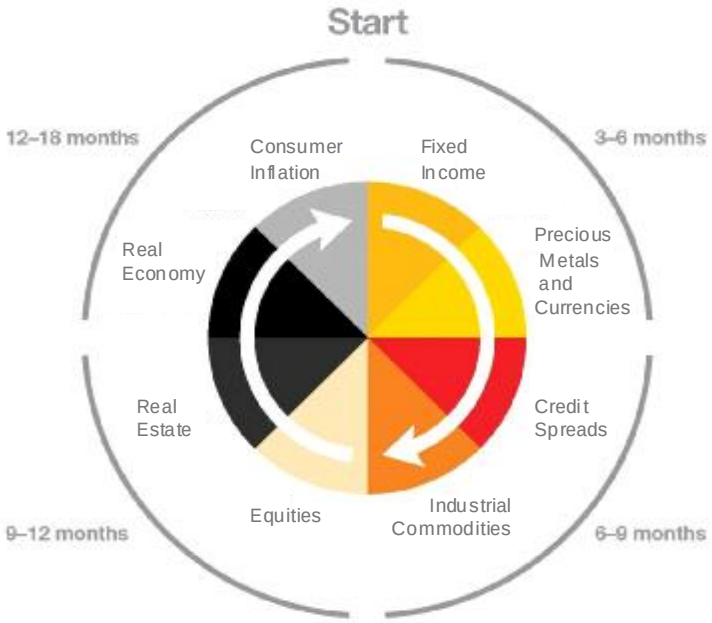


Figure 7
The Investment Clock
Source CrossBorder Capital

The line should also have an intercept at least above the rate of return on cash, the zero duration asset. This gap measures the 'excess return'. See Figure 8.

Increasing duration diminishes the certainty of returns but increases the absolute size. When liquidity and desired duration increase, it is not the most 'risky', i.e. volatile, assets that rise most but those with longest duration.

Risk still matters, but it cannot be unambiguously measured by volatility. Risk is time-related and it is affected by uncertainty and 'lock-up'.

Here we can get higher returns from low volatility, but not (in an efficient market) from low duration.

Indeed, isn't this the very attraction of private equity? Higher profits are related to the 'roundaboutness' of the production process (longer and more capital-intensive projects are typically more productive), and investors actually choose their desired duration or investment horizon based on expected future liabilities, rather than their *ex post* volatility.

Thus, by relating returns to duration this asset pricing model not only makes more economic and financial sense, it also covers more assets and liabilities (such as real estate, private equity, hedge funds, commodities and bonds) and not just those listed assets, such as stocks. What's more, as we have seen, duration and liquidity are bed-fellows.

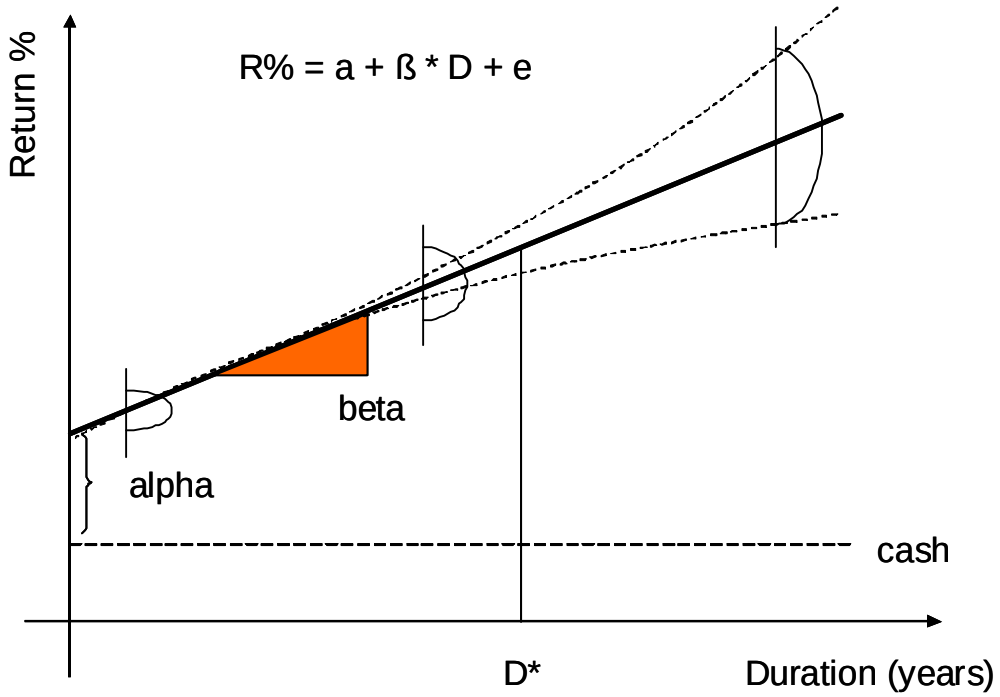


Figure 8
Returns and Duration
Source CrossBorder Capital

CrossBorderCapital
Implementing Insight

References:

(1) Gurley, J. and E. Shaw, *Money in a Theory of Finance* (1960), Brookings.

(2) John Hicks, *Value & Capital* (1939), Clarendon Press

(3) Sidney Homer, *A History of Interest Rates* (1991), Rutgers

(4) Henry Kaufman, *Debt: The Threat to Economic and Financial Stability*, Federal Reserve of Kansas, Economic Review (1986)

(5) Henry Kaufman, *Interest Rates, the Markets and New Financial World* (1986), Time Books

(6) Martin Leibowitz, *Total Portfolio Duration* (1986) [from *Investing* (1992, Probus]

(7) Martin Leibowitz, *A Total Differential Approach to Equity Duration* (1989) [from *Investing* (1992, Probus]

(8) Martin Leibowitz, *Franchise Value* (2004), Wiley.

(9) Frederick Macaulay, *Some Theoretical Problems suggested by The Movements of Interest Rates, Bond Yields and Stock Prices in the United States Since 1856* (1938), NBER

CROSSBORDER CAPITAL LIMITED
96 BAKER STREET
LONDON W1U 6TJ
TELEPHONE 020 7908 2800 FACSIMILE 020 7908 2835

CROSSBORDER CAPITAL®

HEDGE FUND RESEARCH June 2004

Styles vs Assets: The Quantum Theory of Money

Money, or more correctly liquidity, largely determines investment risk. However, the relationship is neither smooth nor linear and, in fact, sees discrete or quantum jumps as the monetary environment shifts between four possible regimes. Each regime is associated with a specific risk backdrop and, in turn, risk determines the character of investment returns. Thus, in Calm, risk is generally low and 'Directional' management styles perform best. In the opposite Turbulence zone, risks are high and managers that avoid volatility perform well. This analysis has both long-term and short-term applications. The approach is different because it focuses on liquidity, risk regimes, regime shifts and investment styles not assets.

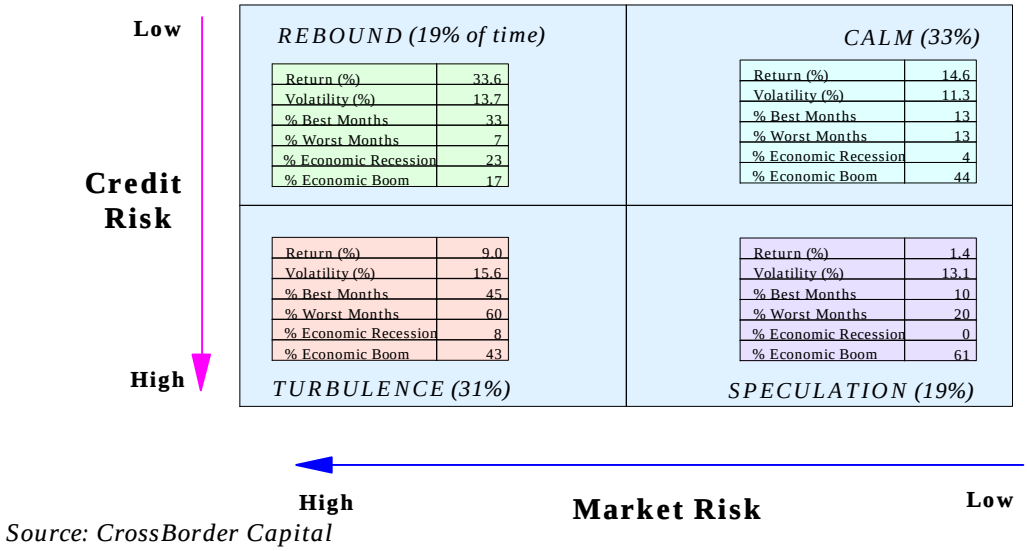
The Background: Growing and Shifting Investment Risks

Over the last few years, probably our main research theme has centred on the idea that growing financial markets mean ever-greater investment risk. Essentially, as the world gets smaller, risks get bigger. But along the way the character of risk may also change. Specifically, credit risk becomes much more important, and often following only a small change in the monetary climate. This is the essence of the Quantum Theory of Money.

Figure 1 tests this view. It shows monthly US equity market performance since 1946 split into four regimes (described later in more detail). Each regime has a generic name that roughly describes the underlying market state that generated the returns. Notice the radical differences in the return distributions between each regime. For example, the highest returns occur in 'Rebound' and the lowest in 'Speculation'. 'Calm' is the least volatile regime and 'Turbulence' contains both the highest incidence of 'best' monthly gains and 'worst' monthly falls in stock prices. The critical question is where are we now?

Put in terms of a choice of which one of four regimes we are now positioned in, we venture that most investors would not plum for 'Calm'. Ironically, their existing investment techniques are not well suited to anything apart from 'Calm'. This is our central point. It implies that the risk environment has changed, perhaps significantly. What you see is not what you want!

Figure 1: Where Is Wall Street? US Stock Market Performance, 1946-2000 By Regime



Source: CrossBorder Capital

Investment risk largely consists of two components: (1) market risk and (2) credit risk. We explain both later. Investment policy in the last quarter of the twentieth century was versed in terms of avoiding market risk, typically by diversification, but the next twenty-five years may be about avoiding credit risk. A heightened state of credit risk may not easily lend itself to diversification and, almost certainly, not diversification across the same array of assets. For example, assets that are uncorrelated by market risk may be highly correlated when judged by credit risk.

All of us are too complacent about the prospects for a general deterioration of credit risk. The swelling debt burdens of Japanese banks, European corporations and American households have been well flagged. But the odds of sovereign default by one or more national governments are barely whispered about. Do we really expect politicians to suddenly become paragons of fiscal prudence? Should we anticipate inflation to once again devalue state debts?

Four trends seriously question these assumptions. First, the balance sheet of many Western corporations may suffer as domestic economic growth slows and as competition from producers in emerging economies grow. Second, the demand shouldered by State Budgets in the West will themselves swell dramatically as demographic pressures cause welfare spending to soar. Third, there is nascent evidence of "State sponsored tax avoidance" at the regional level. This can already be seen within the European Union, where given the choice regions and states choose to use their tax receipts locally, not communally. Finally, the widespread existence of independent Central Banks probably significantly reduces the chances of monetisation and the devaluation of debt liabilities through inflation. In short, the odds of government default are, today, somewhat higher, e.g. Russia (1998), Argentina (2000) and possibly California, and will likely swell as the burdens of guaranteed future pension and welfare provision escalate.

If governments default, the value of government liabilities, i.e. the asset base of the financial system, must fall, and with it the credit-creation mechanism will crumble. As new credit cannot be extended, nor old credits rolled over, and as credit costs spiral so credit risks will skyrocket. And as credit risk changes, so must the asset management landscape.

Spurred by the benign force of falling inflation, the past two decades have favoured directional strategies or trend following, implemented widely across a diversified array of assets. This 'buy and hold' philosophy, where new money is always invested close to headline benchmark indexes and rarely altered thereafter, is under pressure. Many already believe that this long-standing business model for asset management must change irrevocably. But where does the industry go instead?

The simple alternative to 'buy and hold' (BAH) is 'buy and sell'. But many traditional managers eschew this position by declaring that they are not market timers. We would counter by asking if this also means that they are not risk managers? A BAH strategy in a volatile, sideways market will deliver zero returns. Clearly, in a directional or trending market there is no need to time purchases and high inter-asset correlations mean that asset selection is less important. Hence, risk control becomes a lesser function. In a period of *Turbulence*, where market risk, credit risk and volatilities are high, and correlations low, it becomes essential.

Even ignoring market risk may not lessen the need for overall risk management, if, as we suspect, credit risk is playing an increasingly important role. It could be argued that risk resembles a balloon: squeezing it in one spot (market risk) may cause it to bulge in another (credit risk).

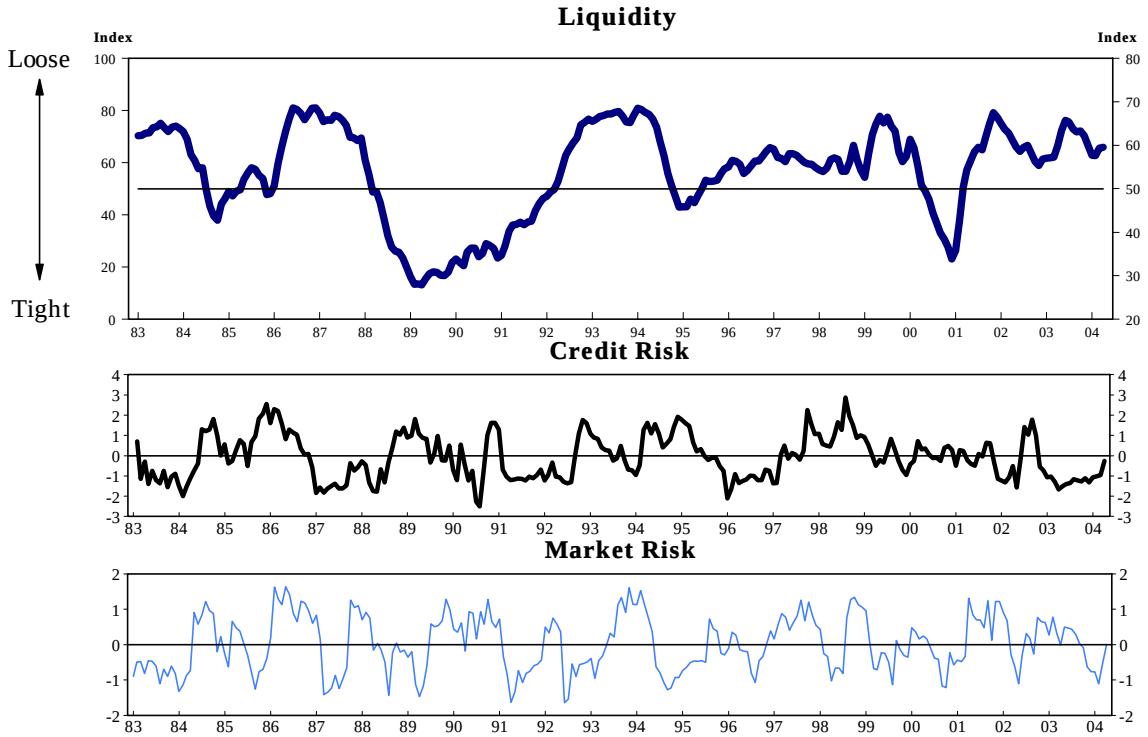
In fact, BAH is particularly well suited to a *Calm* world of low market risk and low credit risk. Anywhere outside these boundaries and the effectiveness of BAH is reduced. We venture that most investors and managers would be sympathetic to the view that the *Calm* regime is history, at least for now. The world faces greater risks and challenges than it did.

Most investors typically see risk as one-dimensional and another term for 'volatility'. Both are deemed to be bad. Consequently, volatility is discarded, mostly by diversification across 'alternative' assets. Today, hedge funds and particularly funds of hedge funds are seen as the 'alternative' assets. In the 1970s, the 'alternative' asset was real estate. In the 1980s, it was 'other G7' stock and bond markets. By the 1990s, emerging markets had become the alternative asset. Hedge funds are an established way of managing volatility and so, on the face of things their inclusion makes sense. Volatility is not all bad – there is 'good', say, systematic volatility as well as 'bad' volatility or noise. Many hedge funds can successfully trade volatility and boost returns. But we also have fundamental doubts over the efficacy of this strategy, not least if the balance of risk changes between market risk, e.g. volatility, and credit risk. Many hedge funds are as ill equipped to manage credit risk as traditional investors[1]. So why swap one BAH technique (in traditional assets) for another (in hedge funds)? If risk management is so important, then we should use it more widely. Hedge funds should be bought and sold, just like other assets, as the risk parameters change[2].

The Nature of Risk

The two main risk dimensions are market risk and credit risk. Market risk might otherwise be thought of as price risk or duration risk, and credit risk as the risk of default. Both are closely related to monetary factors and both change systematically. See Figure 2. Together, credit risk and market risk uniquely describe the risk environment and, in turn, determine the character of asset market returns. Thus, certain periods of risk favour particular assets over others.

Figure 2: Liquidity, Market Risk and Credit Risk



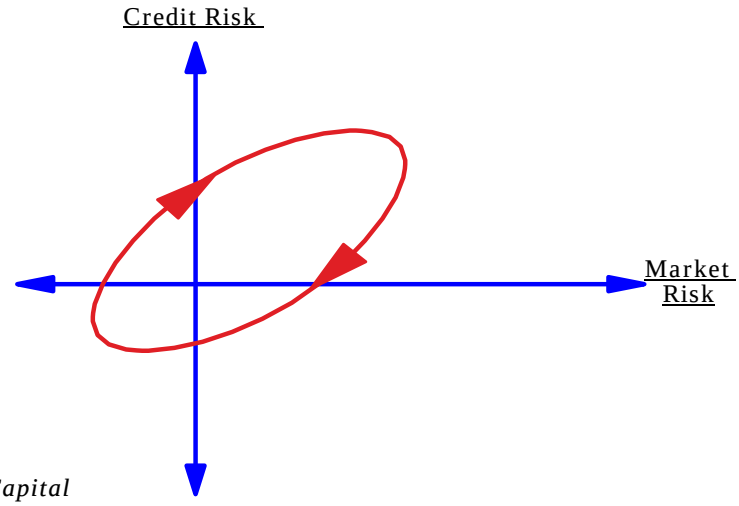
Source: *CrossBorder Capital*

[1] Hedge funds deliver poor returns when (a) market interest rates are low; (b) levels of market risk and credit risk are low, and (c) credit risk is rising strongly. See: "What Drives Hedge Fund Returns?" – August 2003

[2] See: "Adding Value Through Tactical Style Selection (TSS)" – December 2002

Figure 2 shows how liquidity leads both market risk – measured in the chart by a basket of volatilities of key assets and currencies – and credit risk – measured by a basket of sensitive credit spreads, e.g. mortgage spreads, US corporate spreads and the EMBI spread all judged relative to US Treasury Bonds.

Figure 3: The Risk Cycle

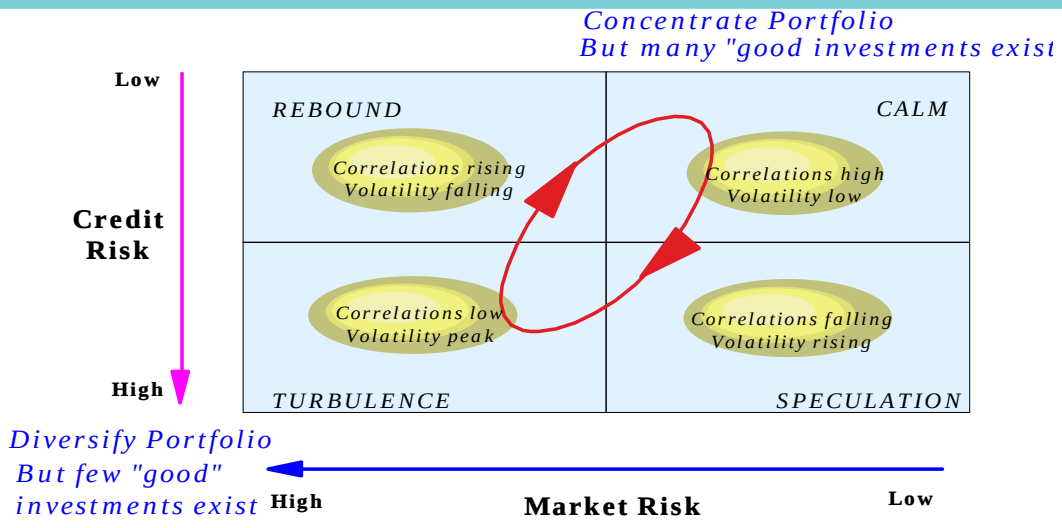


Source: *CrossBorder Capital*

However, in practice, the linkage between risk and return is neither smooth nor linear. **Liquidity and risk often see quantum jumps in their relationship.** See Figure 3. Specifically, certain trigger points exist where the risk environment changes significantly. We identify four discrete investment/risk regimes: in each regime asset performances show stark differences. This is the Quantum Theory of Money – like the science of particle physics, risk jumps discretely between different levels as the state variable, here liquidity, changes at the margin. Thus small changes in liquidity are often associated with large changes in risk.

The credit risk/market risk dimensions describe four risk regimes, e.g. high credit risk/ low market risk or *Speculation*; low credit risk/low market risk or *Calm*, etc. with each regime tagged by a generic name, *Calm, Rebound, Speculation* and *Turbulence.* See Figure 4. Associated with each regime are different variance and co-variance patterns. For example, *Calm* typically sees low volatilities and high correlations. Opposite quadrants typically reverse the character of returns. Thus, *Turbulence* sees high volatility, low correlations and a narrowing in the range of investment opportunities, which makes diversification even more essential.

Figure 4: Investment Zones/Risk Regimes



Source: *CrossBorder Capital*

A corollary explains the similar pattern of variance and co-variances among individual manager returns. In *Calm*, performance statistics converge and in *Turbulence* they diverge. The value of Benchmark indexes is surely greatest in the *Calm* regime when managers are closely clustered around a central value because the indexes can accurately pinpoint 'minor' basis point deviations from benchmark. In the *Turbulence* regime when performance is disparate, the performance distribution itself is an accurate measure of the investment risks. Outliers should be obvious. Benchmark indexes have less value if most managers 'miss' them (i.e. have large tracking error) most of the time.

Figure 5 shows an important result for asset allocators. It reports the results of a test for the normality of returns across twenty independent asset classes. To facilitate good prediction, the return distributions should approximately follow the 'normal' probability distribution or bell curve. In other words, predicting and managing asset returns that have 'fat tails', i.e. occasional large drawdowns is difficult.

The results in Figure 5 cover a sample period of monthly returns for the 1994-2003 period. This represents approximately two full investment cycles. For the entire sample period, very few asset returns appeared normally distributed – the 'critical' points in statistical terms lie above 0.3 on the left axis. Only three – *Equity Market Neutral*, *Statistical Arbitrage* and *Short Seller Hedge Funds* – were statistically significant. However, if the data are recompiled into the previously defined four risk regimes and the Shapiro-Wilke test re-run for each complete regime, then the results look very different. Virtually every asset class passes the 'normality' test, with the clear (and probably intuitive) exception of *Merger Arbitrage Hedge Funds*. The conclusion is important. **It tells us that the most important aspect of asset allocation is understanding regime shifts. Asset returns are normal within risk regimes: they are non-normal between them.**

Style Analysis

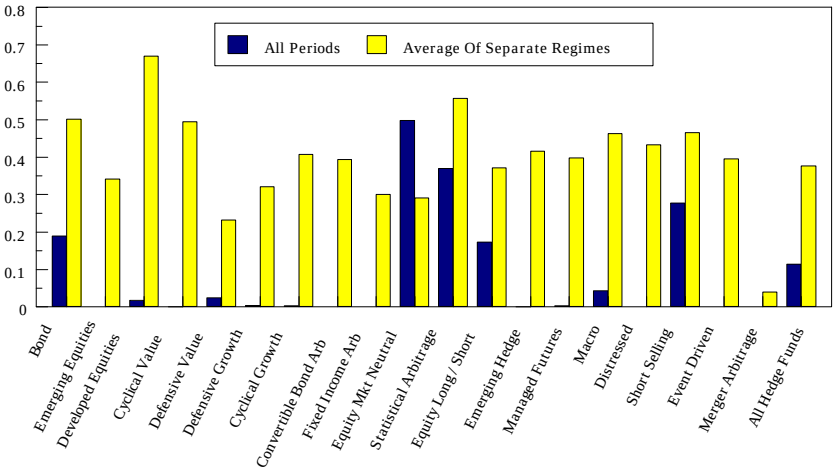
The central role of risk and the choice of four possible risk states highlight the need to manage and control investment risk. These risk regimes are characterised more by differences of management style than asset choice. **Getting the management style right, i.e. which risks to take and which to avoid, is often more important than choosing from among a simple range of assets, e.g. stocks, bonds and cash.** For example, a directional style might include both long duration bond and equity assets, whereas a strategy that avoids volatility might include short duration bonds, high yield, blue chip equities and some managed futures funds. Thus, investment styles will likely combine these basic assets in certain permutations rather than focus exclusively on one type. To draw an analogy by style investors, we choose to invest in the 'racing drivers' rather than the 'racing cars' (i.e. the assets).

Investments must be judged on the overall distribution of their returns and not simply on the average return. In other words, other parameters such as standard deviation (volatility), skewness (drawdown) and kurtosis (lumpiness) are also important. **It is these other risk statistics that change most between regimes.**

Each of the four risk regimes is associated with a certain return distribution and, therefore, is best suited to a specific management style. For example, the low market risk and low credit risk associated with the *Calm* risk regime favours directional investment strategies, e.g. the BAH we noted earlier. **The important corollary is that the return distributions for management styles are normally distributed, even though the underlying assets may not be.**

Investment techniques, typically, fall into two broad types: (a) trend following and (b) mean-reversion. Directional strategies are a trend following technique. Mean-reverting techniques typically comprise: (i) credit arbitrage; (ii) equity arbitrage, and (iii) volatility arbitrage. Each technique is uniquely linked to a risk regime. Thus, *Turbulence* is most associated with volatility-based strategies. *Rebound* – when liquidity conditions are rising from lows – favours credit arbitrage techniques, e.g. spread and yield curve trades. *Speculation* – a late-cycle period when credit risks are rising – favours equity arbitrage, e.g. merger arbitrage, value investing. See Figure 5.

Figure 5: Risk Regimes Favour Certain Investment Techniques



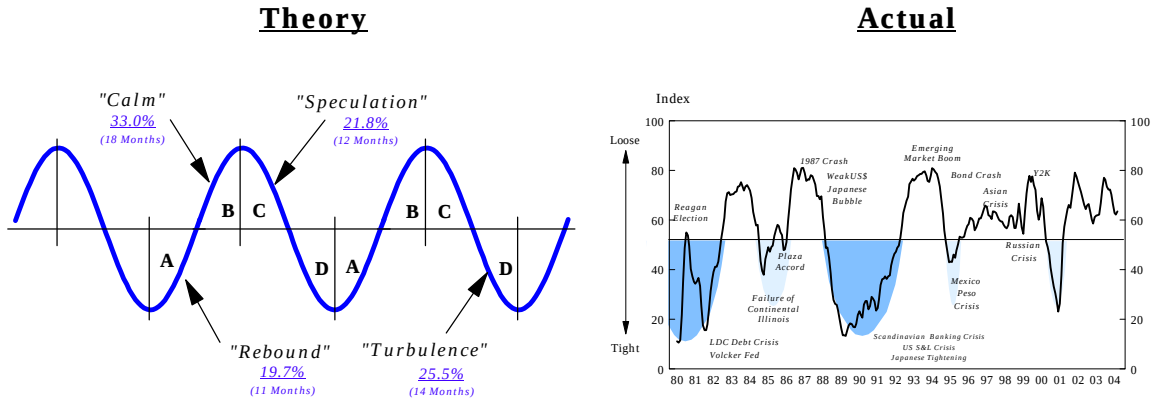
Source: *CrossBorder Capital*

Market risk and credit risk are systematically determined by liquidity. Liquidity measures the flow of means of purchase money, i.e. cash plus borrowings. It is not the so-called 'money supply', which measures 'uses' not 'sources' of funds. Our research finds that the level of liquidity is positively correlated to duration and negatively correlated with volatility. Thus, high levels of liquidity favour long duration assets and low volatility. Credit risk, as reflected by credit spreads and default rates, is determined more by the direction of liquidity. Rising liquidity tends, therefore, to be associated with falling credit risk.

The monetary environment changes cyclically. Cycles can be both long- (30-50 yrs) and short-term (5-10 years). As such, Strategic Asset Allocation (SAA) needs to focus on the long-term cycle, and Tactical Asset Allocation (TAA) needs to look at the short-term cycle.

Figure 6 shows the phases of the liquidity cycle and how they line up with our four risk regimes.

Figure 6: The Global Liquidity Cycle - Theoretical and Actual, 1980-2004

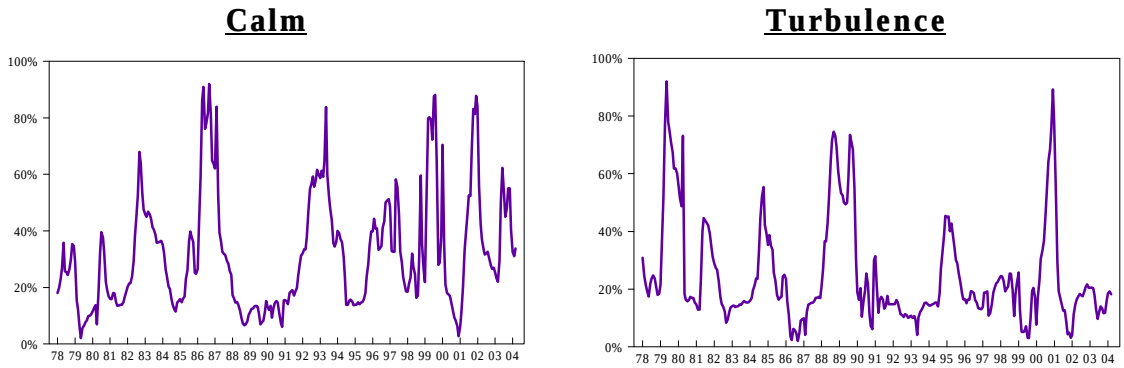


Source: CrossBorder Capital

Given *a priori* that an equal time is spent in each phase of the cycle, a neutral investment position will probably equally balance assets between the four management styles. In other words, it will give similar (i.e. 25%) odds to each of the four underlying risk regimes. Yet, history shows that the time spent in each zone varies considerably. By definition, this describes the character of the investment period. For example, during the volatile 1970s, markets spent 42.1% of time in the *Turbulence* zone and only 18.7% in *Calm*: not surprisingly directional strategies did poorly. Similarly, we estimate that in the Depression years 1929-1933, markets spent over 50% of the time in *Turbulence*.

In the 1980s and 1990s, directional strategies performed far better. This is not surprising when we consider that the *Calm* regime lasted 29.8% and 34.5% of the time, respectively. Moreover, the 1995-1999 Bubble Years saw *Calm* occurring for 38.7% of the period. The odds of *Calm* are currently in short-term cyclical decline. Figure 7 highlights the estimated probabilities of the *Calm* and *Turbulence* periods. These estimates derive directly from the level and momentum of the liquidity cycle shown in Figure 6.

Figure 7: Probabilities of Calm and Turbulence Risk Regimes, 1978 - 2004



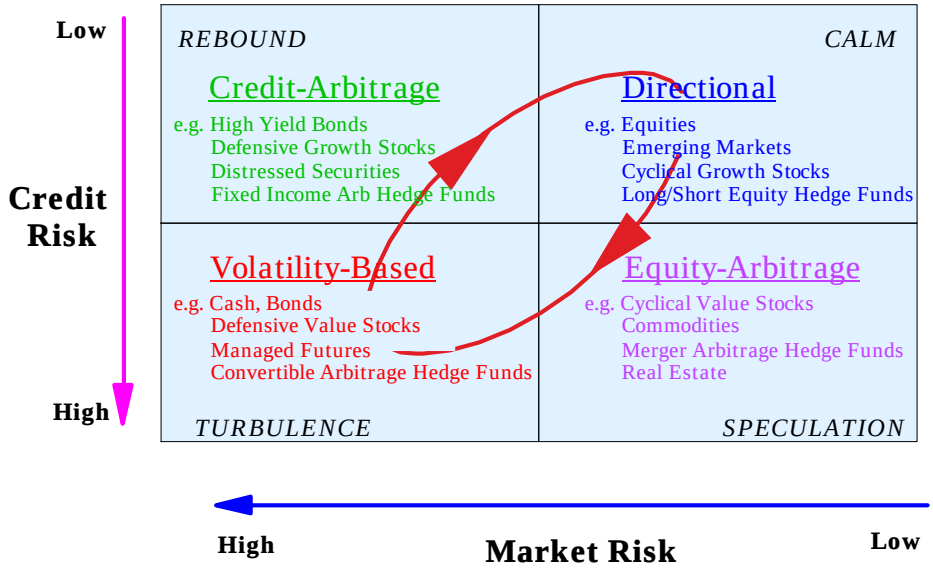
Source: *CrossBorder Capital*

Strategic Versus Tactical Asset Allocation (SAA Vs. TAA)

Our approach to TAA is purely quantitative. Liquidity determines risk, and risk, in turn, determines investment style. Figure 7 shows the odds of two risk regimes, and each regime has an appropriate investment technique, which is uniquely associated with it.

Short-term liquidity cycles are based on Central Banks' response to the private sector business cycle. They tend to average 5 years with more pronounced moves every 10 years. Monitoring monthly liquidity can pinpoint the current position in the short-term cycle and help to predict how the cycle will unfold over the coming 6-18 months. This will facilitate tactical investments to overlay on the SAA. Figure 8 shows our tactical allocations, first, to broad investment styles, e.g. directional, volatility-based; and then, second, to basic asset classes, e.g. bond, equities. In our framework, the bond-equity decision is logically secondary to the management style decision.

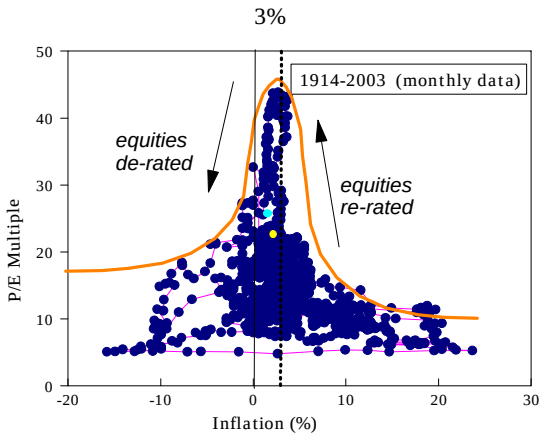
Figure 8: Tactical Asset Allocation - Styles Not Assets



Source: *CrossBorder Capital*

The SAA decision is necessarily more qualitative. It might be based on factors that determine the long-term monetary environment, such as demographics, debt and taxation. Although, by definition, long-term, all farsighted strategic decisions need to be systematically and periodically reviewed in the short term. Figure 9 shows how sensitive Wall Street's valuation has been to different inflationary environments. The chart demonstrates that US P/Es are highest at those times when the inflation rate is around 3%. What's more, small changes in the inflation rate either side of this critical level can cause a dramatic collapse in valuation levels.

Figure 9: P/E Multiple of US Equities And Inflation, 1914 - 2003 (Monthly Data)



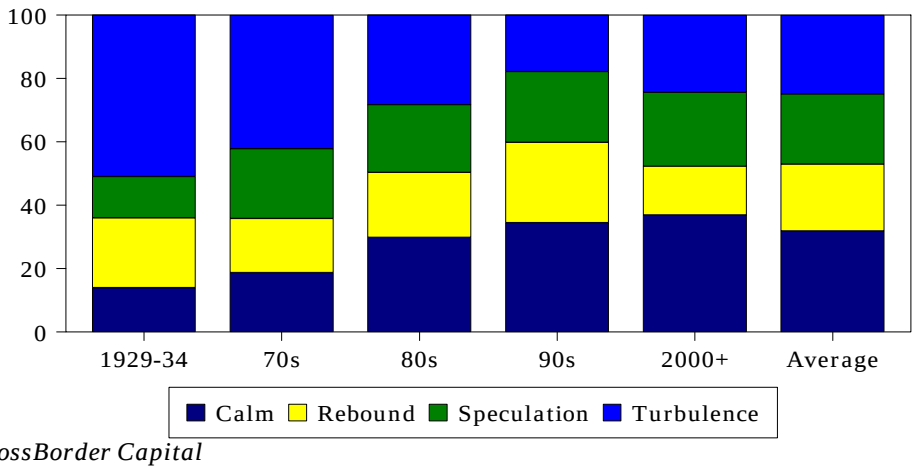
Source: *CrossBorder Capital*

Inflation is a monetary phenomenon. Figure 9 shows that optimal SAA is dependent on the monetary environment. The four-quadrant risk regime framework can further refine this model. Inflation is plainly important, but credit risk and market risk are more specific threats, and these should be addressed by changing management style rather than just asset mix.

Figure 10 highlights the average time spent in each regime by decade. The key question to ask is '*will the future be like the past?*' Most asset allocators would agree that, looking ahead, the 1980s and 1990s type *Calm* markets were unusual and will not be easily repeated. For example, the worsening debt backdrop and possibility of rising credit risk surely point to lower than benchmark odds of *Calm* and far higher odds of *Turbulence*. In other words, SAA should allocate greater funds to volatility-based managers than directional managers.

What's more, an assumption of greater credit risk would not necessarily favour greater bond exposure. Rather it would encourage a reduced exposure to credit arbitrage trades and a general shrinkage of asset duration. Greater allocations should be made to managers that excel at short-term trading, e.g. managed futures funds, higher cash holdings and overlay strategies that are long volatility.

Figure 10: Time Spent in Risk Regimes By Period



Source: *CrossBorder Capital*

Future investment policy will hinge on understanding processes not assets. In other words, management style will be key and the appropriate management style will change as the investment backdrop or risk regime changes. Thus, asset allocation should take account of risk regimes and, more specifically, the implication of regime shifts. An asset allocation and investment technique that is well suited to the Calm regime will likely do poorly during other risk regimes, such as Turbulence. Tactical Asset Allocation (TAA) should manage risk by monitoring the monetary/ liquidity cycle. At the very least it should try to spot upcoming periods of Turbulence when existing return patterns may be suddenly and damagingly derailed, such as 1987/88, 1994, 2000 and 2004. This is not market timing: rather it is risk management and specifically involves (undiversifiable) credit risk management.

Strategic Asset Allocation (SAA) is more difficult to implement and necessarily more qualitative. The risk regime framework is again important. Strategic risk could be managed by investing with respect to a "normal" cycle, where normal is defined by long-term history. Thus, taking a 20-year cycle, if markets have already used up, say, 19% of their typical 33% time span in Calm in the previous 3.8 years (i.e. 0.19 x 20), they only have another 2.8 years ((0.33-0.19) x 20) or 17% left (i.e. 2.8/ (20-3.8)). Other strategies should be accordingly rebalanced, i.e. raised from a 67% to 83% probability/ allocation.

Figure 11: Summary

Future Asset Allocation: Styles Not Assets

- Regimes favour investment styles and regime shift critical to asset allocation
- Strategic Investment in Management Styles
- Tactical Overlays
- (Undiversifiable) credit risk set to increase
- "Good" and "bad" volatility exists. Use volatility to improve performance. Do not discard it as Modern Portfolio Theory (MPT) suggests
- SAA must be subject to frequent short-term review

CROSSBORDER CAPITAL LIMITED

MARCOL HOUSE
289-293 REGENT STREET
LONDON W1B 2HJ
TELEPHONE 020 7535 0400 FACSIMILE 020 7535 0435

REGULATED BY THE FINANCIAL SERVICES AUTHORITY

Global View

July 2011

What Can Yale Teach Us? Lecture 2

Nearly ten years ago we wrote a research report entitled 'What Can Yale Teach Us?' It analysed the unorthodox asset allocation policy of The Yale Endowment Fund, an institution that led innovation in asset allocation over the previous decade with great practical success. Its allocation to 'alternatives', e.g. hedge funds, private equity and real assets, was at the time nearly three times higher than other institutional investors. We then argued that its target allocation was remarkably close to our theoretical 'ideal' based upon likely future investment regimes.

Unlike the Traditional asset allocation mix, the Yale model was then well protected against rising credit risk and less dependent on the continuation of the recent 'Calm' investment regime. However, the following years have seen Yale's asset allocation move further away from the conventional peer group benchmarks, but in the process its portfolio has lately become much too skewed into specific future investment regimes. In short, in trying to become more diversified across assets, Yale has become less diversified across probable events.

The Yale Endowment

The unusual asset allocation of the US$16.7 billion Yale Endowment has long been a talking point in America, but the growing responsibilities of trustees in Europe is making it an issue here too.

The Yale Endowment shuns traditional benchmarks. This bold move has allowed it to dramatically outperform its peers and deliver returns well-above inflation, and this despite a whopping 24.6% decline in value in FY2009:

"Over the past ten years, the Endowment grew from $10.1 billion to $16.7 billion. With annual net investment returns of 8.9 percent, the Endowment's performance exceeded its benchmark and outpaced institutional fund indices. The Yale Endowment's twenty-year record of 13.1 percent per annum produced a 2010 Endowment value of over six times that of 1990." (Yale Endowment Report, 2010)

Figure 1
Yale Endowment and Its Peers Allocations, Targets and Annual Risk/Return Assumptions
Percent

	Expected Real Returns	Volatility	Yale Target Allocation	Yale Actual Allocation	Educational Institution Mean	Traditional Asset Allocation
Domestic Equity	6.00%	20.00%	7%	7.00%	17.10%	45%
Domestic Fixed Income	2.00%	10.00%	4%	4.00%	15.30%	15%
Foreign Equity	6-7%	21.30%	9%	9.90%	18.10%	15%
Hedge Funds	5-5.5%	5.00%	19%	21.00%	26.40%	10%
Private Equity	10.50%	27.70%	33%	30.30%	10.20%	5%
Real assets	6.00%	15.50%	28%	27.50%	11.60%	5%
Cash	-	-	0%	0.40%	2.80%	5%
TOTAL	6.20%	14.70%	100%	100%	100%	100%

Note: In the range given for Foreign Equity lower figure denotes Developed Markets and higher figure Emerging Markets. In the range given for Hedge Funds lower figure denotes Event Driven strategies and higher figure Value Driven. Educational Institution Mean is Yale peer group. Traditional Asset Allocation is a notional figure that is supposed to reflect the median pension fund.

Source
CrossBorder Capital

96 Baker Street
London W1U 6TJ
Tel (44) 20 7908 2800
crossbordercapital.com

Yale's six chosen asset classes (see Figure 1) are characterised by differences in their expected response to economic conditions, such as price inflation or changes in interest rates, and are weighted in the Endowment portfolio by considering their risk-adjusted returns and correlations. The theoretical framework relies on a mean-variance approach developed by Nobel laureates James Tobin and Harry Markowitz.

Not surprisingly, the Endowment expects its recent excellent results to continue:

"*The target mix of assets produces an expected real (after-inflation) long-term growth rate of 6.2 percent with a risk (standard deviation of returns) of 14.7 percent.*" (Yale Endowment Report, 2010)

With 10-year US Treasuries currently yielding only a tad above latest consumer inflation, these are mouth-watering prospective returns. What lies behind these numbers is Yale's unique approach to endowment management, which is characterised by a focus on equities and a strong emphasis on alternatives:

"*Over the past two decades, Yale dramatically reduced the Endowment's dependence on domestic marketable securities by reallocating assets to nontraditional asset classes. In 1990, almost three-fourths of the Endowment was committed to U.S. stocks, bonds, and cash. Today, target allocations call for 11.0 percent in domestic marketable securities, while the diversifying assets of foreign equity, private equity, absolute return strategies, and real assets dominate the Endowment, representing 89.0 percent of the target portfolio.*"

Yale justifies this:

"*The heavy allocation to nontraditional asset classes stems from their return potential and diversifying power. Today's actual and target portfolios have significantly higher expected returns and lower volatility than the 1990 portfolio. Alternative assets, by their very nature, tend to be less efficiently priced than traditional marketable securities, providing an opportunity to exploit market inefficiencies through active management. The Endowment's long time horizon is well suited to exploiting illiquid, less efficient markets such as venture capital, leveraged buyouts, oil and gas, timber, and real estate.*" (Yale Endowment Report, 2010)

The average US educational institution still invests over 17% of assets in listed domestic US equities, but Yale's target allocation is just 7%. See Figure 1. The 'alternative' flavour is also continued within the equity portfolio with around half of foreign investments devoted to emerging market stocks. Neither is Yale particularly attracted to fixed income assets, which are slashed to a 4% allocation from the more traditional level of 15%. Bonds have the lowest historical and expected returns of the Endowment's six asset classes and are deemed to be more liquid and thus more efficiently priced markets. The illiquidity premium is key to Yale's optimistic alpha projections. Yet the managers also pitch the fund towards equity-like risks for practical budgeting reasons.

"The need to provide resources for current operations as well as preserve purchasing power of assets dictates investing for high returns, causing the Endowment to be biased towards equity. In addition, the University's vulnerability to inflation further directs the Endowment away from fixed income and towards equity instruments. Hence, 92.5 percent [now 96%, 2010] *of the Endowment is targeted for investment in some form of equity, through holdings of domestic and international securities, real assets and private equity."* (Yale Endowment Report, 2003)

The Traditional asset management model can be crudely described by an 80:20 rule, since roughly 80% of the portfolio is allocated to marketable assets, such as listed stocks and bonds, and only some 20%, or often sometimes less, is allocated to cash and less liquid alternative investments. We show a notional allocation to represent this mix. By definition, probably no single fund has this exact allocation. It should be taken as a tendency, and one, moreover, that can adapt through time. For example, a decade ago Traditional investors had an even greater emphasis on domestic marketable assets, and far less than this 20% allocation given over to alternatives. Times change. Yale Endowment's current allocation to alternatives (e.g. hedge funds, private equity and real assets) is remarkably four times this figure.

According to the Endowment: "*Alternative assets … tend to be less efficiently priced than traditional marketable securities, providing an opportunity to exploit market inefficiencies through active management.*" Over the past ten years, Yale's portfolio of hedge funds returned 11.5% per annum with low correlation (0.16) to domestic US stocks and bonds. Real estate, oil and gas, and timberland investments share similar sensitivities to inflation and high cash flows. They provide stability to the Endowment during periods of financial market turmoil, albeit at the cost of underperformance during bull markets.

Yale's ability to take a long view allows them to add to their prospective alpha opportunistically when, say, forced selling by others creates asset mispricing. Yale's managers note that notably during financial crises, investors often narrow their perspective to an unreasonably short time horizon and often engage in counter-productive activities. This merits Yale's longer-term focus and allows them to benefit from an illiquidity premium:

"*Viewed in the narrow timeframe of the* [2008] *crisis, liquid assets performed better than illiquid assets and safe assets performed better than risky assets. Viewed in a timeframe more appropriate for a long-term investor, well-chosen positions in illiquid assets perform better than otherwise comparable liquid assets and well-selected portfolios of risky assets produce better returns than risk-free U.S. Treasury securities.*"
(Yale Endowment Report, 2010)

Nothing succeeds like success. The forces of competition have forced others to think boldly too. Investment strategy is shifting away from straight performance management to risk management. Trustees now care less about being a few basis points below traditional benchmarks and are more concerned with preserving capital in a down market. Could the Yale Endowment model of virtually no bonds, few marketable assets and a heavy reliance on alternatives become the new benchmark?

Inside The Black Box

What drives Yale's audacious allocation is a radically different view of the world and the likely future risks. **Every asset allocation implies a set of underlying risk assumptions.** So, can we reconstruct Yale Endowment's implicit risk assumptions? One way to unlock the assumptions behind the Yale model is to use a scenario analysis. Various states of the world can be described by their economic and financial features, e.g. recession/expansion, high/low returns, volatility, skew, drawdown and persistence of its outliers.

We use the *CrossBorder Capital* four regime taxonomy of investment markets to describe the likely states of the World. An 'ideal' asset allocation can then be created for each state. For example, traditional equities will likely perform best in a calm, low volatility regime, whereas a more volatile backdrop might favour cash and certain hedge fund strategies. Normally, the probabilities of each risk regime are based on our quantitative assessment of overall financial liquidity conditions from the historic time spent in each phase of the Global Liquidity Cycle (see Figure 2), but in this case Yale's chosen asset mix implies them.

Yale's risk assumptions are reverse-engineered from a mean-variance analysis, conditional on each regime, with the weights attributed to each state based on the implied Yale probability. We essentially use this approach, although we target duration risk rather than variance or volatility risk, and assess optimal exposures to each regime from a qualitative investor survey[1]. The 'ideal' asset allocation within each risk regime is decided qualitatively from a selected sample group of major investors: each being asked to choose allocations to each asset class that best satisfied a set duration target, regime-by-regime, rounded to the nearest 5%.

Our philosophy argues that investors target a specific desired duration (D*) and will try to best meet this duration target by changing their asset mix through time and across investment regimes. Duration is formally defined as the time-weighted present value of future cash receipts and cash payments. It summarises in a single statistic the average investment time horizon, e.g. 11.8 years.

[1] In mathematical terms,

$H.\ pr(s) = w$
$pr(s) = H^{-1}.\ w$

where H is a matrix that incorporates the asset allocation model; s denotes the states of the World or investment regimes; pr(s) represents the probability of these states, and w is a vector of asset allocation weights.

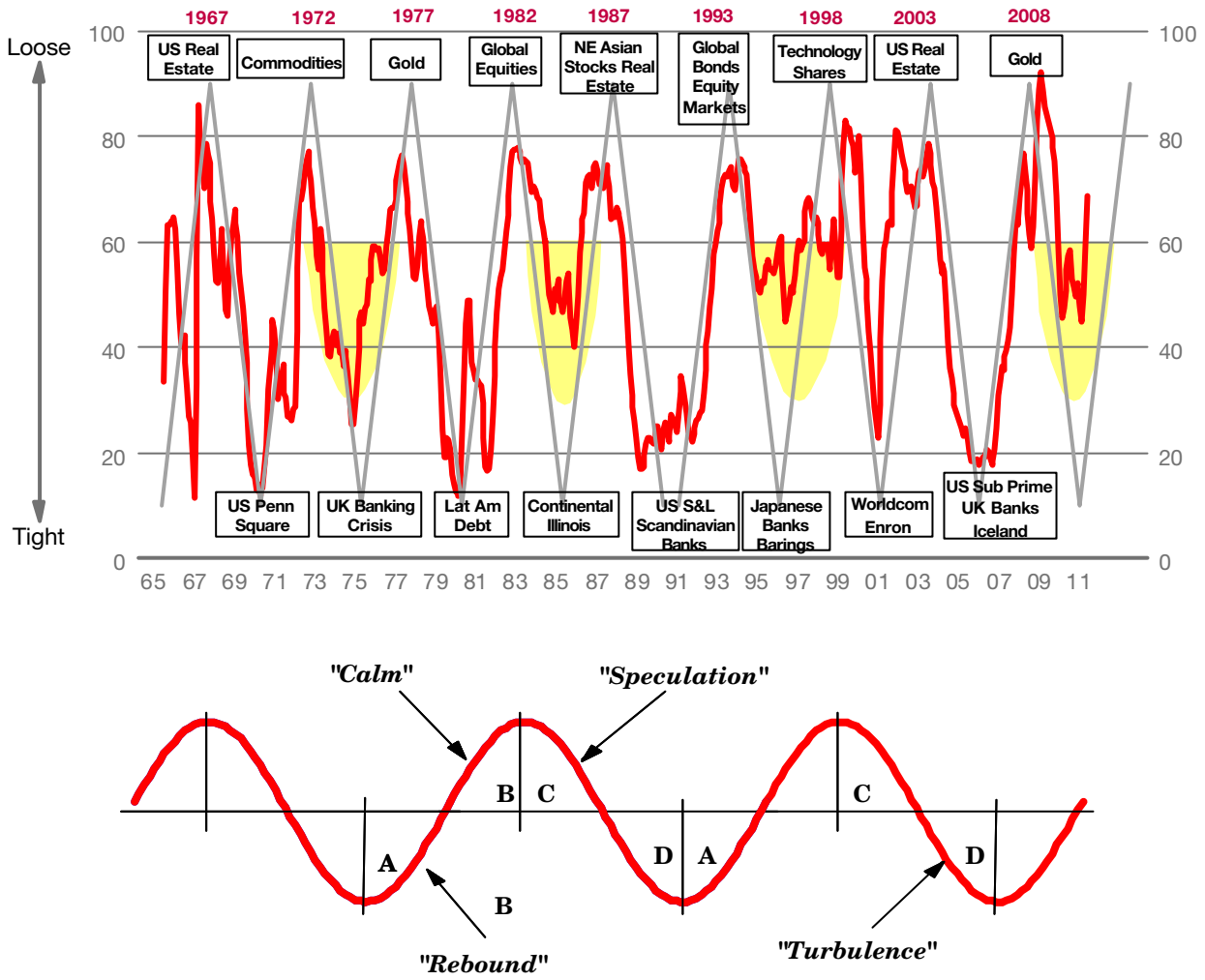


Figure 2
The Global Liquidity Cycle and Schematic Taxonomy
Index 0%-100% Monthly 1965-2011

Source
CrossBorder Capital, US Federal Reserve, Bank of Japan, ECB, Bank of England, People's Bank of China, IMF

The duration target is sensitive to the assumed state of the World and this, in turn, can be described by liquidity conditions. The link to liquidity is provided by duration, because cash is the zero duration asset. Therefore, during periods of very tight liquidity, the duration target would likely shrink. We define risk as the gap between actual portfolio duration and targeted desired duration. Risk aversion and the ability to reshuffle assets will dictate how quickly it takes actual asset duration to converge back to this target.

In short, because all assets yield duration, the target asset mix must be determined by the assessment of future liquidity needs. Liquidity fluctuates cyclically and to better appreciate its effects, we divide up the liquidity cycle into four contiguous phases: *Rebound, Calm, Speculation* and *Turbulence*. Each name is a generic description of the typical investment climate. The time spent in each phase tends to change from cycle-to-cycle. Thus, periods of generally scarce liquidity tend to see extended *Turbulence* phases.

Each of the four phases of the liquidity cycle can be identified by their different risk levels. The *Calm* phase is characterized by generally low risk, both credit risk and market risk. Credit risk refers to the ability to raise funding liquidity. Market risk is a meaure of the ability to trade in size at close to prevailing prices.Thus, *Turbulence* is a state where both credit risk and market risk are high. *Rebound* and *Speculation* are transitional regimes. *Rebound* features low credit risk and high market risk, and *Speculation* sees high credit risk and low market risk. We equate the traditional investment cycle with the liquidity cycle. Our liquidity-based, risk regime framework emphasises the importance of correctly identifying the prevailing investment climate, rather than forecasting specific returns. Investment performance depends on probability distributions, not accurate point forecasts. For example, grey skies increase the odds of getting soaked, but they don't always predict rain.

The broad characteristics of each regime (average proportion of time spent in each phase 1970-2011 is shown in brackets) are:

***Rebound* (20.4%):** Liquidity below average, but rising. Credit risk low and market risk high. Volatilities falling and correlations among asset classes rising. Returns tend to be positively skewed. Good returns from credit-based strategies. Economy in recession, but Central Banks undertaking monetary easing. Inflation low.

***Calm* (29.8%):** Liquidity above average and rising. Credit risk and market risk low. Intra-asset correlations high but volatilities low. Returns on directional assets high and steady. Economy in early growth phase.

***Speculation* (22.8%):** Liquidity above average, but falling. Credit risk rising and market risk still low. Correlations among asset classes breaking down and volatility starting to rise. Returns tend to be of low quality and negatively skewed. Valuations stretched and possibility of sharp correction. Late-cycle investments, such as real assets, performing well. Economy in strong recovery. Inflation accelerating. Central Banks start to tighten.

***Turbulence* (27.1%):** Liquidity below average and falling. Credit risk high and market risk high. Volatility near peak levels and correlations among asset classes low. Economy at peak levels and inflation under attack by aggressive Central Banks. Yield curves inverted. Non-directional investment best. Stock markets have traditionally seen many of their worst months, but also several of their best. Return tails 'fat' and persistent. On average, returns low.

Figure 3 highlights how the shape of the liquidity cycle had changed over time. During the mid-to-late 1970s, the proportion of time spent in the *Turbulence* phase jumped dramatically to 46.8%. The more favourable investment climate of the 1990s saw *Calm* average 33.0%. Over the fifty year history of our database, the *Calm* regime has dominated. More importantly, the generally more benign investment phases that see either above-average, or at least rising, liquidity make up 72.9% of the history. Plainly, this may or may not be a useful future guide, but it is interesting to note that most traditional asset allocation benchmarks, with their heavy commitment to listed equities, were mostly devised during *Calm* investment periods and therefore it seems likely that they are best-suited to this phase.

Figure 4 shows examples of the underlying probability distributions for global equities, split by regime. The distributions vary, as indicated earlier, not only by their average monthly return and volatility, but also by their skew, drawdown and by the fatness of their return tails.

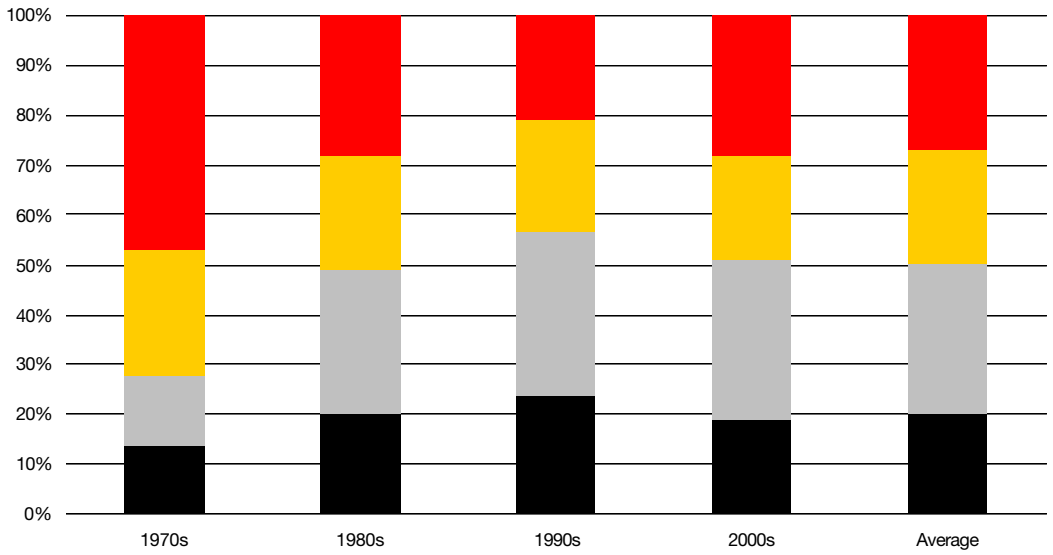
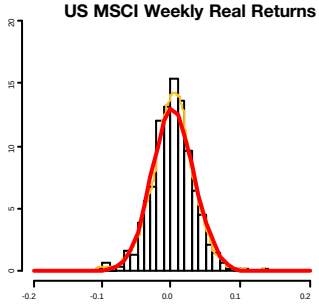
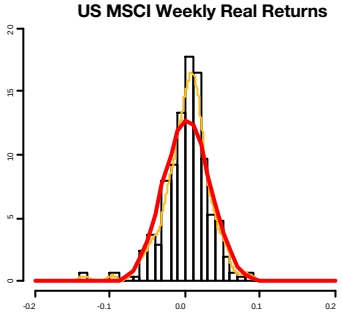


Figure 3
Probabilities of Risk Regimes Based on Financial Cycle
1970-2011
Source
CrossBorder Capital



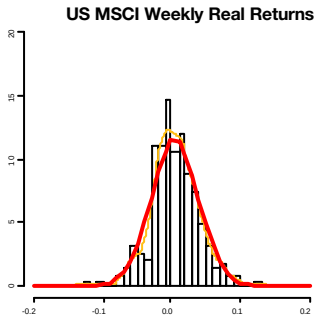
Calm

- Equity best asset class (good "quality" of returns)
- High diversification benefits
- Commodities and bonds underperformers
- Aver. weekly return: 0.22%
- Aver. weekly vol.: 3.08%



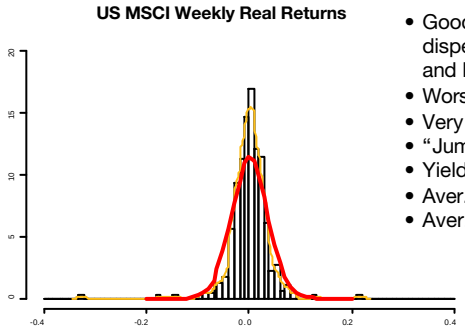
Speculation

- Bad "quality" of returns (low return / risk)
- High diversification benefits
- High likelihood of sell-offs (negative skewness)
- Fat tails
- Bad environment for traditional VaR models
- Aver. weekly return: 0.17%
- Aver. weekly vol.: 3.12%



Rebound

- Good for TAA: high dispersion across winners and laggards
- Best quality of returns for equity and commodities
- Yield curve steepens
- Good for commodities
- Aver. weekly return: 0.44%
- Aver. weekly vol.: 3.46%



Turbulence

- Good for TAA: high dispersion across winners and laggards
- Worst quality of returns
- Very fat tails
- "Jumpy" volatility.
- Yield curve tends to invert
- Aver. weekly return: 0.15%
- Aver. weekly vol.: 3.48%

Figure 4
Regime Returns - Global Equities
1985-2011
Source CrossBorder Capital, Datastream

These four distributions can then be combined to form a notional hybrid return distribution, where the weights are assigned according to the regime probability. **The hybrid distribution is more flexible than traditional 'normal' distributions, or bell curves, in that by altering the underlying regime weights, it can have, say, fatter tails and more-or-less skew.** It is these implied weights, per asset allocation, that we are interested in uncovering.

Co-incidentally, as far as we can tell, Yale appears to use a similar philosophy in deciding its strategic asset allocation:

"Empirically, financial economists find that market returns exhibit fat tails —a greater frequency of extreme results — than would be found in normal distributions with the same mean and variance. Though Monte Carlo simulations often use normally distributed random numbers, Yale normally addressed this weakness by running simulations that transition between different world states, each with its own distinct underlying normal distribution. Defining various world states, such as bear and bull markets, allows Yale to improve specification of the asset class characterizations. For example, by increasing the likelihood of a bear market state, Yale can control the skew and fatness of the left tail in the overall distribution, improving the description of financial market reality relative to an unadjusted normal distribution." (Yale Endowment Report, 2010).

Conclusion: Alpha Or Phi Beta Kappa?

Ideally, investors should diversify their portfolios across states of the World, or events, rather than assets. Having a wide spread of assets is a necessary, but it is not a sufficient condition, to be risk neutral. Asset allocation is not about point forecasting, i.e. getting the 'best', it is also about avoiding the 'worst' outcomes and not ending up in the lower performance deciles. In practice, this may mean deliberately choosing the second best strategies in each investment regime, because these may well prove to be 'best' on average overall. Statistically, they have the highest conditional outcomes. Or in sporting-speak, the decathlon gold medalist may not win any single one of the ten events, but he or she is still victorious on overall points.

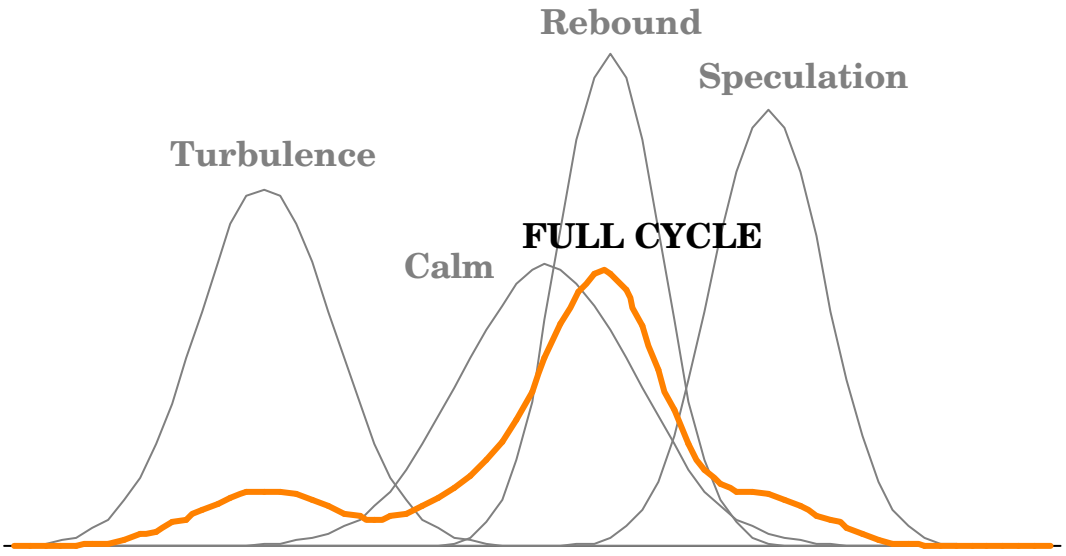


Figure 5
Creating a Hybrid Return Distribution from Underlying Regime Returns
Schematic

Source CrossBorder Capital

According to the liquidity cycle data shown in Figure 3, the *Calm* investment regime, the one best-suited to Traditional asset allocation, occurs only around 29.8% of the time. Understandably, with their ability to take a longer-term view, Yale Endowment have sought to move away from this asset mix and so benefit from the excess returns available from less liquid, alternative investments.

However, when analysed by their implied allocation to investment risk regimes, Figure 6 shows that in nobly seeking to avoid excessive exposure to the *Calm* phase, Yale Endowment's asset allocation has overshot in the other direction. Their latest FY2010 asset allocation implies a skew towards just two out of our four investment regimes: *Calm* and *Speculation*. **On paper, the Endowment appears to be widely diversified across their six asset classes, but their chosen mix makes them very polarised to specific events.** According to our classification, they are over-exposed to *market risk*. This might seem paradoxical because on paper they have few marketable assets. But market risk heightens volatility, which is often a negative for hedge fund returns. On top, high market risk is often associated with an inability to raise new equity funding, particularly late in the investment cycle, and this can hit private equity returns hard. Yale currently has a whopping 52% of its assets targeted to these two asset classes.

Last year's decision to switch a sizeable 9% points of the portfolio from real assets largely into private equity and hedge funds, explains the huge regime skew to *Speculation*. A year ago, Yale had only a 22.2% exposure to *Speculation* and a large exposure to *Turbulence*. Now they have 67.7% in *Speculation* and zero allocated to the *Turbulence* regime. In practice, our calculations show that Yale might have been better to rebuild its traditional fixed income holdings.

Thus, unconsciously, they have dramatically reduced their diversification across possible events, making themselves exposed, indirectly to high market risk and to late business cycle risks. They have little or no exposure to either the *Turbulence* or *Rebound* phases, periods when credit-sensitive strategies tend to perform well. Thus, the Yale Endowment will typically outperform in the upper half of the investment cycle, i.e. such as occurred in FY2006 and FY2007, but they will bomb in the lower half that features *Turbulence* and *Rebound*, i.e. FY2008, FY2009 and FY2010.

How does Yale compare to the 'ideal'? Using the average regime probabilities reported in Figure 3, we can derive an 'ideal' asset allocation. The result is shown in Figure 7. **Around 40% of this 'ideal' portfolio is allocated to marketable assets, spread equally across domestic equity, domestic fixed income and foreign equity; 23% goes into hedge funds; 20% into real assets and 11.2% into private equity.** Compared to the current Yale Endowment, the 'ideal' mix has twice as much in marketable assets and a third of the amount in private equity. However, this portfolio is much better diversified across likely events.

One measure of relative diversification is shown in Figure 8. The 'ideal' portfolio shown in Figure 7 is taken as the benchmark. The graph reports the mean-squared error of each portfolio's divergence from the benchmark allocation to regimes. The current US Educational Mean, i.e. the portfolio of Yale's peers, appears to be closest to our ideal mix given its low 2.84% mean-square divergence. In other words, it is better diversified across events. The Traditional fund scores a mean-squared error of 3.11%. Yale 2010, in fact, comes out worst at 7.89%. As the time series plot in Figure 9 demonstrates, this is the worst result over the entire 1990-2010 period, and annoyingly one that entirely reverses the 'good' result in FY2009.

How do the other portfolio choices - Traditional and Educational Institution Mean - square up in other respects? Both the Traditional and Educational Institution Mean asset allocations generally imply a more benign view of world prospects than our benchmark. Over 70% odds are implicitly ascribed to the combined *Rebound* and *Calm* regimes by the other educational endowments, with the remainder allocated to the *Speculation* regime. Zero percent is allocated to *Turbulence,* a time when both market risk and credit risk are high. Given that this is typically a period of negative returns, sometimes with persistent fat tails, it would be better if there was more protection. Overall, Yale's peers are likely to enjoy better investment performance through the upswing of the investment cycle, when credit risk is low or falling.

The Traditional asset allocation, where some three-quarters of the fund are allocated to marketable assets, is again well-suited to *Rebound* and *Calm*. Not surprisingly, Traditional investors assign 48.7% odds to *Calm,* but there is also a high 42.4% allocation to cover events in the *Turbulence* regime. This latter benefit derives from the portfolio's 15% allocation to hedge funds and real assets, and particularly to its high 20% cash and bond exposure.

Pressure to reduce bond exposure, coming from prevailing low yields, should be resisted on this basis. Where this Traditional allocation likely falls down is during the late-cycle *Speculation* phase, a time when credit risk is rising but market risk still remains low.

To counter this, Traditional managers could beef up their holdings of real assets, possibly add a tad more private equity, and reduce marketable assets.

The Educational Institution Mean, the allocation adopted by Yale's peers, stands up well, overall. Just over half the portfolio is invested in marketable assets, compared to 70% for Traditional, 20% for Yale itself and 40% in our 'ideal' benchmark. Hedge funds comprise 26.4% of the average fund, a figure higher than the other two portfolios, but not too far away from Yale's allocation and from the 'ideal'.

Where these educational funds differ markedly from Yale and also from the 'ideal' is in their lower exposure to private equity, and particularly to real assets.

According to our calculations, the 'ideal' fund should have 20% in real assets and just over 10% in private equity. [The educational funds' allocation to private equity is in line here.] Taken together, Yale has more than twice the exposure to these asset classes as its peers. This may, of course, be down to the fact that Yale's internal private equity pipelines of commercial academic spin-offs are bulging?

It seems that an average of the Traditional and Educational Institution Mean, with slightly more emphasis on the latter, offers the 'best' extant asset allocation mix.

	Rebound	Calm	Speculation	Turbulence
Actual ('Ideal') 1970-2011	20.4%	29.8%	22.8%	27.0%
Traditional	9.0%	48.7%	0.0%	42.4%
Educational Institution Mean	39.7%	31.9%	28.4%	0.0%
Yale Endowment	0.0%	32.4%	67.5%	0.1%

Figure 6
Implied Allocations across Risk Regimes
Selected Funds

Source CrossBorder Capital

In other words, the educational funds should allocate proportionately more to real assets, cash and bonds, and Traditional investors should swap marketable assets for hedge funds. The former has too much risk in the *Turbulence* regime and the latter has too much allocated for *Speculation*.

In contrast to this benchmark 'ideal' allocation, the Yale Endowment is currently well-diversified across credit risk states, but very exposed to market risk. Ironically, the 'original' Yale Endowment model looks more robust. Yale's mid-1990s allocation is closest to our 'ideal' benchmark.

See Figure 9. Given the mould-breaking achievements of Yale, it seems churlish to criticise. However, their latest departure and shift into private equity looks to our eyes a high risk strategy.

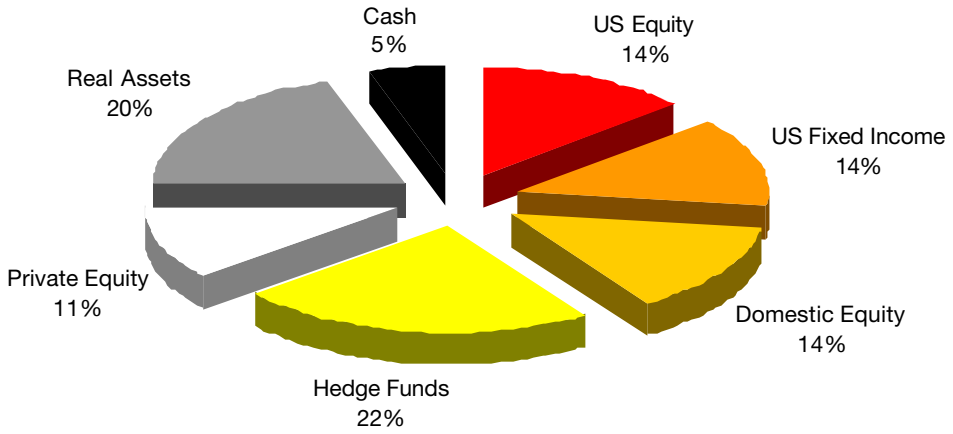


Figure 7
'Ideal' Asset Allocation based on Regime Percentages

Source CrossBorder Capital

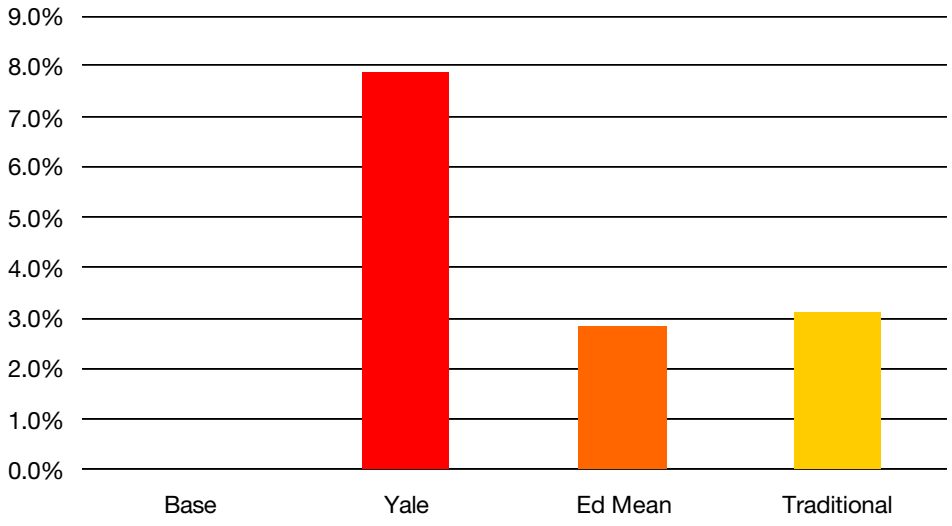


Figure 8
Deviation from 'Ideal' Allocation
Selected Funds Mean-Squared Error

Source CrossBorder Capital

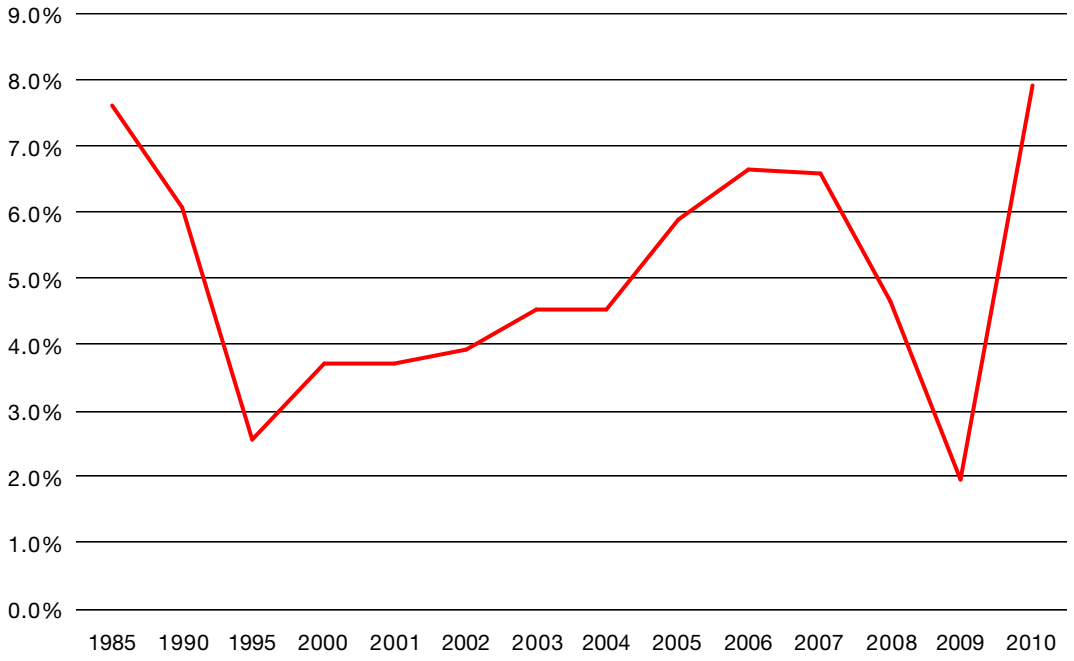


Figure 9
Deviation from Yale Endowment from 'Ideal' Portfolio
Mean-Squared Error 1985-2010

Source CrossBorder Capital

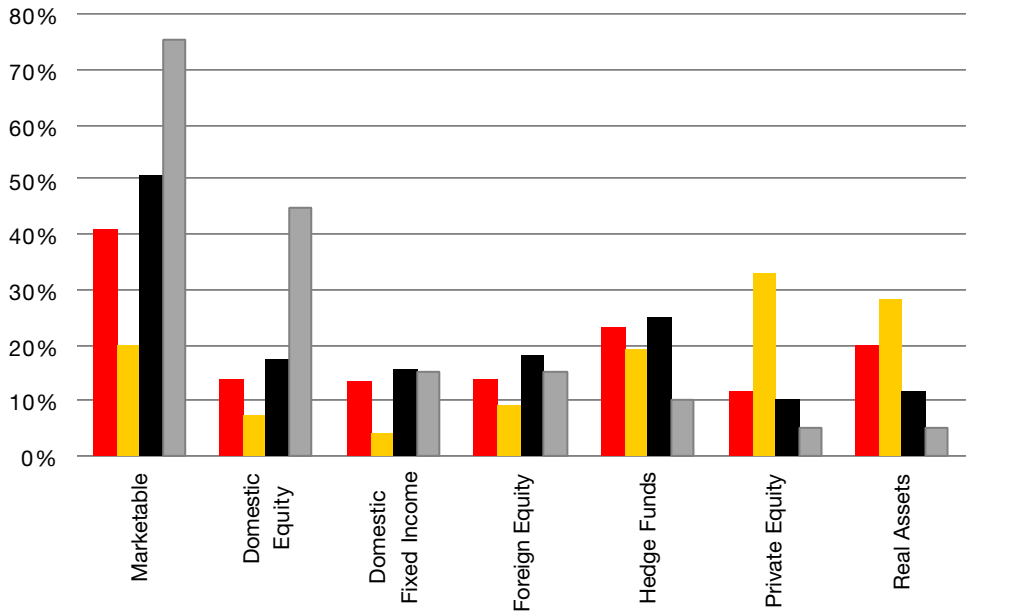


Figure 10
Summary Asset Allocation

Source CrossBorder Capital

CrossBorderCapital
Implementing Insight

Global View

May 2010

The Volatility of Volatility

The VIX index is widely recognised as the price of risk. For years this index moved slowly averaging around 18.7% until mid-2007 but it hit an average 28.5% thereafter. Moreover, this jump in the rate of volatility coincided with a more than doubling in the volatility of volatility from 16.2% to 35.1%. This instability in the price of risk has become an unpleasant and persistent fact of life, but we show here that it is a consequence of fast-changing liquidity conditions. In short, liquidity has recently been tightening. High volatility looks set to continue.

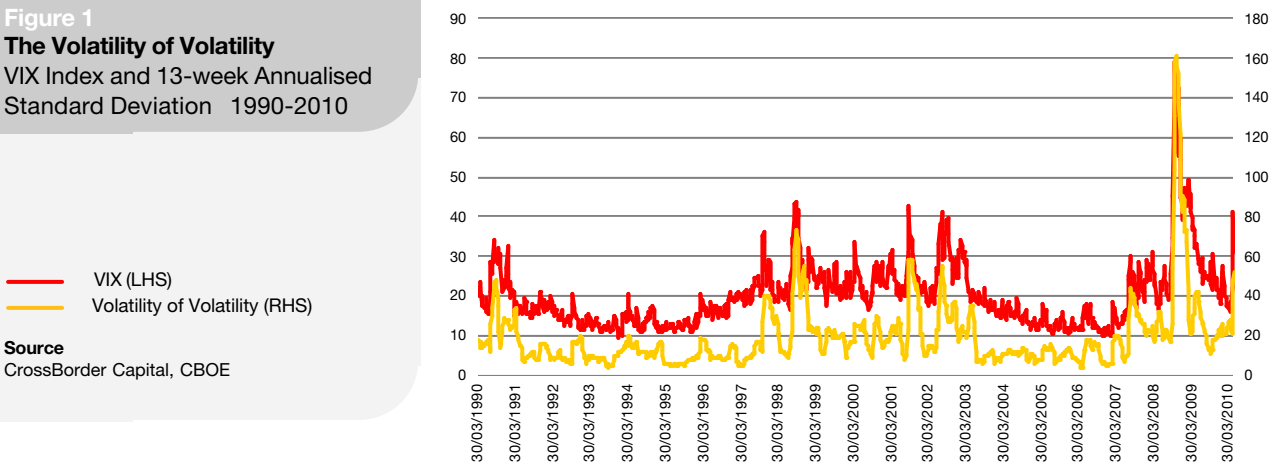
Increasingly financial asset markets trade like commodity markets. Periods of quiescence and range-bound prices suddenly and seemingly without warning give way to sharp jumps up and down. Investors have become victims of this fast-changing volatility. See Figure 1.

We have argued before that this is because of two things: (1) the maturing of the financial sector from a *capital-raising* vehicle into a *capital-distribution* mechanism. This has caused more money to be employed as speculative capital, and radically altered the funding structure of credit-providers. And (2) this combines, often malevolently, with significant swings in the liquidity cycle caused in large part by errant Central Bank policies.

In short, the volatility of volatility is a credit cycle phenomenon, and specifically it is a feature associated with sub-par liquidity conditions. Turbulent markets are caused by illiquidity. They are set to continue.

Understanding liquidity is therefore a key factor in risk management. The *Global Liquidity Cycle* is plotted in Figure 2. This shows a 4/5 year recurring fluctuation in the flow of liquidity, i.e. cash plus credit, through World financial markets. Peaks in liquidity tend to precede asset market booms by 1-2 years, and troughs lead banking crises by a similar 1-2 years. The geography of banking crises changes, as does the type of each asset boom.

Figure 1
The Volatility of Volatility
VIX Index and 13-week Annualised Standard Deviation 1990-2010



Source
CrossBorder Capital, CBOE

96 Baker Street
London W1U 6TJ
Tel (44) 20 7908 2800
crossbordercapital.com

Sometimes emerging markets boom; sometimes real estate or commodities, and in 1999 technology shares sky-rocketed higher. Equally, UK banks suffered in 1974; Latin American banks hit the skids in 1982; Scandinavian banks in 1992; Japanese banks in 1995, and in 2007-08 many Western banks hit trouble.

Liquidity has lately fallen below average, largely because the strong real economy is pulling funds away faster than policy-makers have been prepared to add new cash. This tightening of liquidity should lead to heightened volatility in financial markets. Probably it did if Wall Street's near-1,000 point drop on Thursday May 6th is anything to go by.

The sharp jump in the VIX index from levels of around 18% prior to the sell-off to a peak of 41.5% suggests that volatility responds in a non-linear way to changes in liquidity. Indeed, this is what the data show. Figure 3 fits a quadratic function between monthly US liquidity data and the VIX from 1990 to date.

According to the resulting J-curve relationship, changes in liquidity matter far more when the level of liquidity is low than when it is high. Volatility is lowest and markets most stable when liquidity conditions are close to their long-run 'norm'. Above-average liquidity forces higher volatility, but lower levels of liquidity trigger volatility spikes.

Thus, a 10% point drop in our US liquidity index from an 80% index value actually reduces the VIX by 5.0% point. A similar drop from the 50% index level also reduces the VIX, albeit by a slimmer 1.9% points. However, a fall in liquidity from the 40% index level causes a 4.2% rise in the VIX and from the 20% index level the VIX jumps by 6.2% points. The VIX hits its lowest value of 16.3%, according to the chart, when our US liquidity index is a tad above average at 58.4%.

This conclusion fits neatly with our long-held perception that financial market performance clusters into risk regimes. These four regimes, as described by the liquidity cycle, are dubbed: *Rebound, Calm, Speculative* and *Turbulence.* They correspond to periods of high, medium and low volatility, with each displaying slightly different correlation properties. See Figure 4.

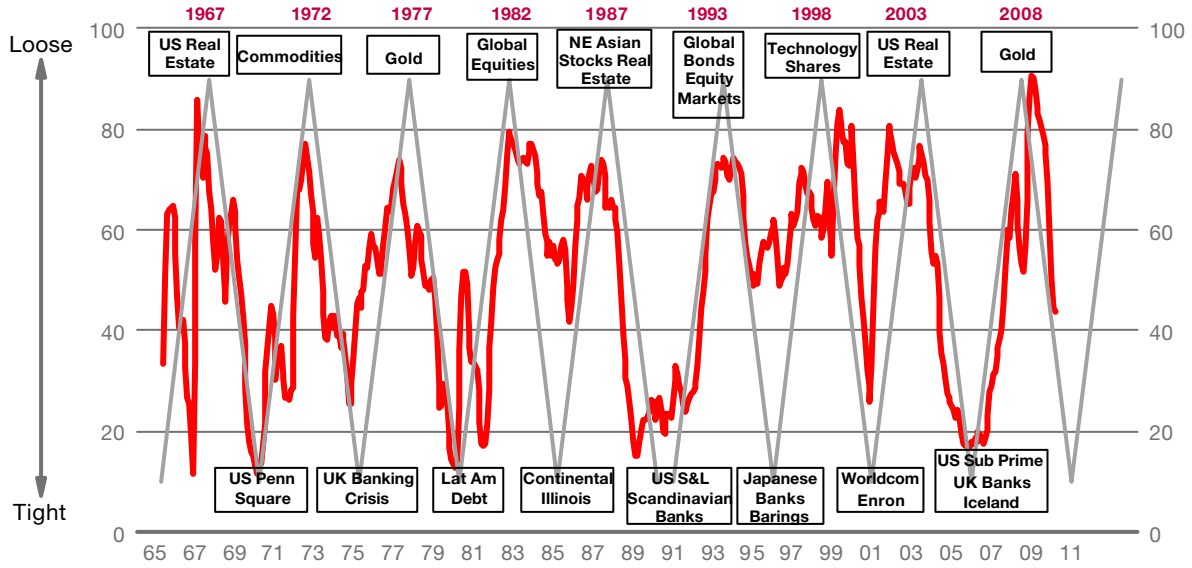


Figure 2
Global Liquidity Cycle and 5-Year Cycle
Index ('Normal' Range 0%-100%) 1965-2010

Source
CrossBorder Capital, US Federal Reserve,ECB, Bank of England, Bank of Japan, IMF

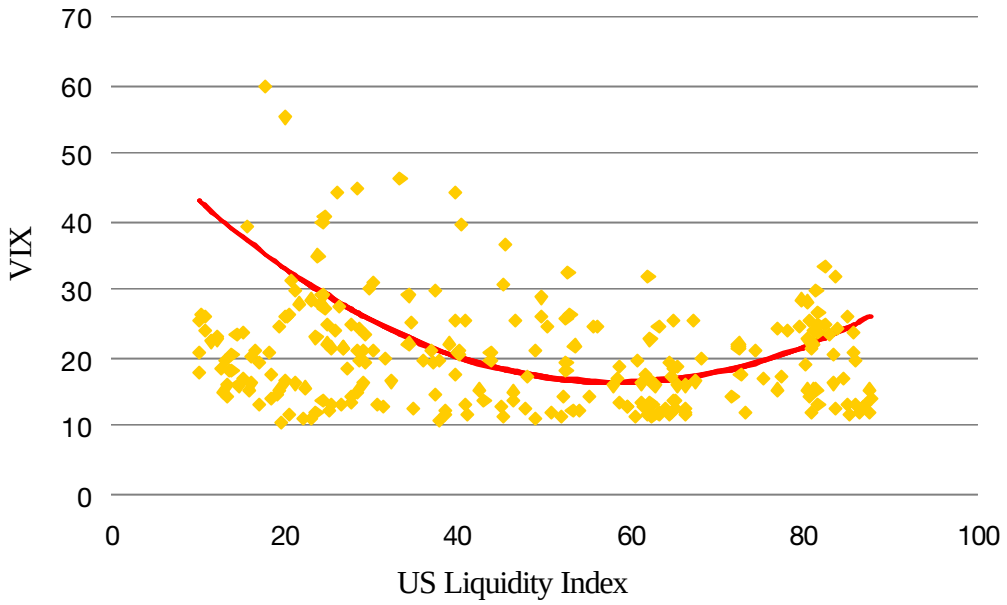


Figure 3
Volatility and Liquidity
Monthly 1990-2010
Source
CrossBorder Capital, CBOE, US Federal Reserve

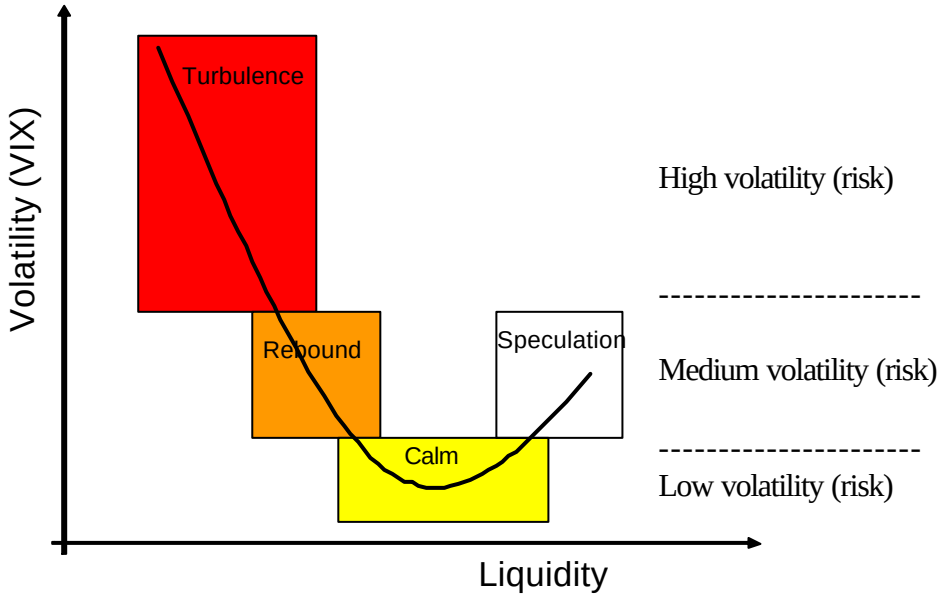


Figure 4
Volatility, Liquidity and Risk Regimes

Source
CrossBorder Capital

We have shown elsewhere that each of these risk regimes demonstrates internal normality of returns, i.e. returns within a regime are normally distributed, but the regimes combime together over the investment cycle to generate a non-normal overall distribution with *fat tails, persistence* and *skew*. This is established in Figure 5 using a Shapiro-Wilk statistical test for normality. This tells us that asset allocation depends significantly upon regime shift.

On top, closer examination of the data not only shows that the liquidity cycle leads volatility – in fact sometimes by up to two years – but volatility is transmitted sequentially across asset classes consistent with our schematic *Investment Clock*, shown in Figure 6.

Thus, fixed income and currency volatility tend to lead equity market volatility. Even in this short-term sell-off, this feature has been apparent with European bonds and the Euro moving down slightly ahead of collapsing stocks.

What to do? Our main message is that *market risk* depends upon liquidity. A high *price of risk*, i.e. VIX index, is associated with low liquidity. Volatility spikes simply arise from still lower liquidity levels. Thus, volatile markets tell us a lot about the liquidity backdrop and like liquidity (a 4/5 year cycle) volatility is likely to change slowly. In other words, volatility will show *persistence*.

A signal of a future calmer market requires policy-makers to pump in liquidity. Many of us hope that the May 10th decision by the EU and ECB to support European debt markets may prove as cathartic as the August 1982 cuts following Mexico's August 12th default. The ensuing Latin American debt crisis forced the US Fed to slash interest rates by 250bp through August 1982 and by a further 100bp through year-end. By pumping in extra liquidity and effectively shelving Chairman Volcker's tight control of money supply, the Fed move ushered in the long-bull market in equities. But these surges in the liquidity cycle guarantee that volatility will remain volatile.

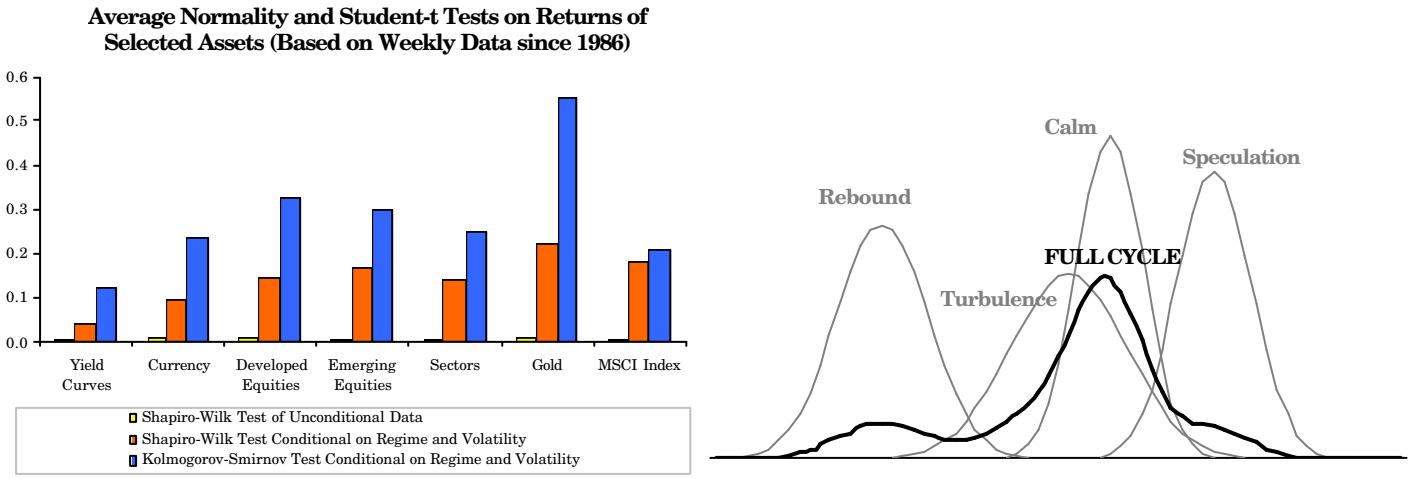


Figure 5
Regime Shift – Normality Test and Schematic Distribution of Returns

Source
CrossBorder Capital

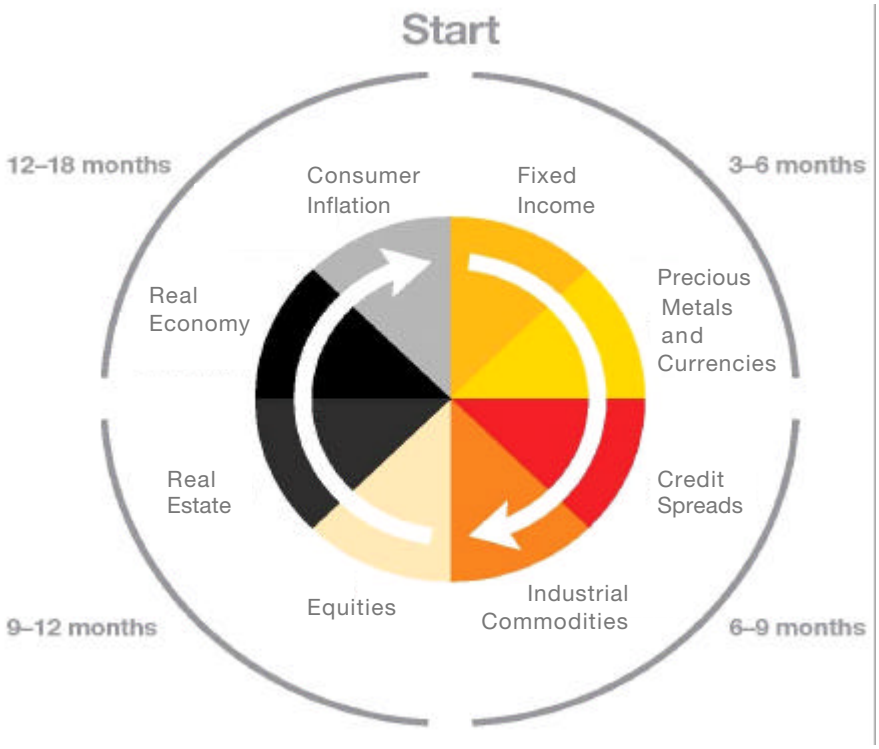


Figure 6
The Investment Clock
Source CrossBorder Capital

CROSSBORDER CAPITAL LIMITED
96 BAKER STREET
LONDON W1U 6TJ
TELEPHONE 020 7908 2800 FACSIMILE 020 7908 2835

CrossBorderCapital
Implementing Insight

Global View

December 2012

The Return of TAA?

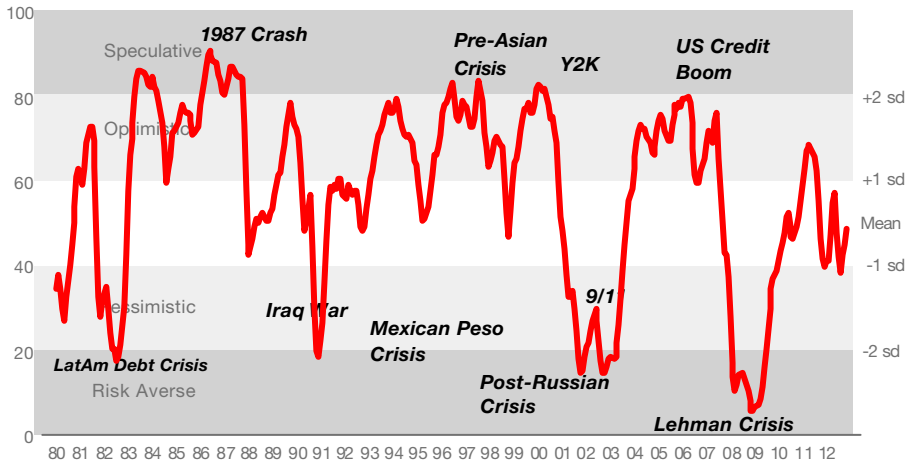
The recent jump in the popularity of multi-asset investing might suggest that tactical asset allocation (TAA) has come back into vogue? The paradox is that many of these funds are effectively static asset allocation products that simply diversify across different asset classes, but rarely alter their portfolio mix in order to boost returns or better manage risk. In short, they are Ferraris stuck in a low gear.

This is strange because current opportunities to add alpha abound. The two clearest and mouth-watering facts for any TAA manager must be: (a) investor herding and (b) Central Bank surrender, i.e. 'money printing'. Latest evidence on the former comes from end-November 2012 asset ownership statistics.

Our measures suggest that global investors' commitment to risk assets remains below its three-year rolling averages. See Figure 1. **More worryingly, this comprises a near two-standard deviation positive allocation to government bonds and a partly off-setting near two-standard deviation under-exposure to EM equities, both expressed relative to their three-year trends.** See Figure 2. The scale of this bias may owe something to the dark art of so-called *financial repression*, where encroaching regulation forces institutions to hold more-and-more low-yielding government debt. However, even looking through this bias, the huge spread shows an implicit, but still disturbing bet, on another couple of years of fragile global economic growth.

Of course, the markets may be correct, but this would seemingly deny the new found determination among policy-makers to stimulate economic activity and cut jobless numbers. We recall a policy-maker some years ago describing his efforts to stimulate the British economy by comparing the economy with a brick and policy measures to an elastic rope tied around it. The more he tugged, the less that happened, until he was unexpectedly hospitalised by a high-speed flying brick. So, policy takes time to work and the more frustrated policy-makers get, the more risks they take. We figure that 2014 could, therefore, see some very healthy economic data, and markets may begin to discount this through next year.

Figure 1
Global Investors' Commitment to Risk Assets
Index ('Normal' Range 0%-100%)
1980-2012



Source
CrossBorder Capital, US Federal Reserve, Bank of Japan, ECB, Bank of England, People's Bank of China, IMF, Datastream

96 Baker Street
London W1U 6TJ
Tel (44) 20 7908 2800
crossbordercapital.com

Rising liquidity data are a pre-condition for faster economic activity. Here, the jury is still out, but there are still more encouraging than there are discouraging signs. Therefore, we envisage a gathering 'Risk On' climate through 2013. We have argued before how the Global Liquidity Cycle typically moves in an 'M'-shaped cycle, with a banking crisis marking the start and a commodity boom signalling the end of the cycle. In between, there are two major periods of ease: the first focussed on restoring bank integrity – namely QE1 and QE2 – and the second – QE3 – targeted on reviving economic growth. Bonds and equities often both do well in the first phase: equities and commodities outperform in the second. See Figure 3.

How could this affect TAA? We have written much over the years about alternative ways of thinking about asset allocation and, particularly, its relationship to liquidity and to inflation. **Foremost is the need to look at asset valuation in absolute terms, against the value of money, and not in relative terms, measured against other assets.** The latter may be comforting, but it is rarely a safe benchmark. Consider the asset allocation diagram in Figure 4. This shows the changing valuation of the three key asset classes: bonds, equities and commodities, all measured relative to the value of money in the form of the inflation rate. Bond and commodity valuations behave 'normally' insofar that bonds hate inflation and love deflation, whereas commodities prefer the reverse. Thus, bonds and commodity prices are typically always negatively correlated together. Equities are difficult and tricky to understand, because they are sometimes positively correlated to bonds and sometimes negatively correlated. This fact plainly throws many conventional asset valuation yardsticks out-of-sync, and it questions the validity of those mean-variance models that use historical data taken from the past twenty years. The World changes and moves on. For example, the equity-bond yield gap and yield ratio metrics that proved useful in the 1980s and 1990s are as hopeless today as they were in the 1930s, because when bonds rise in value equities now fall. Yet, negative equity-bond correlations were almost unheard of 20-years ago. See Figure 5.

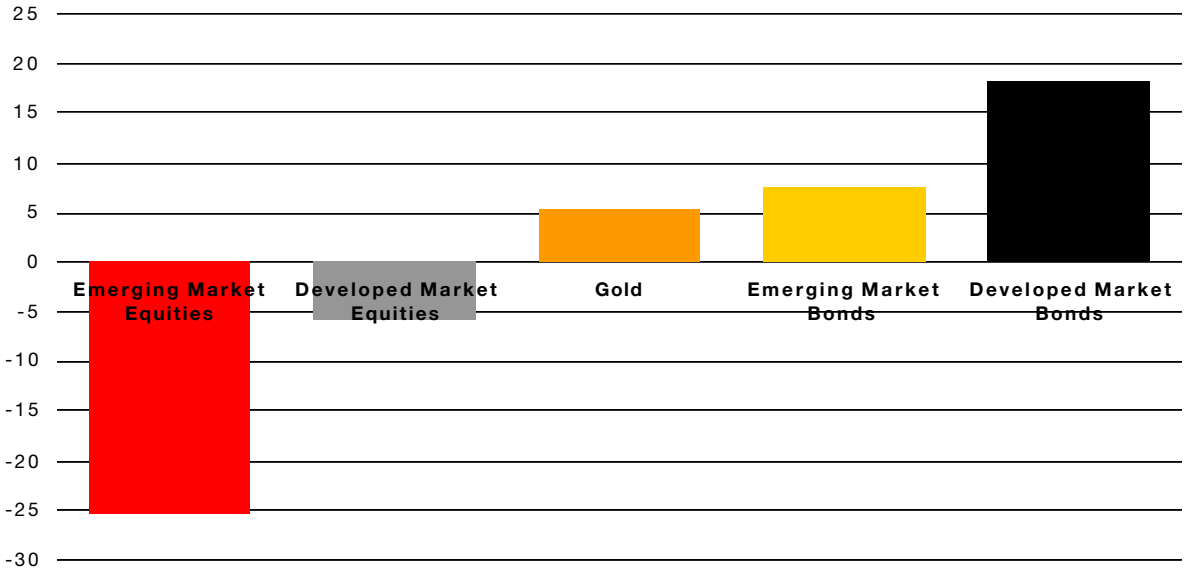


Figure 2
Global Investors' Commitment to Risk Assets by Major Asset Type
End-November 2012

Source
CrossBorder Capital, US Federal Reserve, Bank of Japan, ECB, Bank of England, People's Bank of China, IMF, Datastream

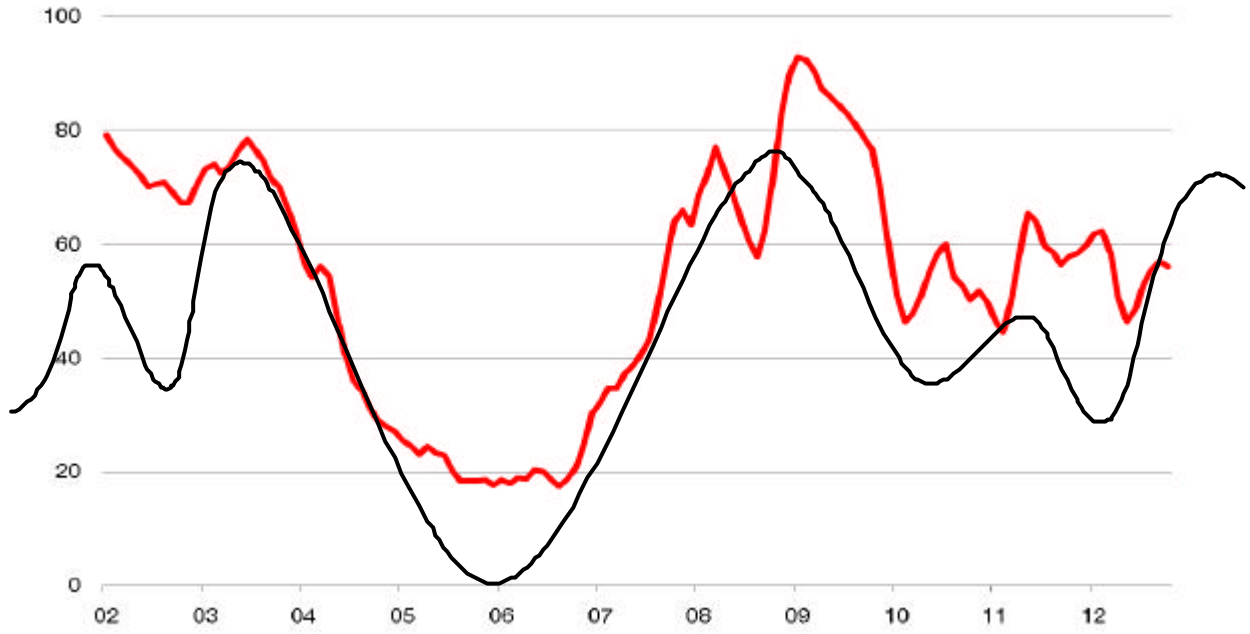


Figure 3
The 'M' Shaped Cycle
Global Liquidity Index and Theoretical Trend 2002-2012

Source
CrossBorder Capital, US Federal Reserve, Bank of Japan, ECB, Bank of England, People's Bank of China, IMF

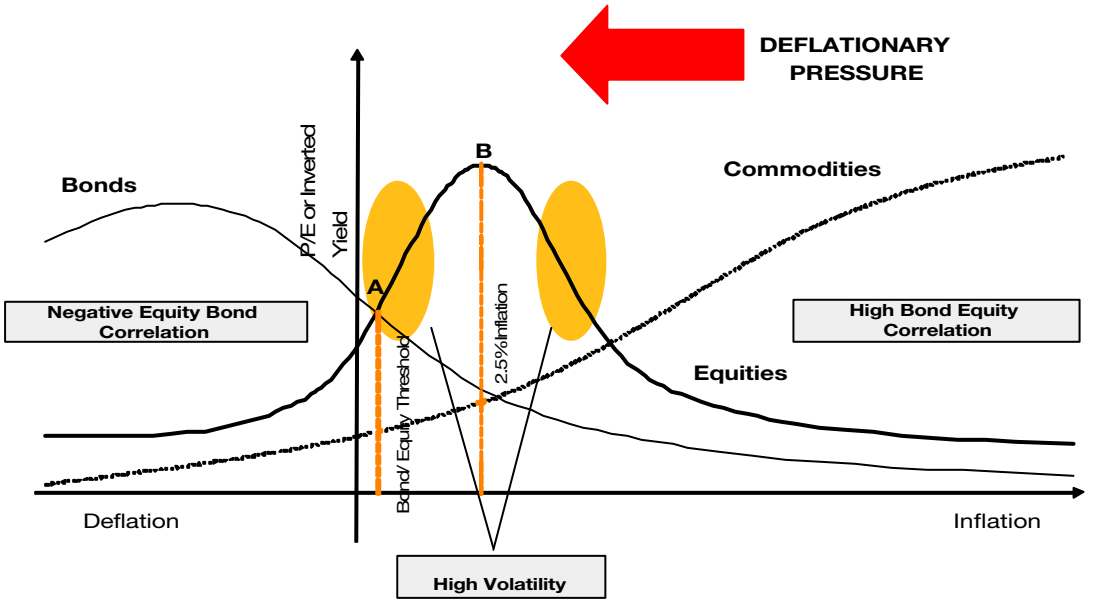


Figure 4
Relationship Between Equities, Bonds, Commodities and Inflation
Schematic

Source CrossBorder Capital

We believe that equity valuations trace-out a bell-curve pattern with respect to inflation. As Figure 4 highlights, this means that PE multiples peak at low rates of inflation, circa 3%, but fall away sharply either side of this threshold. Bond markets on the other hand reveal a simple monotonic relationship with inflation that almost describes a 'backwards-J shape'. These differences highlight an interesting division: the regime to the left of the 'low inflation/peak PE' threshold demonstrates a negative correlation between equities and bonds. Call this period 'dis-inflation'. It reflects the post-2000 financial markets in the West and the post-1990 financial markets in Japan. The regime to the right of the inflation/PE threshold, call this the 'inflation' zone, sees positive correlation between bonds and equities. Immediately either side of the threshold equity valuations fall away significantly, indicating that small inflections in the inflation rate can cause heightened equity price volatility. Moreover, the chart highlights how plunging equity valuations can coincide with both high and low bond yields. This may explain the twin phenomena we dub 'crises of monetary inflation' and 'crises of monetary deflation', where sometimes equities crash at high inflation rates (e.g. 1929 and 1987) and sometimes they crash at low inflation rates (e.g. 1931 and 2008). **In short, all valuations and market behaviour are conditional on inflation: in 'disinflations' (i.e. now) risk assets are pro-cyclical, but in 'inflations' (i.e. 1980s and 1990s) they become more anti-cyclical.**

Regression analysis allows us to take these observations a stage further. In the 1980-99 period, US equity PEs were closely correlated to inverted Treasury yields with a coefficient of 86.4%, reflecting the positive equity/bond relationship through a period of 'inflation'. No other significant effects were obvious. In particular, neither the business cycle (e.g. ISM data), nor the yield curve (e.g. 10-2 year Treasury spread) registered much influence on US equity valuations. **We must conclude that the impact of falling inflation out-weighted business cycle and monetary effects, at least as regards valuations.** Thus, at many times the stock market moved oppositely to the business cycle and, in those periods where slower economic growth coincided with falling inflation, it did so more often.

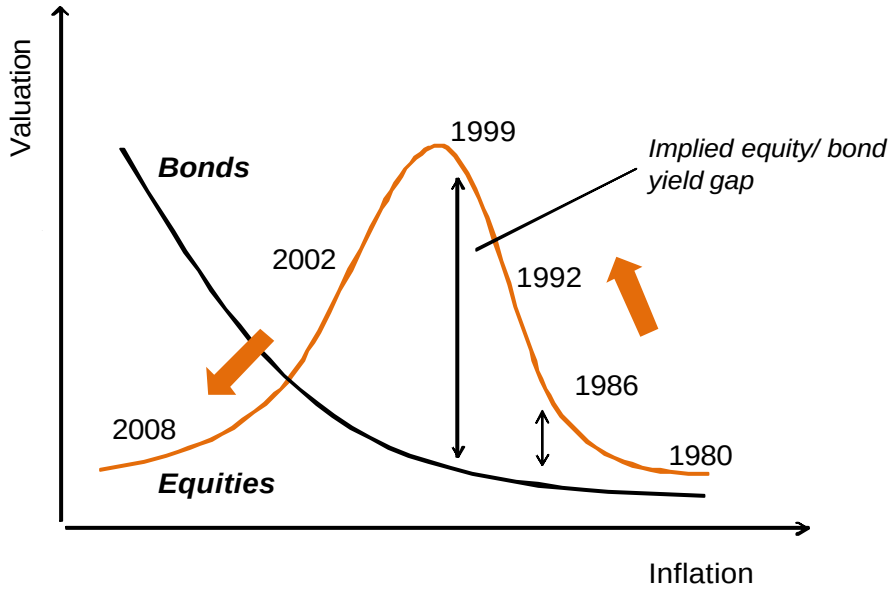


Figure 5
Valuation and Inflation Over Time
Schematic

Source CrossBorder Capital

In contrast, the 2000-2012 period shows a strongly negative correlation of 76.3% between US PEs and inverted bond yields. Moreover, the yield curve lately proves to be a very significant influence, with the regression showing that each 100bp of curve steepening adds 1.8 multiple points to US PEs. **In short, business cycle and monetary effects have again become more important than inflation.** The bottom line is that each 100bp rise in 10-year Treasury yields during, say, the 1980s should have reduced US PEs by around 2 multiple points, whereas a 100bp rise today could add around 6 multiple points to beaten-down US valuations. See Figure 6.

All this comes on top of traditional business cycle effects. Figure 7 shows the strong leading effect of the *Global Liquidity Cycle* on corporate earnings growth, with a lead-time of 15-18 months on reported profit numbers. Given that we can also identify a clear and long-standing correlation between the liquidity cycle and the slope of the yield curve (see Figure 8), more liquidity is consistent with a steepening curve and by association (in a 'dis-inflation' regime) with rising bond yields and a rising US market PE multiple. Since we expect around 100bp of yield curve steepening next year, we remain upbeat on prospects for risk assets. Although, given these long lead-times, we should not expect reported earnings to show much uplift before 2014, valuations, however, are likely to rise significantly well-before this date.

Adding these effects together explains the binary nature of 'Risk On' and 'Risk Off'. 'Risk On' implies expanding liquidity, rising stocks, falling bonds and improving profitability and business conditions. Assuming a persistent 'disinflation' regime, the ups-and-downs of the liquidity cycle can explain the to-and-fro movement and resulting tactical asset shifts on the left hand side of Figure 4. **In short, risk asset markets have again become pro-cyclical. Another confirmation of this is the heightened positive correlation between the newly fashionable *economic surprise indexes* (e.g. Citigroup) and risk assets.**

But then what is true for US stocks is likely to prove even more so for higher beta EM equities. Their business cycles dovetail closely with those of the US and their liquidity conditions highly correlate. Investors' exposure to EM equities is, we noted, extremely low and the more US dollar Area liquidity that is collectively produced by the Fed and China's PBoC, among others, the more cash will likely find its way into EM.

Figure 6
US PE Multiple
Multiple Points Monthly 1975-2012
Source
CrossBorder Capital, Datastream

Liquidity is a key leading indicator. Thus, buying EM equities and selling developed market bonds may be the ultimate TAA shift for next year. Those multi-asset funds that make this commitment could outperform significantly.

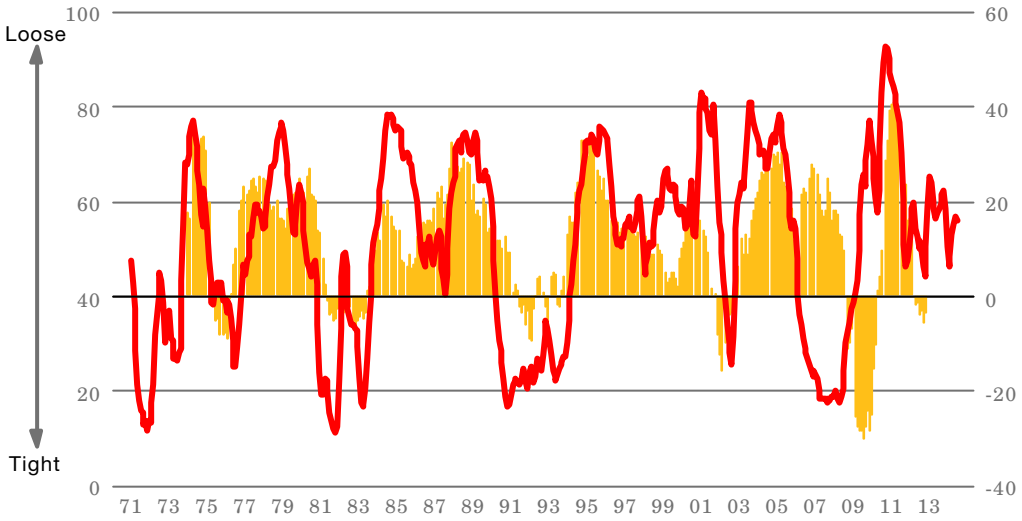


Figure 7
Global Liquidity Cycle GLI and EPS Growth
Index and YoY Percent Change Monthly 1971-2012
Liquidity (Index, Advanced 20 Months; LHS)
Earnings Growth (YoY % Chg.; RHS)
Source
CrossBorder Capital, US Federal Reserve, Bank of Japan, ECB, Bank of England, People's Bank of China, IMF, Datastream

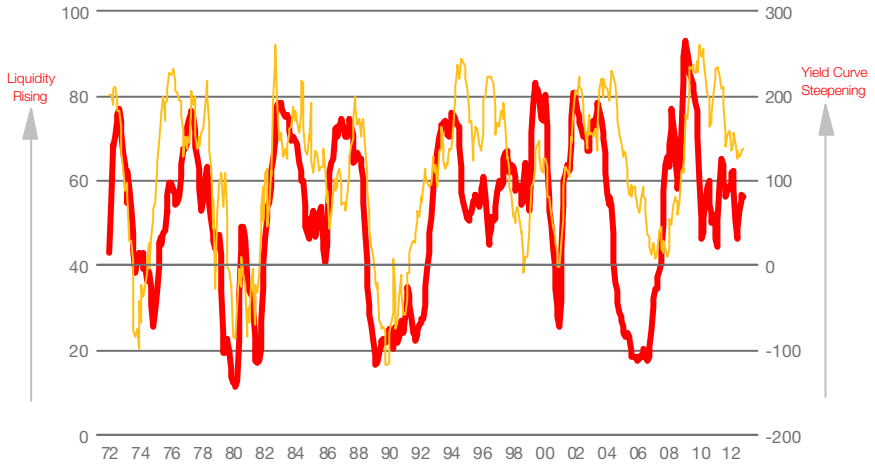


Figure 8
Global Liquidity Cycle GLI and G20 Yield Curve
Percent and Index Monthly 1980-2012
Overall Liquidity Index (LHS)
Yield Curve (Basis Points; RHS)
Source CrossBorder Capital, US Federal Reserve, Bank of Japan, ECB, Bank of England, OECD, IMF

CROSSBORDER CAPITAL®

Global View

August 2004

Liquidity And Modern Finance
Looking Inside The P/E Multiple

"Separate and distinct things not to be confused, as every thoughtful investor knows, are real worth and market price", John Burr Williams, The Theory of Investment Value, 1938.

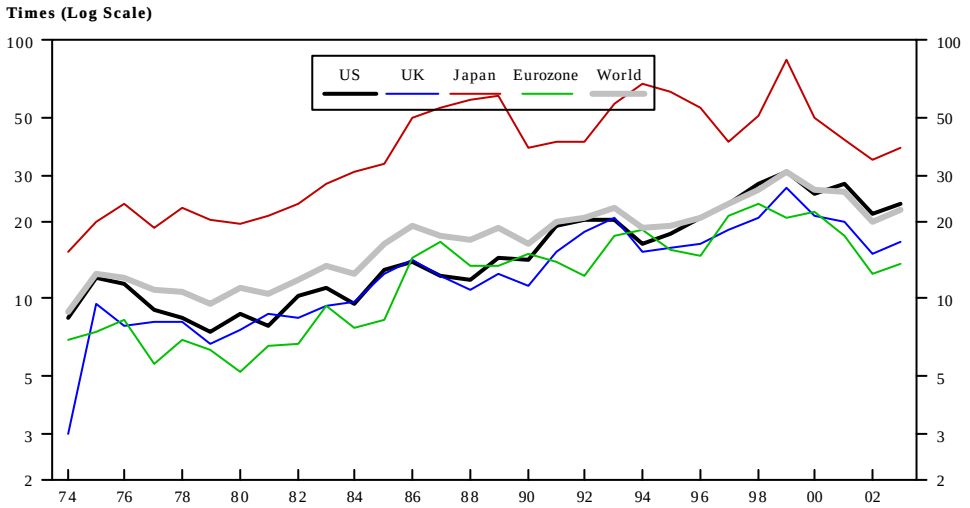
"... in the long-term the market acts like a weighing machine, weighting the amount of value in every issue, but in the short-term it acts like a voting machine ..." [where the votes are money?], Graham and Dodd, Security Analysis, 1934.

Separating the market P/E ratio into three separate components, this report shows the importance of the (1) ownership/ sentiment and (2) liquidity factors over (3) profitability. In short, 'buying power' is at least as important as 'earnings power' in determining valuation. The report goes on to explain why rich and not necessarily fast growing economies have deep capital markets. By linking together demographics, liquidity and duration, we go on to suggest that the progressive ageing of Western populations may result in lower valuation levels. Growth apparently disappears from the market P/E multiple: liquidity comes to the fore.

Mr Market And Miss Valuation

The demise of LTCM (Long Term Capital Management) in 1998 punctuated a severe US dollar debt crisis. Much of emerging Asia and Russia had been previous victims. The firm had taken long positions in illiquid securities and short positions in liquid ones, believing the former to be 'cheaper'. The partners were widely seen as culpable. Their sin was to use valuation models that ignored liquidity. But then so did everyone else.

Figure 1. P/E Multiples – Various Markets, 1974-2003 (Times Historic Earnings)



Source: CrossBorder Capital, Datastream

Marcol House
289-293 Regent Street
London W1B 2HJ

www.liquidity.com
Tel: (020) 7535-0400
Email: www@liquidity.com

Modern Finance theory rests on two wobbly foundations. First, its central concept of risk is expressed solely in terms of market risk. This is assumed to be normally distributed statistically and measurable by volatility. What's more, in strong versions of the theory, past volatility serves as a guide to future volatility. As a result of its link to risk, volatility is not differentiated into 'good' and 'bad' elements. Consequently, it is discarded by portfolio diversification.

Second, Modern Finance assumes that investors can transact costlessly in whatever size and frequency they require, which, paradoxically, if the efficient market hypothesis holds is 'never'. It supposes that this state of 'perfect liquidity' is a corollary of arbitrage. In other words, cyclical and systemic shortages of market liquidity are ignored.

Explode these two myths and Modern Finance theory takes a step closer to the real world of investment and banking, thereby enabling it to incorporate credit risk. This is important because the failure of LTCM was a credit risk event. LTCM was the epitome of Modern Finance theory: its investment philosophy separated liquidity from valuation and ignored the short-term liquidity cycle. When the refinancing window slammed shut in the wake of the 1997 Asian Crisis, the firm was left exposed. LTCM's demise should sound the death-knell of Modern Finance theory. Valuation needs to incorporate liquidity: the two cannot be divorced.

We show in this report that traditional valuation measures already include hidden liquidity variables. These variables must be brought to the fore and liquidity must be understood as an integral part of valuation. Liquidity acts over both the long term and the short term. Short-term changes in system-wide liquidity directly affect valuation in the sense that assets should be priced more cheaply in less liquid markets because risk is greater. Long-term liquidity effects operate through changes in asset ownership. For example, a preference to hold more wealth in the form of equities must affect their price. This fact will become increasingly relevant as impending demographic shifts begin to change asset preferences. Japan may already be suffering from the growing demands of retirees for liquidity. The US and, ultimately, Europe will soon face similar demands from their swelling ranks of retirees. As such, the effect of widespread asset sales must, at some stage, figure negatively for Western asset markets. Our analysis provides a framework to make such conjectures.

Three Components

Popularised by *Security Analysis* (1934), the price-to-earnings multiple (P/E) has become the standard valuation benchmark for Western investors. The majority of these investors believe that returns can be maximised by buying 'cheap', or low P/E, stocks, and by selling (or avoiding) 'expensive', or high P/E stocks. Indeed, experience shows that the bulk of short and medium-term volatility in stock prices is explained by changes in the P/E ratio. Understanding the P/E is crucial.

Today's developed World market P/E is around 22 times current earnings. Figure 1 shows that the P/E ratio lies above its long-run average of 17.5 times. On the face of things, equities look to be pretty expensive. Yet 'expensive' stocks frequently get more expensive, and 'cheap' stocks don't always go up in price. Something else must be going on. To understand valuation, we need to look inside the market P/E multiple.

The traditional way of explaining the P/E is with relative rates of return, and specifically through earnings growth. This approach, pioneered by John Burr Williams (1938) in the *Theory of Investment Value*, assumes that risk-adjusted equity returns must equate with

the risk-free interest rate. Equity prices and, hence, P/E multiples correspondingly rise and fall with the growth rate assumed for future earnings. Yet this widely used approach is not without its flaws. We noted earlier that the framework falsely assumes perfectly liquid markets. An alternative approach is to think of the market P/E multiple as a composite measure of three factors: two that are related to financial markets and one, profitability, which derives from the real economy.

$$\frac{P}{E} = \frac{P}{M} \times \frac{M}{S} \times \frac{S}{E}$$

Valuation	*Ownership*	*Excess Liquidity*	*Profit Margins (inverted)*

where we define P as total market capitalisation; M as money (or liquidity); S is total sales revenues (or GDP), and E is aggregate post-tax profits.

Figure 2. Components of World P/E – P/M, M/GDP and Profit Margins, 1974-2003

Year	P/E	P/M	M/GDP	E/GDP	*Memo: P/E**
74	8.9	0.61	0.62	4.28%	*8.3*
75	12.6	0.78	0.59	3.66%	*9.8*
76	12.1	0.79	0.61	4.02%	*10.3*
77	10.8	0.68	0.68	4.27%	*8.8*
78	10.7	0.67	0.65	4.08%	*8.5*
79	9.6	0.65	0.67	4.53%	*6.1*
80	11.0	0.70	0.70	4.50%	*8.8*
81	10.5	0.61	0.76	4.40%	*8.8*
82	11.9	0.60	0.82	4.20%	*9.4*
83	13.4	0.69	0.83	4.28%	*11.0*
84	12.6	0.67	0.87	4.58%	*11.2*
85	16.4	0.78	0.88	4.18%	*13.0*
86	19.2	0.93	0.89	4.29%	*16.6*
87	17.4	0.86	0.95	4.67%	*17.6*
88	17.0	0.94	0.92	5.04%	*17.3*
89	18.8	1.08	0.92	5.29%	*19.2*
90	16.3	0.84	0.95	4.93%	*15.3*
91	20.0	0.99	0.93	4.62%	*17.0*
92	20.4	1.02	0.89	4.45%	*16.4*
93	22.6	1.24	0.84	4.60%	*18.3*
94	18.8	1.17	0.86	5.34%	*18.1*
95	19.1	1.35	0.90	6.37%	*18.9*
96	20.4	1.50	0.91	6.70%	*19.9*
97	23.1	1.70	1.04	7.62%	*22.6*
98	26.4	1.91	1.14	8.26%	*25.2*
99	31.1	2.26	1.17	8.54%	*28.9*
00	26.3	2.01	1.25	9.57%	*24.7*
01	25.9	1.62	1.35	8.45%	*21.2*
02	20.0	1.21	1.34	8.10%	*16.1*
03	21.9	1.48	1.29	8.70%	*19.0*
Average	**17.5**	**1.08**	**0.91**	**5.55%**	*15.6*

Source: CrossBorder Capital, Datastream

By looking inside the market P/E ratio, we can see that macro-economic and liquidity factors play a critical role in valuation. A breakdown of the developed world P/E into its three components – (1) ownership (P/M); (2) excess liquidity (M/S), and (3) profit margins (E/S) – is shown in Figure 2. Profit margins, i.e. total post-tax profits over total sales, are the only component determined solely by developments in the real economy. This measure of aggregate profitability may demonstrate secular shifts, but more usually it swings with the business cycle. See Figure 3.

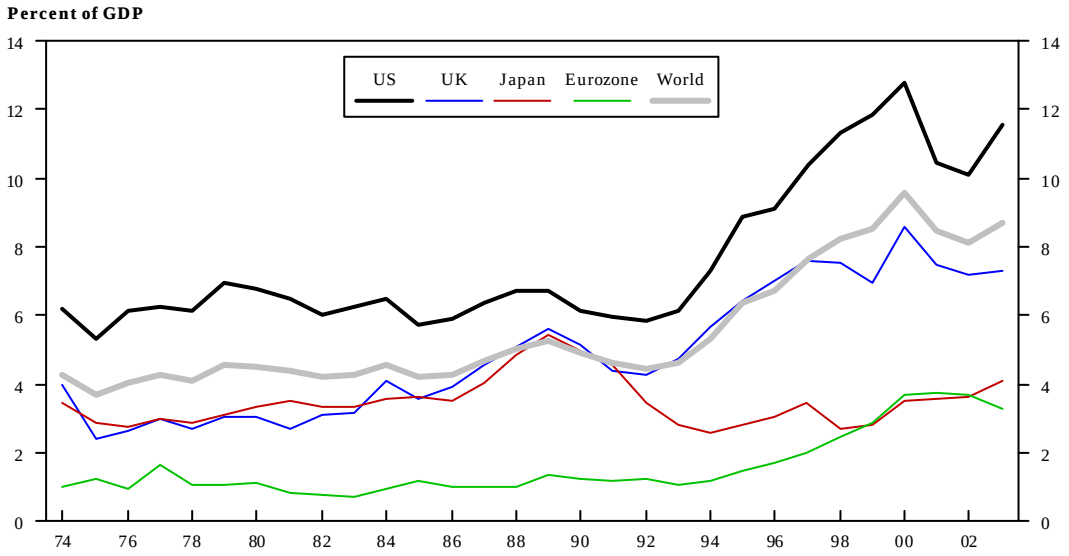
Re-expressing the P/E model and using peak profit margins as the proxy for peak earnings lessens the distorting effects of the short-term business cycle on valuation:

$$\frac{P}{E^*} = \frac{P/M \times M/S}{m^*}$$

Let E* denote peak earnings and m* peak profit margins. Peak profit margins are assumed to be constant within a cycle, but possibly change between cycles. Peak earnings should change less often and, as such, the price-to-peak earnings ratio (P/E*) is a more stable valuation benchmark.

In this revised equation, the second term in the numerator (M/S) measures 'excess' or 'financial liquidity'[1]. This is defined by the ratio between aggregate money[2] in the economy and total sales, or GDP. Sometimes dubbed Marshallian 'k' and inverted monetary velocity, this ratio shows the amount of money circulating per unit of national income. See Figure 4. Over time Marshallian 'k' enjoys a rising trend across most countries. More efficient payments systems reduce the need for physical money and speed up the circulation process. Because money nowadays consists of financial credit, bank and savings deposits, a rising ratio seems to naturally accompany increasing wealth. Minor cyclical swings do occur in Marshallian 'k', but the trend appears to dominate. Major interruptions in the trend can occur if the value of money changes significantly: rapid inflation causes a fall in the ratio, whereas deflation would trigger hoarding and a rise in the ratio.

Figure 3. Aggregate Profit Margins, 1974-2003 (Percent of GDP)



Source: *CrossBorder Capital*

[1] Funds used in the asset economy not in the industrial and commercial economy

[2] We use a 'broad money' measure, such as M3 and M4, which includes deposits held at non-bank financial institutions

The first term in the numerator is the P/M, or price-to-money ratio. This measures asset 'ownership'. The P/M ratio tells us how investors hold their wealth between cash and investments: here equities. Long-term factors, such as demographics, growth expectations, inflation and taxation, affect the trend, but short-term shifts are more likely caused by two factors: (1) mood swings of investors, e.g. from bullishness to bearishness, and (2) required moves in asset duration triggered by changes in the economic and financial climate. For example, a change in near-term dividend prospects might lead investors to switch from high-P/E growth stocks to high-yield value stocks or even into shorter duration bonds.

Therefore, the major valuation tool of Western investors, the P/E* multiple, is determined by a combination of monetary, demographic and psychological factors. Simply put, valuation equals sentiment (aka ownership) times liquidity.

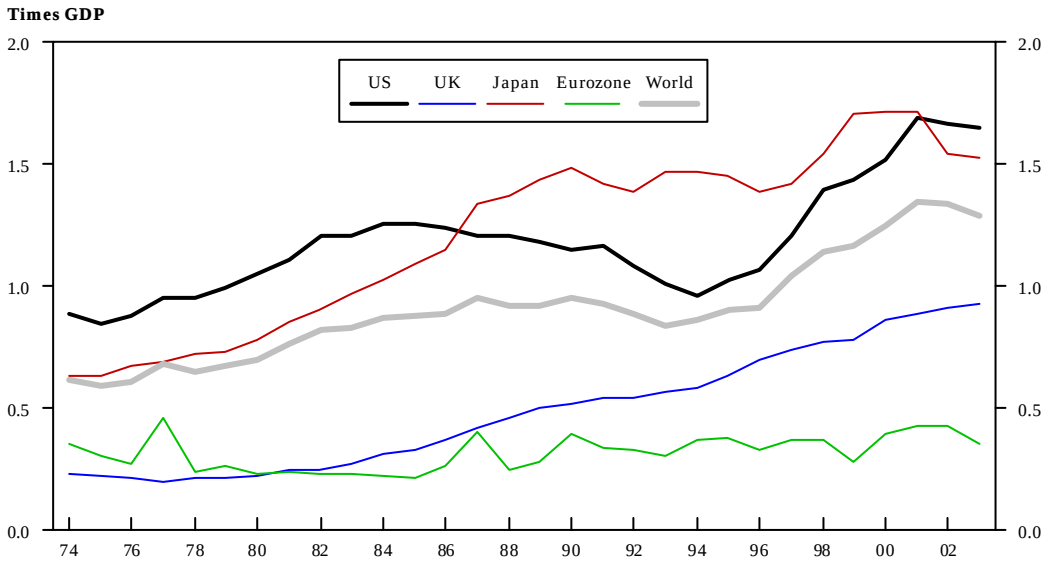
Structural and Cultural Differences

There may be some correlation between the three P/E* components (i.e. ownership, liquidity and peak profitability), but for the most part, they are likely to move independently of each other over time and to differ between countries. It is reasonable to suppose that, for competitive reasons, profit margins should be similar across the developed world. On the other hand, there is less reason to believe that price-to-money ratios and Marshallian 'k' values bear any resemblance if culture, age structure, economic development, inflation and the tax bases all differ.

Yet, despite their significant structural economic and cultural differences, the broad similarity of the P/M ratios between the major stock markets is surprising. The US average at 1.06 lies close to the 1974-2003 average 1.35 ratio for Britain and the 1.12 average P/M in Japan. Moreover, the latest Eurozone P/M ratio of 1.3 times is exactly in line with the current British P/M ratio. Hong Kong's latest P/M is also 1.3 times. Australia's current P/M at 1.6 times is remarkably close to America's. Looking ahead, Figure 5 shows that the P/M ratios of these markets appear to be converging around a trend value of 1.5 times.

Paradoxically, the greatest difference between nations occurs in the 'liquidity' and 'peak profitability' terms. Marshallian 'k' averaged 0.49 in Britain over the 1974-2003 period, compared to 1.18 in America and 1.21 in Japan. This alone could explain a near-three times larger P/E in the Tokyo stock market compared to London.

Figure 4. Excess Liquidity Or Marshallian 'k', 1974-2003 (Times GDP)



Source: *CrossBorder Capital*

Profit margins also differ significantly. The 1974-2003 average at 7.6% of US GDP compares to 4.89% for Britain, 3.48% for Japan, 1.59% for the Eurozone and a whopping 10.58% for South Africa. In other words, other things being equal, the Japanese P/E multiple deserves to be more than twice the US equivalent. See Appendix.

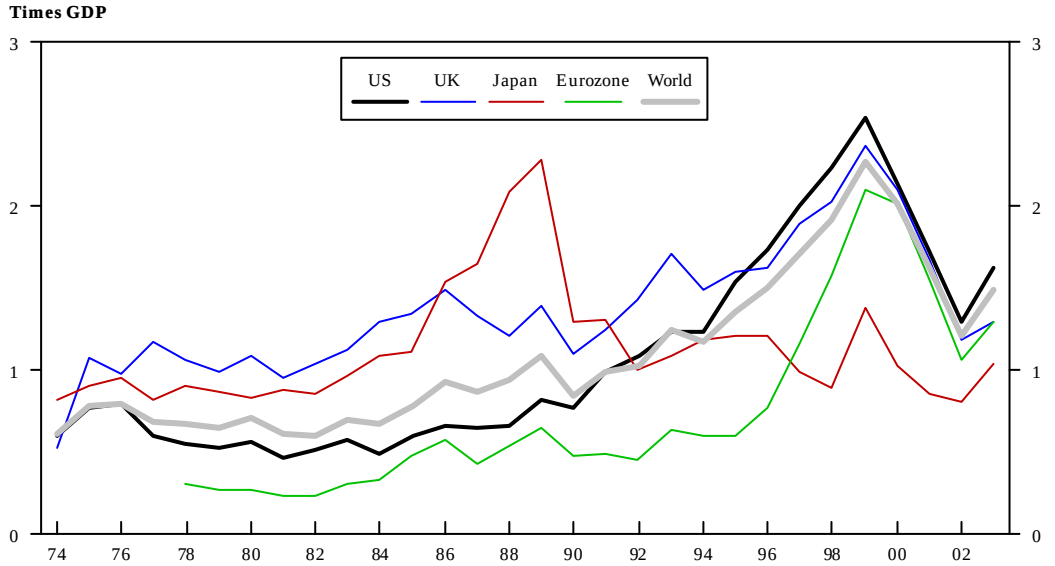
Combining different permutations of the three P/E components starkly highlights these anomalies. It shows that part of the explanation behind traditionally 'high' Japanese P/E multiples is 'low' profitability and 'high' liquidity. For example, using Japanese excess liquidity of 1.53 times GDP and profit margins of 4.1% with a US-type asset structure characterised by a 1.62 times P/M multiple yields a notional 'US' P/E multiple of 60.5 times earnings. At the other extreme, using a Japanese-like asset structure, depicted by the current 1.03 times P/M ratio, with the UK's 0.93 times measure of excess liquidity and with US profit margins of 11.55% produces a hypothetical 8.3 times 'Japanese' P/E multiple.

The World P/E* (i.e. price-to-peak earnings) multiple soared from a low of 6.1 times in 1979 to a peak of 28.9 in 1999, before ending last year on 19.0 times. Whereas regional valuation differences are largely explained by the liquidity and profitability components, valuation differences over time tend to be the result of changes in ownership. A statistical analysis of the variance in the P/E* multiple around its mean over the 1974-2003 period shows that 41.4% was attributable to changes in the P/M ratio[3]. Another 28.9% came from changes in the Marshallian 'k' term, which is a simple measure of 'excess liquidity'. We noted earlier that excess liquidity tends to rise as economies mature. This alone will drive P/Es higher. But, on top, asset allocation is also likely to increasingly favour longer duration assets as average wealth levels rise.

Buying Power Versus Earning Power

Asset ownership and liquidity are a potent combination. In other words, 'buying power' is likely to be at least as important as 'earnings power' in driving asset prices higher. Indeed, the Yale economist Raymond Goldsmith first noted this phenomenon in the 1960s. Following an extensive global study of financial evolution Goldsmith (1985) uncovered two key trends: (1) a rising, then flattening ratio between financial and tangible assets. This, the so-called, financial interrelations ratio (FIR) reaches maturity at a value of around 1-1.25 times. And (2) a rising share of non-bank financial institutions in total financial assets.

Figure 5. Asset Preferences – P/M Ratio, 1974-2003 (Market Cap-To-Liquidity)



Source: *CrossBorder Capital*

[3] An analysis of the variance of annual changes in the P/E* ratio shows that annual movements in the P/M contributed a remarkable 93.2%.

Goldsmith's second observation can be used directly as evidence to support the rising P/M ratio, and (assuming a constant capital-output ratio in the real economy) this, taken together with his first observation, is consistent with a rising market cap-to-GDP ratio. Thus, Goldsmith provides a sophisticated explanation of rising propensities to save as our incomes get bigger.

This 'financial deepening', i.e. rising financial asset to GDP ratio, can clearly be seen across global stock markets. In our earlier breakdown of the P/E* multiple, the numerator (P/S) measures the ratio between market capitalisation and aggregate sales or GDP (i.e. total economic value-added). As per capita income levels rise, so do equity assets per head but at an accelerated rate. This relationship yields a rising P/S ratio over time. Figure 7 shows the 'tightness' of the correlation between market capitalisation per head and GDP per head using cross-country data for 2003 across both the developed and emerging economies. The following regression line has been fitted to the chart:

$$\text{Log } MC_i/H_i = -4.084 + \underset{(19.42)}{1.404} \times \text{Log } GDP_i/H_i$$

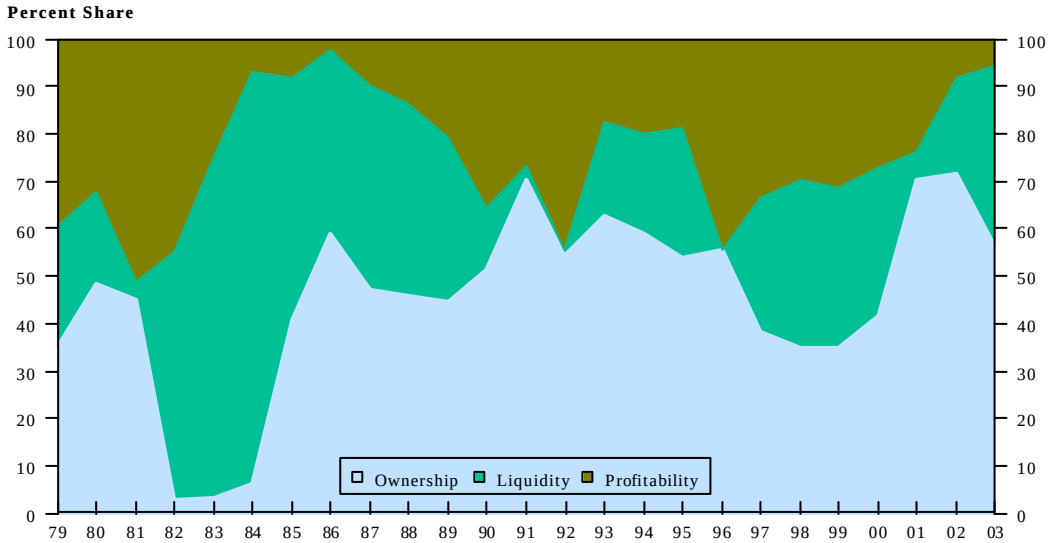
t-statistic in brackets

Standard error of Log MC_i/H_i	0.7612
R Squared	87.68%
Observations	55

where MC_i is market capitalisation; H_i is population and GDP_i is gross domestic product, for the i^{th} country. All measurement are in current US dollars.

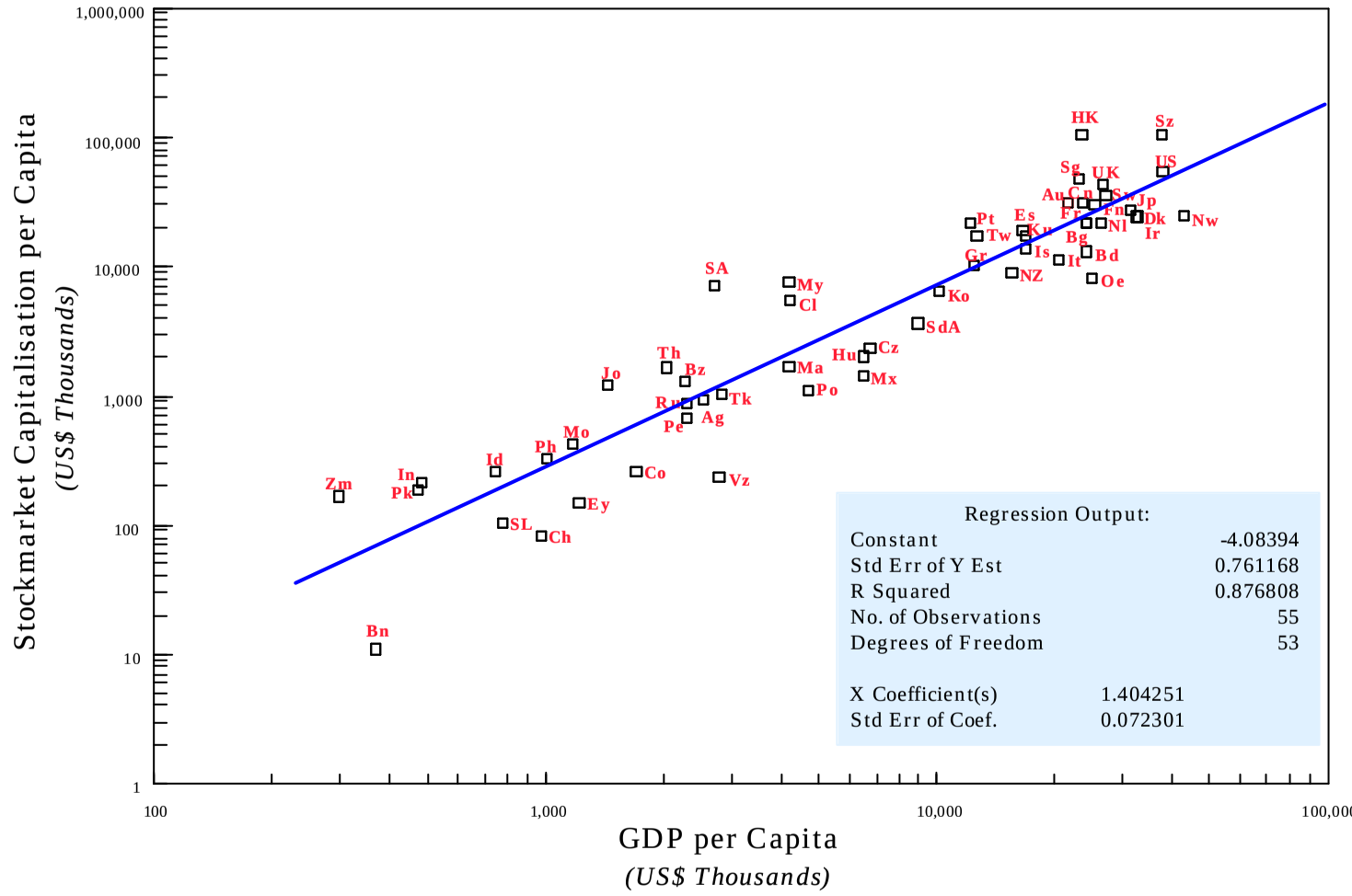
Some nine-tenths of the variability in market capitalisation per head is explainable by movements in per capita GDP. In other words, rich economies should have large stock markets. Admittedly, the causation might run in reverse since economic prosperity may spring from deep capital markets. Notwithstanding, the relationship suggests that each 1% rise in per capita GDP is associated with a 1.4% increase in stock market capitalisation per head. The data reveal scalability, i.e. a power law. In short, every doubling of GDP means a near tripling of stock market size, for both rich and poor countries alike.

Figure 6. World P/E Multiple – Factor Breakdown, 1979-2003 (Rolling 6-Year Attributions)



Source: *CrossBorder Capital*

Figure 7. Stockmarket Capitalisation And GDP, Per Capita 2003 (US Dollars)



Australia Au;	Austria Oe;	Belgium Bg;	Canada Cn;	Denmark Dk;	Finland Fn;	France Fr;	Germany Bd;	Ireland Ir;	Italy It;	Japan Jp;
Netherlands Nl;	New Zealand NZ;	Norway Nw;	Spain Es;	Sweden Sw;	Switzerland Sz;	UK UK;	US US;	Argentina Ag;	Bangladesh Bn;	Brazil Bz;
Chile Cl;	China Ch;	Colombia Co;	Czech Republic Cz;	Egypt Ey;	Greece Gr;	Hong Kong HK;	Hungary Hu;	Indonesia Id;	Israel Is;	India In;
Jordan Jo;	Kuwait Ku;	Malaysia My;	Mauritius Ma;	Mexico Mx;	Morocco Mo;	Pakistan Pk;	Peru Pe;	Poland Po;	Portugal Pt;	Philippines Ph;
Russia Ru;	Saudi Arabia SdA;	Singapore Sg;	South Africa SA;	South Korea Ko;	Sri Lanka SL;	Taiwan Tw;	Thailand Th;	Turkey Tk;	Venezuela Vz;	Zimbabwe Zm.

Source: *CrossBorder Capital*

Are the P/S (or P/GDP), P/M, M/S and hence P/E ratios bounded or predictable? Can history give us any clues towards the ideal or sustainable P/M and, thus, market P/E ratio? Let us examine each major region. The US P/M ratio looks set to remain in a 1.5-2.0x band, while the trend in its M/GDP ratio points to a value around 1.65 times. Together these approximately result in a 2.9 times market cap-to-GDP ratio, compared to today's 2.7 times. Using US peak profit margins of 12.8% gives a P/E* of around 22 times, or roughly in line with today's figure. US shares look fully valued. See Figure 8.

Using similar calculations Japan's "fair value" P/E* stands around 44 times and compares with the current 29.1 times multiple. For Britain, the corresponding P/E* ratio is 16.6 times versus a current value of 13.9 times. Eurozone should sustain a P/E* ratio of close to 18 times, but it is currently rated at under 12 times. Eurozone and Japanese equities appear undervalued or, at least, under-owned relative to cash. Similar, comments apply to Britain, albeit less strongly.

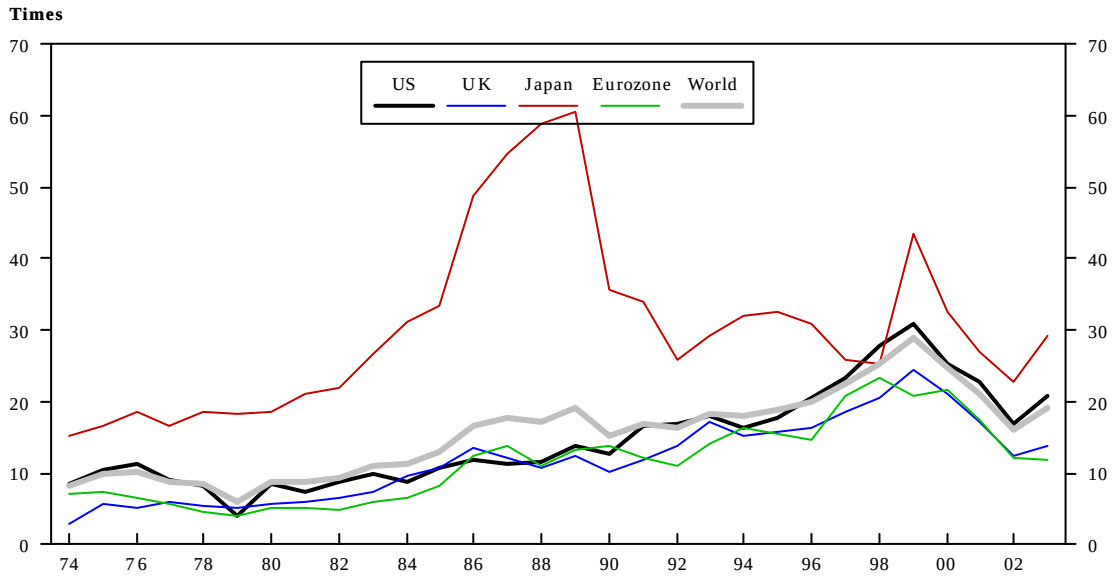
Aggregating across a number of major economies[4], theWorld market P/E* turns out at 25.6 times against a current value of 19 times. The common theme across all world markets is that stock ownership relative to liquidity generally lies below trend. In short, national P/M ratios ought to rise: at least in the short term.

These short- and longer-term influences can, in turn, be analysed if the P/M ratio is conceptually broken down into an *extensive* factor, which measures the changing number of shares held per investor, and an *intensive* margin, showing how much they will pay for each share per dollar of cash held:

$$\frac{P}{M} = \sum_{j}\sum_{i} \frac{p_i}{m_j} \times \frac{n_i}{N_j}$$

where p_i denotes the average share price; n_i the number of shares in issues; m_j the average cash balance per investor and N_j the overall number of investors.

Figure 8. P/E* Multiples – Various Markets, 1974-2003 (Times Historic Earnings)



Source: *CrossBorder Capital*

[4] US, Japan, Eurozone, Britain, Switzerland, Australia, Hong Kong, Singapore and South Africa.

The importance of a rising P/M ratio to higher asset prices (p_{i}) may be dampened, but it is unlikely to be completely devalued by a rising pool of new capital issues (n_{i}). It would, of course, be surprising if higher asset prices did not encourage a raft of capital raisings. However, this will probably be reactive and will therefore lag the rise in asset prices. In other words:

$$\%\Delta N_j > \%\Delta n_i \text{ for the } {}^{th}_{i} \text{ share and } {}^{th}_{j} \text{ investor}$$

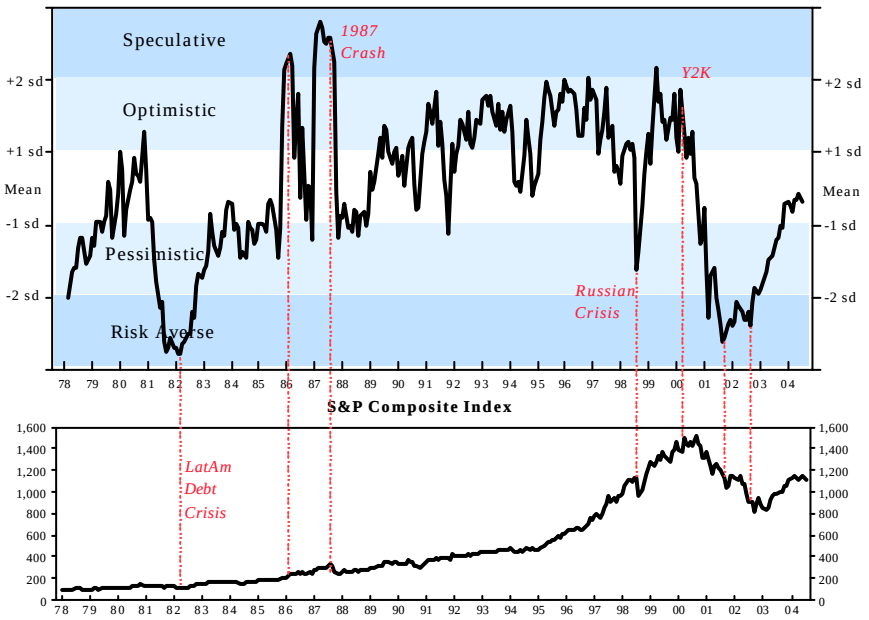
It might be argued that the underlying trend in buying power is represented by the term n_i / N_j, or shares held per investor. This is akin to the 'extensive margin' and changes secularly in line with, say, demographics, rather than cyclically with the tempo of money and business. Cyclical swings in buying power are more likely governed by the p_i / m_j term, or 'intensive margin'. Thus a trend-adjusted P/M multiple is a good guide to *market sentiment* as Figure 9, drawn in terms of standard deviations, shows for Wall Street. Many of the major turning points in stock prices occur, reassuringly, at the extremes of the chart (i.e. at plus and minus two standard deviations) when *sentiment* (positive and negative) is close to saturation.

Liquidity, Duration and Valuation

On the basis that 'buying power' is at least as important as 'earnings power' for stock market valuation, we must expect that the richest and most financially sophisticated economies enjoy the highest stock market ratings, almost regardless of their growth prospects. This was also the message from the cross-country data reported in Figure 7. In short, growth seems to have slipped unnoticed from the P/E multiple.

We started this article by noting the shortcomings of Modern Finance's 'earnings power' model. This flaw must be addressed by relating back to liquidity and ownership variables, such as the P/M ratio. The solution to the 'growth/liquidity' puzzle does not necessarily lie in continually changing the discount factor applied to future earnings, as is sometimes suggested. Another possibility follows from the work of Leibowitz (1991). This re-expresses the constant growth earnings discount model:

Figure 9. US Equity Investor Sentiment, 1978-2004 – Deviations Of US P/M Ratio From Trend



Source: *CrossBorder Capital*

$$\frac{P}{E^*} = \frac{1}{r}.(1+G)$$

Where G = g/ (r-g), the present value of all future growth opportunities, or what we dub 'Big Bang' growth; r is the discount factor and g is the constant growth rate of earnings in perpetuity.

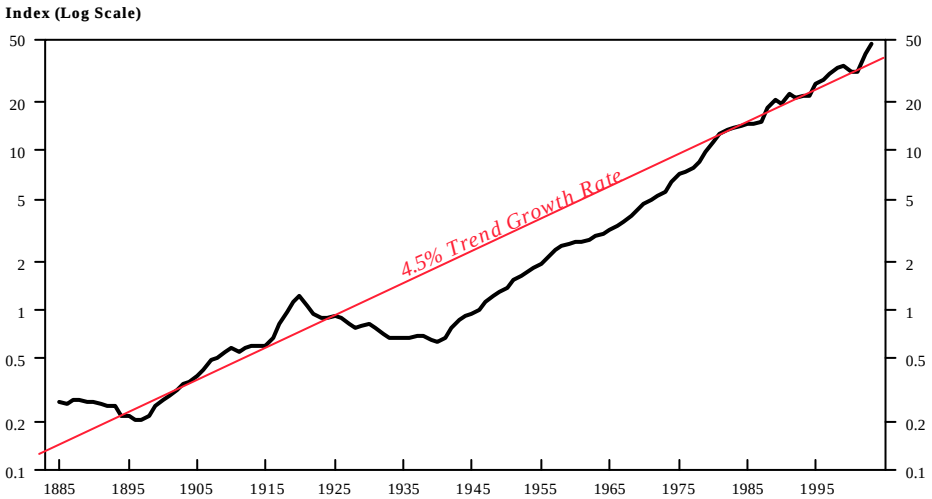
The G-factor in the above expression can itself be shown to be the product of two terms: g, the constant growth rate of earnings, and D, duration. Thus, if duration is ten years and growth compounds at 5% per annum, then the G-factor becomes 0.5 times. Correspondingly, the P/E* ratio is then 1.5 times the reciprocal of the discount factor. A discount factor of 10% would, therefore, mean a P/E* multiple of 15 times.

$$\frac{P}{E^*} = \frac{1}{r}.(1+D.g)$$

The importance of this model comes from recognising that variations in the P/E* largely derive from changes in the G-factor, and that these changes, in turn, arise from changes in either duration (D) and/ or compound growth (g). Since, by definition, g is constant, swings in duration, D, must be central to changes in asset valuation. In fact, Figure 10 shows the remarkable stability of US earnings growth over the long term, particularly post the 1930s Depression

We have shown elsewhere that the value of D is determined by the interaction of available duration (a technical phenomenon related to the profile of physical capital across the economy) and required duration (a financial constraint imposed by future liabilities less cash and borrowings, i.e. liquidity). A rise in liabilities will reduce duration (D), per se. As will an ageing population structure. A rise in liquidity and an increase in the productivity of capital will both lengthen duration. This is shown in Figure 11 by the corresponding shifts in the TT'-curve (available duration) and the LD-curve (required duration).

Figure 10. US Earnings Growth, 1885-2003 (Annual Rate, Reported Basis)



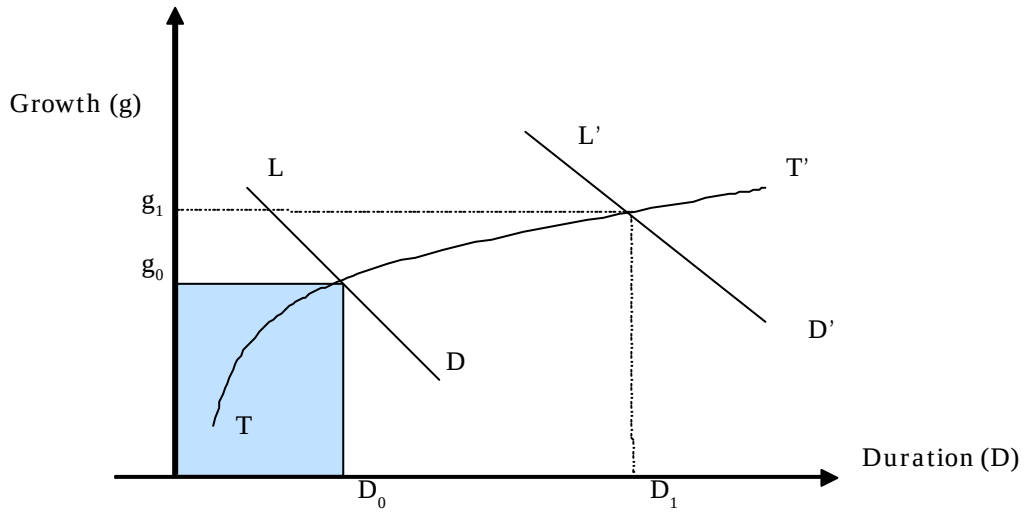
Source: *CrossBorder Capital*

The TT' curve[5] relates duration to the growth rate of the economy and earnings. This slopes upwards to the right and is drawn concave to the duration axis because growth opportunities are assumed to ultimately fizzle out. The shaded area in the chart measures the G-factor (G_0). The LD curve[6] is downward sloping reflecting the fact that liabilities tend to grow with the size of the economy. The point of intersection determines optimal duration. Changes in liquidity (i.e. cash plus borrowings) can be clearly seen to affect duration by shifting the LD-curve either to the left (falling liquidity) or to the right (rising liquidity).

Besides the relation between the flow of liquidity and duration, there is also another link to explore, namely between duration and the P/M ratio. This quotient between the market value of securities and liquid assets itself serves as a crude measure of asset duration. Cash has a duration of zero and securities have a duration somewhat above zero. Therefore, it is reasonable to assume that a 'high' P/M ratio corresponds to a 'long' duration asset structure.

This road has taken us back to our starting point. Traditional valuation measures have been shown to be a function of duration, and duration, itself, is positively affected by the flow of liquidity. Liquidity affects valuation. Indeed, the two are inseparable. Buying power is at least as important as earnings power. Indeed, in practice buying power probably changes more often and by more than underlying earnings power. It follows that valuation benchmarks are not fixed measuring rods, like the metre and the mile. Rather, these benchmarks will themselves alter as liquidity and the monetary climate change. A tight monetary climate warrants a less demanding valuation benchmark than an easy monetary climate. This opens up the possibility of conditional valuation measures and regime shifts. Our approach is also consistent with modern theories of financial crises, such as Minsky (1978). In other words, a period of monetary deflation (e.g. LD in Figure 11 above) should be associated with lower P/E* ratios and shorter duration (D_0) than a monetary inflation (e.g. L'D' in Figure 11 above). Yet the underlying growth rate of earnings (g_0 and g_1) may be surprisingly similar between the two regimes.

Figure 11. Duration, Growth and Liquidity



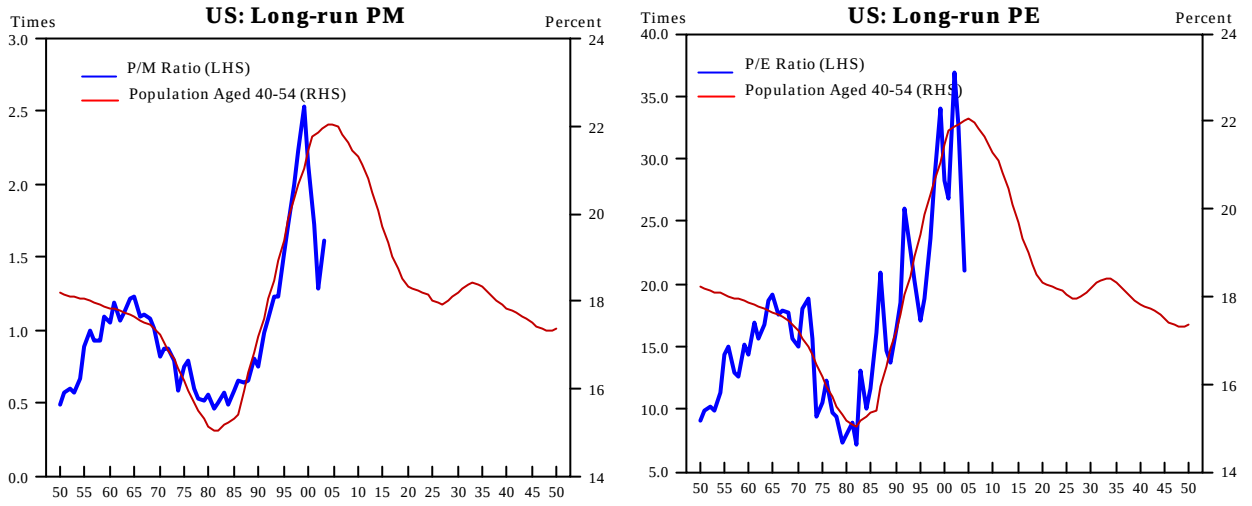
Source: *CrossBorder Capital*

[5] Named after its two key parameters: taxation and technology

[6] Named after its two key parameters: liquidity and debt

Valuation measures, such as P/E ratios, are therefore, first-and-foremost measures of the short-term risk appetite of investors and not long-term growth metrics. Their long-term path is more likely to be driven by the savings habits of investors. These are, in turn, primarily governed by factors such as inflation, taxation and demographics. Of these influences, the latter may be crucial, as Figure 12 warns. The share of 'pre-retirees' (i.e. those aged 40-54 saving for pending retirement) in the American population appears to closely correlate with the US P/M and, thus, P/E ratios. Ageing populations can, therefore, significantly affect asset market valuations: first favourably, then unfavourably. Wither Western asset markets?

Figure 12. Secular Movements In P/M and P/E Ratios. US Demographics (% of Population Aged 40-54) And Valuation, 1950-2050



Source: *CrossBorder Capital, Datastream*

References:

Goldsmith, Raymond W, *Comparative National Balance Sheets: A Study of Twenty Countries, 1688-1978*, University of Chicago Press, 1985.

Graham, Benjamin and Dodd, David, *Security Analysis*, McGraw Hill, 1934.

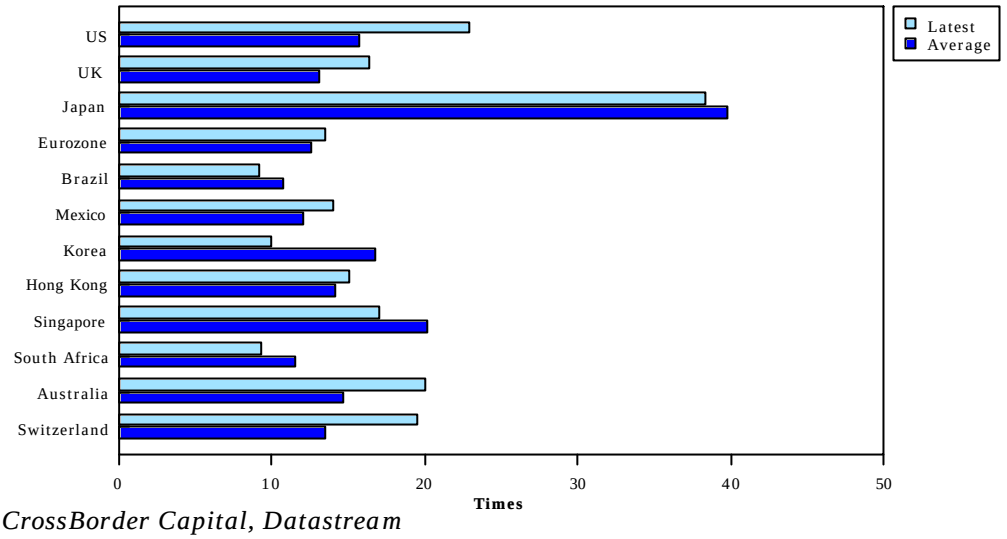
Howell, Michael J, *What Drives Hedge Fund Returns?* CrossBorder Capital, 2003

Leibowitz, Martin L and Fabozzi, Frank J, *Investing: the Collected Works of Martin L. Leibowitz*, McGraw Hill, 1992

Minsky, Hyman P, *The Financial Instability Hypothesis: A Restatement*, Thames Papers in Political Economy, Autumn 1978.

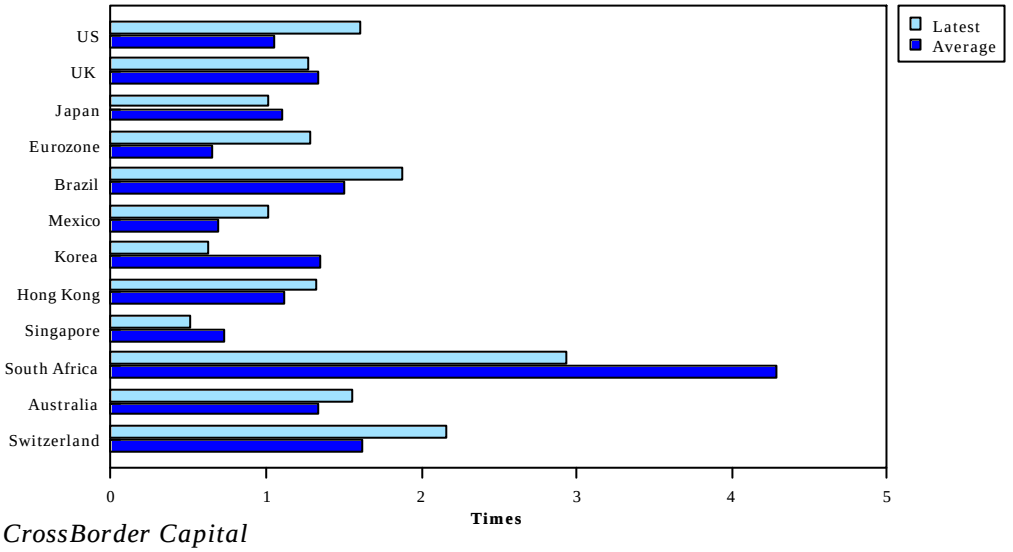
Williams, John Burr, *The Theory of Investment Value*, Harvard University Press, 1938

Appendix A. Differences In P/E* Ratios (Valuation) Across Economies, 1974-2003 Average and Latest Value (2003)



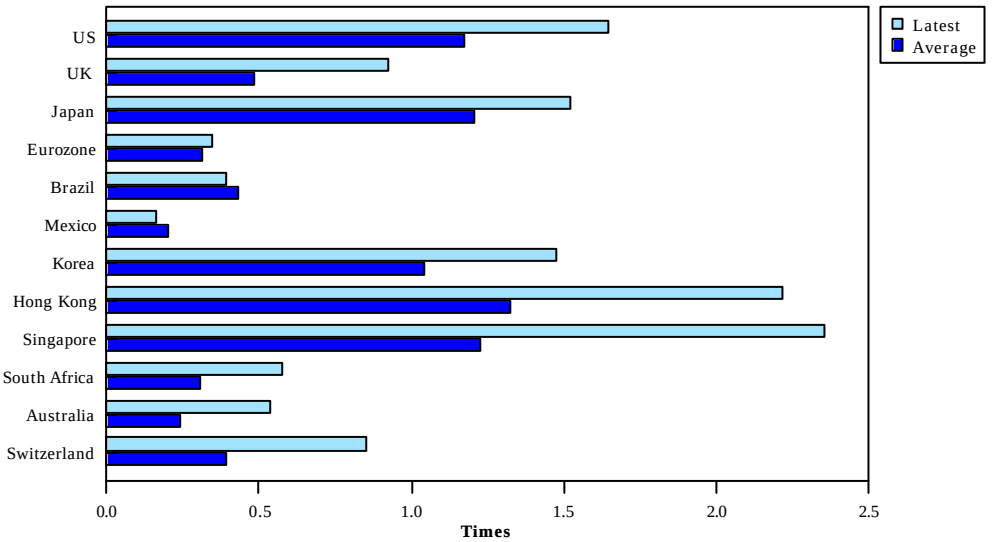
Source: *CrossBorder Capital, Datastream*

Appendix B. Differences In P/M Ratios (Ownership) Across Economies, 1974-2003 Average and Latest Value (2003)



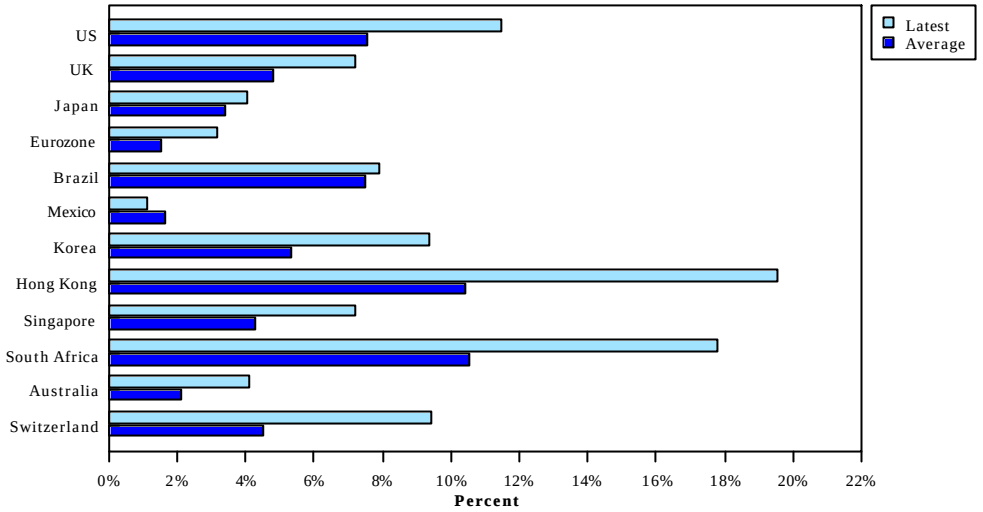
Source: *CrossBorder Capital*

Appendix C. Differences In M/GDP Ratios (Excess Liquidity) Across Economies, 1974-2003 Average and Latest Value (2003)



Source: *CrossBorder Capital*

Appendix D. Differences In E/GDP Ratios (Profit Margins) Across Economies, 1974-2003 Average and Latest Value (2003)



Source: *CrossBorder Capital*

CROSSBORDER CAPITAL LIMITED

MARCOL HOUSE
289-293 REGENT STREET
LONDON W1B 2HJ
TELEPHONE 020 7535 0400 FACSIMILE 020 7535 0435

REGULATED BY THE SECURITIES AND FUTURES AUTHORITY

CrossBorderCapital
Implementing Insight

Global View

May 2010

Lost in the Bretton Woods – From Global Liquidity Crisis To Global Debt Crisis. Will World Bond Yields Spike?

Many believe that nominal bond yields will rise strongly under pressure from deteriorating demographics and bankrupt governments. But they may not. We see a bigger threat from volatile paper currencies. Bond yields depend more on the issuance of short-term paper than the supply of long-term paper. The big winners from any Western monetization will be the nominal gold price, and maybe units like the Singapore dollar. Despite the risk of further widespread falls in the value of paper money, cost deflation should restrain consumer prices in the big economies. On top, real interest rates may remain low. Equity yields could rise as GDP growth fades. But that is another story. Worry about currencies not bonds.

From a Crisis of Global Liquidity to a Crisis of Global Debt

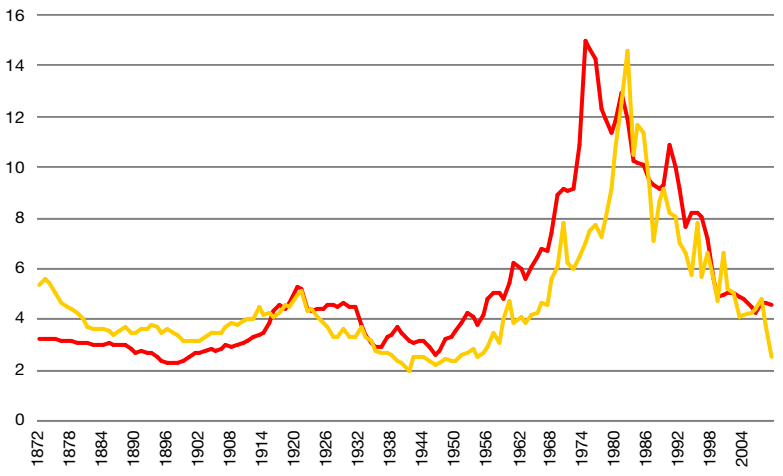
The central price in the global financial system is the yield of the dominant economies' debt.

It is a barometer of overall health; a measure of geo-political stability; and, to the extent that it reflects an ability to finance capital cheaply, a predictor of future economic growth. Despite current concerns, the stark fact culled from the West's long financial history is the stability of this benchmark yield. See Figure 1. Long-term bond yields have traded at remarkably low levels throughout decades of economic and often political dislocation.

For example, academics Reinhart and Rogoff show that since 1800 there have been five waves of defaults in the international debt markets, each roughly 40 years apart, and with each lull followed by a new wave of failures. Yet yields in major financial centres (the lenders) barely blinked; if anything they fell. See Figure 2.

Without doubt this stable financing background underpinned a vast capital investment by the corporate sector and, in parallel, facilitated the enlargement of the State.

Figure 1
US and UK Bond Yields
Annually 1872-2009



Source
CrossBorder Capital,
Homer '*A History of Interest Rates*'

96 Baker Street
London W1U 6TJ
Tel (44) 20 7908 2800
crossbordercapital.com

The origins of stable finance can be traced back to the seventeenth century Dutch Empire. This legacy of low and stable long-term interest rates, or so-called 'Dutch Finance', was passed onto the British in the seventeen hundreds and cemented during the nineteenth century. Picked-up and next led by US markets, stable finance persisted throughout the West until the late-twentieth century. When according to Reinhart and Rogoff, since WW2 *"…inflation and default have gone hand-in-hand."* The mid-to-late 1970s saw these particular concerns both heighten and widen-out to include the core economies, with UK bond yields peaking in 1974 and US bond yields hitting their highs in 1982.

Some thirty-odd years later, the West again faces similar fears: budget deficits have exploded and debt burdens look set to get heavier-and-heavier.

On top, demographic pressures will make the struggle to reverse these trends that much harder. Many suggest that national bankruptcy and double-digit inflation are inevitable costs not just for Iceland and Greece, but perhaps for the major Western economies too? Bond market vigilantes will surely force benchmark yields much higher to compensate for more risk? In the wake of a global liquidity crisis, do we now face a fast-approaching crisis of global debt?

We examine these fears. It seems likely to us that the West can muddle through without radically higher bond yields. In theory, the level of nominal bond yields is effectively nebulous because future real bond returns are unknown in a World where inflation shocks can be large and unpredictable: Inflation (and default) being the major risk factor for bonds.

Therefore, in practice rules of thumb are used. History, for example Figure 1, shows that this *conventional basis of valuation* is largely unaffected by the rate of household savings and by the scale of bond issuance, but it can be upset by changes in the monetary regime.

These monetary regime shifts lead to bouts of *monetary inflation* and *monetary deflation*, and typically occur outside of fixed exchange rate arrangements, such as Bretton Woods and the Gold Standard. Specifically, we find that higher bond yields require both monetary inflation and cost inflation, but lower bond yields can result from either monetary deflation or cost deflation. We define cost inflation as the contribution to higher prices coming from higher wages, lower productivity, or, say, rising oil prices.

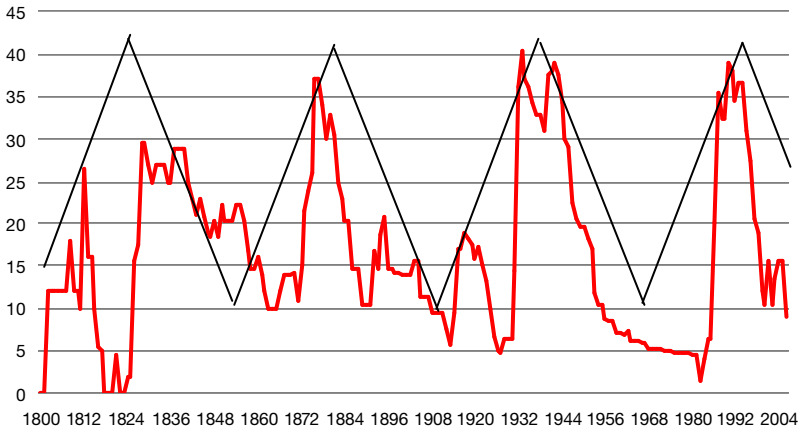


Figure 2
The 40/50 Year Debt Cycle: Percentage of National Borrowers in Default
Unweighted by Size of Debt 1800-2006
Source
Suter (1992), CrossBorder Capital

Monetary inflation measures the effect on prices of depreciations in the quality of the monetary standard and is the sole responsibility of Central Banks. Monetary inflation is a necessary condition for higher bond yields, but it is a sufficient condition for rising asset prices, rising commodity prices and weaker paper currencies.

The threat of *debt traps*, not least because of the rising burden of interest payments, will push more governments towards monetary inflation rather than more bond issuance. This boost to liquidity will steepen yield curves, but may not significantly push up bond yields because cost deflation may limit the rise in sensitive consumer prices. However, monetary inflation will mean that nominal equity prices, real estate values and commodity prices should rise, and paper currencies will devalue. A weak paper currency is more certain in our view than a weak bond market. Consequently, investors should diversify into gold and up-coming 'reserve currencies', such as the Singapore and, maybe, the Australian and Canadian dollars.

Debt Crises

Debt solvency crises occur when there is insufficient income, or at least the perceptions of insufficient income, to payback either the outstanding debt principal and/or the interest payments. In turn, if solvency crises suggest future financing difficulties, then *debt traps* suggest impossible situations. Many governments are close to *debt traps*. A debt trap occurs when debt grows at a faster pace than the gap between GDP growth and the nominal interest rate. Thus, if GDP rises at 4-5% in nominal terms (including inflation) and interest rates (i.e. funding costs) are 3-4%, this puts around a 1% point ceiling on the growth of nominal debt. Faster debt growth will see an explosive debt/GDP ratio. Japan already suffers a whopping debt/GDP ratio of 223%.

For the borrowers, debt crises and rising yields go together: just ask Greece. And as yields rise, they pile on the agony by ratcheting up the cost of debt finance, thereby compounding the repayment burden. Given current large debt/GDP ratios, it only takes a small rise in interest rates to swell budget deficits through higher financing costs. Thus, a 100% debt/GDP ratio means that each 100bp rise in interest rates pushes up the deficit by 1% point of GDP. On top, additional research by Reinhart and Rogoff shows that GDP growth is itself shaved by 1% point whenever the debt/GDP ratio exceeds 85%. Already even at today's low interest rates, interest payments often make up a quarter to a third of budget deficits[1].

The knife-edge dilemma, shown in Figure 3, seems far removed from the tranquility revealed by two hundred years of debt market history. The chart illustrates this threatening trade-off between budget deficits and fiscal debt. The further to the right an economy is positioned, the nearer it stands to the accelerating misery of the debt trap: the more to the top-left an economy, the closer it is to the haven of solvency. The more that debt builds, the higher the interest burden, and unless primary budget deficits are cut, the more the debt burden will spiral upwards as a percentage of GDP. Aware of the rising interest burden and fast-approaching debt trap, policy-makers will at some point switch away from further debt issuance to printing money, thereby monetizing their debts.

Unlike before, today's debt problems increasingly lie in the core OECD economies and not in the emerging market periphery, the traditional net borrowers. Few Western governments yet see it this way, or probably truly understand the 'global' nature of the crisis.

[1] OECD estimates that the 2011 interest proportion for the entire OECD will be 28.9%; for the EU members 46.7%; 16.0% for Japan; 28.0% for Britain, and 24.5% for the US.

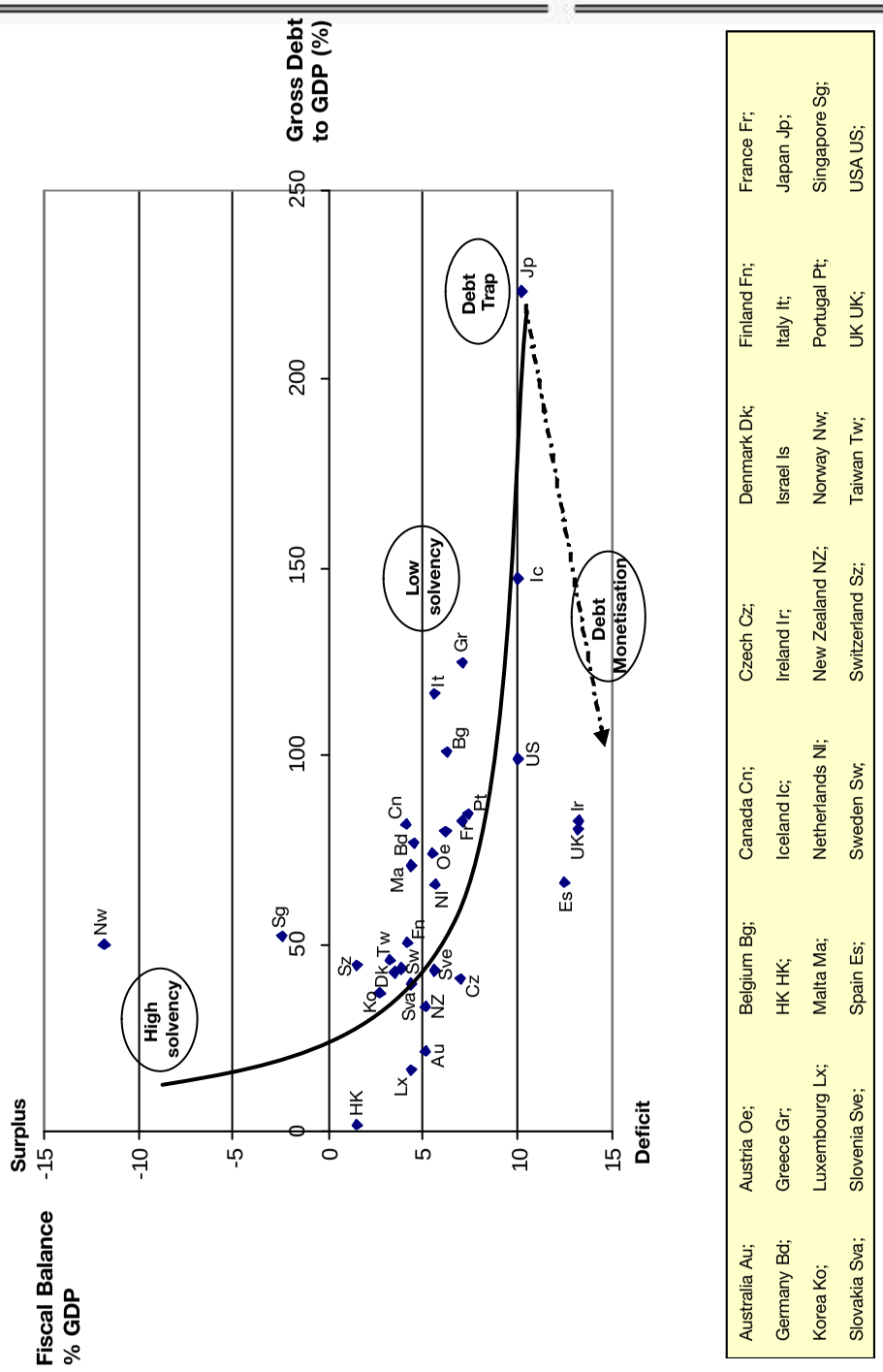


Figure 3
Debt Traps: Budget Deficits and Gross Debt Outstanding *(Percent of GDP)*
2011 Projections
Source
IMF

Figure 4 gives the cynical view of cartoonist David Low from a previous debt crisis in 1932. All nations are involved both because the internationalisation of finance means that borrowers access a global savings pool, but also because the 2007/08 financial crisis has meant that many more governments now simultaneously have large debt burdens to fund.

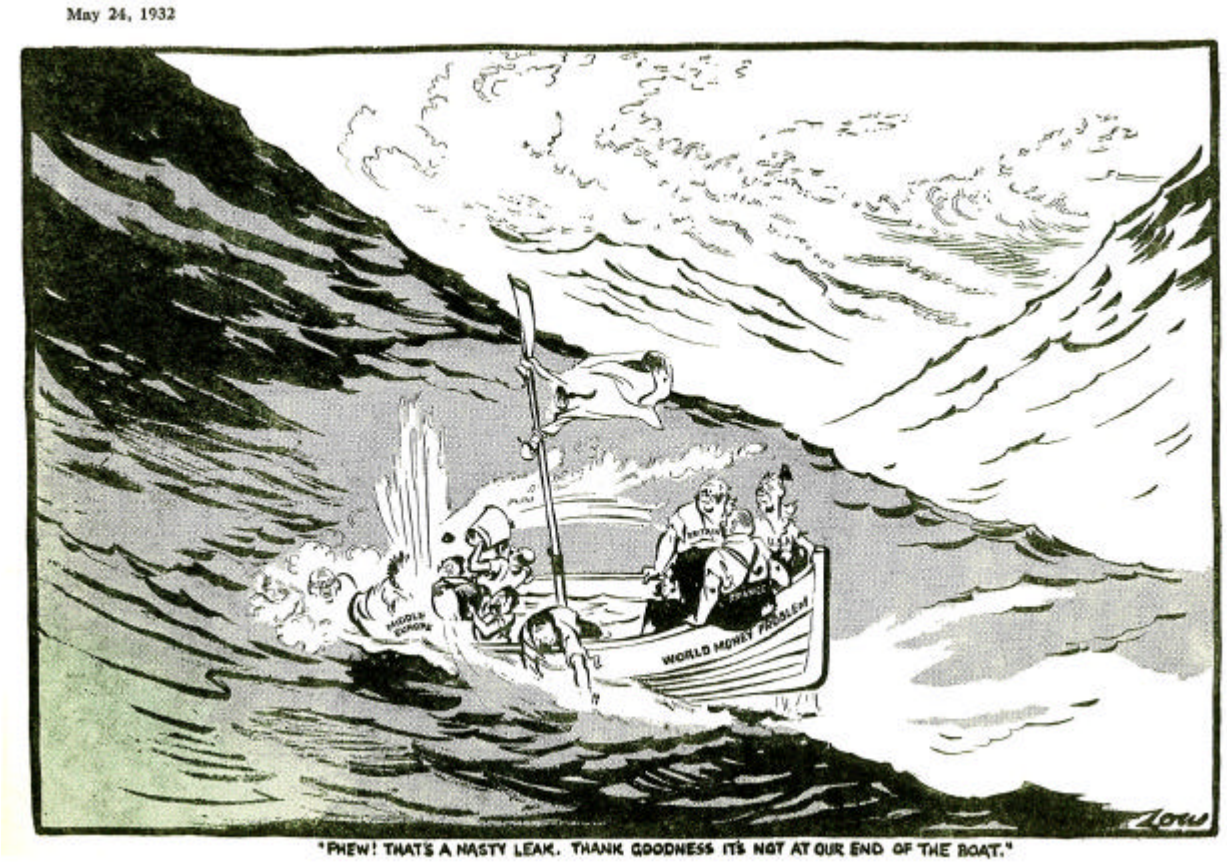


Figure 4
The Leak Is Not At Our End Of The Boat
1932
Source
David Low The cartoons are reproduced under licence. Copyright Solo Syndication/Associated Newspapers Ltd.

Public debts were high even prior to this crisis because ageing populations and slowing economic growth both capped tax receipts and pushed up State spending. These structural problems mean that the days of balanced budgets are well-and-truly over.

Debt crises typically follow previous credit booms. Figure 2 above showed that major crises obey a 40-50 year cycle. Credit booms have often been associated with war finance. Although debt/GDP ratios are high going into such crises, the prospect of large military spending cuts and predictable falls in budget deficits enable debts to be restructured and the economies to muddle through. This time the debt burdens originated, instead, from a household and banking sector borrowing binge.

Lurking behind this global credit binge, ironically, lay the rise of the emerging markets. The heightened competitive pressures facing Western firms squeezed their profitability. Corporations focused on growing their cash flows internally and started to dump surplus investment funds into wholesale money markets. Banks and other rapacious credit providers were dis-intermediated, forcing them, in turn, to leverage skinny returns and to chase low quality borrowers, such as hedge funds and sub-prime loans. Banks lent longer and borrowed shorter than 'normal', stretching the duration of their assets and, thereby, widening the duration mismatch between their assets and liabilities. Hence, the initial liquidity problem highlighted by an inability to re-finance short-term debts soon became a long-term solvency problem for the banks.

These debts have now been 'nationalised' by the State. In short, we have moved from global private sector liquidity crisis to a global sovereign debt crisis.

But it was ever thus. Economic empires typically fail because bloated governments exhaust their credit. The debt trap threat posed by the prospect of rising interest rates and the unpalatable thought of large cuts to State entitlement spending will likely force governments to print money instead. Their Central Banks enjoy the power to create new legal tender and force it into circulation. From the Roman to the American empires, governments always used such means to overvalue their currencies. But ultimately the rapacious demands of the State purse force them into debt over-issuance.

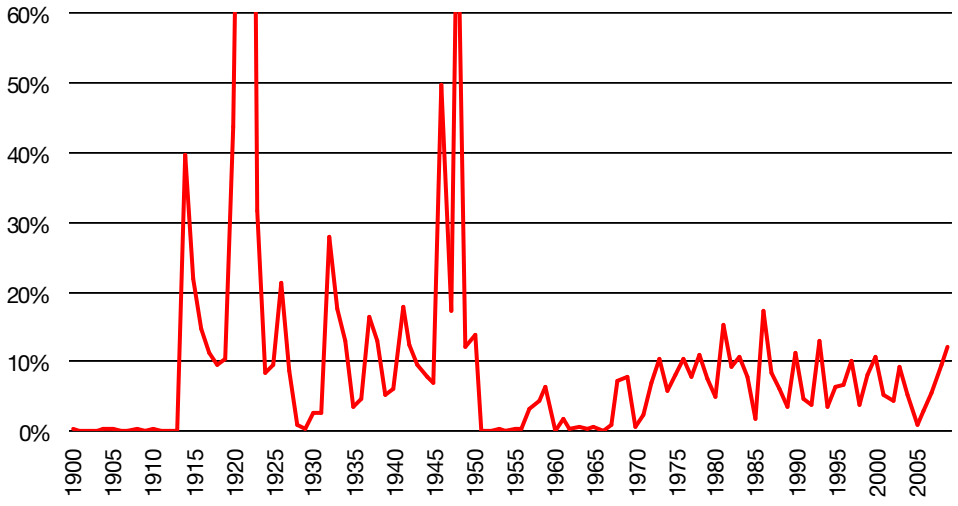


Figure 5
The Volatility of Major Currencies
Annual Percentage Standard Deviations 1900-2009
Source
CrossBorder Capital

The destruction in the value of paper money through over-issuance is dubbed *monetary inflation.* Monetary inflations cause currencies to tumble in value. It happened to the Roman denarius; it happened also to the French Franc and to the British pound, and many expect it to soon happen to the US dollar.

Rapidly changing policy perceptions; monetary inflation threats and denials; and swings in the ability and success of various governments to tap global savers, will show up in the heightened velocity of capital flows and in ever greater currency market volatility. Figure 5 highlights the volatility of paper currencies through the twentieth century. In the turmoil following the Great Depression, the US dollar soared by 29.4% against the British pound between 1931-32, but then skidded by 30.4% in the years 1932-34.

From 1934-1940, the US dollar climbed again by 37.6% against sterling. In the years 1931-33, the US dollar rocketed by a whopping 95% against the Japanese Yen. Yet it tumbled by 39.8% between 1932-34 versus the French Franc. In the years 1934-38, the US dollar jumped dramatically by 128.7% against a weak French Franc. It even mustered a more prosaic but further 32.1% appreciation from 1938-40 as Europe became engulfed in war.

Dutch Finance

How tangible, today, are these threats of national bankruptcy, inflationary bust and currency turmoil? Benchmark long bond yields are already starting to break higher; could they even be about to skyrocket? To help answer this question, we need to study debt market history. Every schoolchild 'knows' that the British Empire was forged from the cheapness of Manchester cotton; the heroism of Admiral Nelson; the plundered treasures from India and the jingoism of Kipling. But the true bedrock of Victorian capitalism and the pillar of Empire was a small piece of paper, invented almost accidentally in 1752 by the economy of Chancellor Sir Henry Pelham. The '3% consolidated annuities' were the origin of the undated UK Government consolidated stock, or Consol for short.

The reputation of London as a financial centre was largely built on the integrity of the three-month trade bill, and the predominance and stability of the Consol. UK Consols provided the benchmark in an uncertain World against which to value speculative railway bonds; government bonds from the US and Colonies; and bonds raised by British local authority and public utilities.

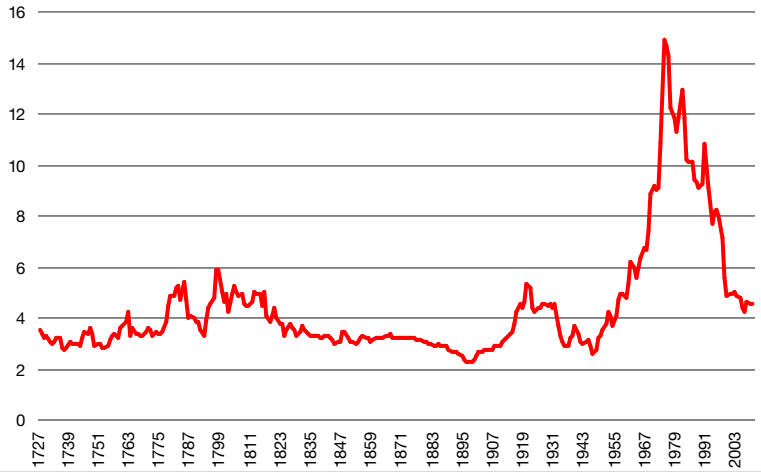


Figure 6
UK Consol Yields
Annually 1727-2009
Source
CrossBorder Capital, Homer '*A History of Interest Rates*'

Still in existence today, the long-term steadiness of UK Consols is starkly apparent from Figure 6.

For most of the past three centuries, British bond yields stayed within a narrow 200bp band from 2.75% to 4.75%. This stability was only recently challenged, from the mid-1960s through the late-1990s, albeit yields did previously poke above this range when the gold standard monetary anchor was suspended during the Napoleonic and the First World Wars. Bond yields moved up alongside the devaluation of sterling, which in the later case fell against gold through 1919-20. The restorations of the Gold Standard in 1819 and again in 1925 preceded a fall in bond yields.

The 1936 Tri-partite Agreement between the US, Britain and France, the precursor to the 1944 Bretton Woods fixed exchange rate system, attempted to stabilize the US dollar, Pound sterling and French Franc paper cross-rates, while the US dollar became the anchor unit that was fixed to gold at US$34.80/oz. The backdrop to this agreement was growing currency turmoil. It created a stable currency base that, in turn, helped to maintain the integrity of the bond markets. Following World War Two, the Bretton Woods gold exchange standard extended this stability through to the late-1960s. Remarkably it allowed Western governments to finance huge deficits at low nominal yields despite whopping debt/GDP ratios even measured by our latest extended standards. Figure 7 shows the scant correlation between high debts and US bond yields.

But if the over-supply of bonds is not a problem, what about demand: who will buy up this debt? The West is challenged demographically by peak population ageing. Many argue that savings ratios will soon fall as retirees spend their accumulated nest-eggs, so forcing up real interest rates. Although there is intuitive appeal in the idea that ageing populations have rising savings ratios (as opposed to 'old' populations having low savings ratios), empirical evidence fails to find a strong link.

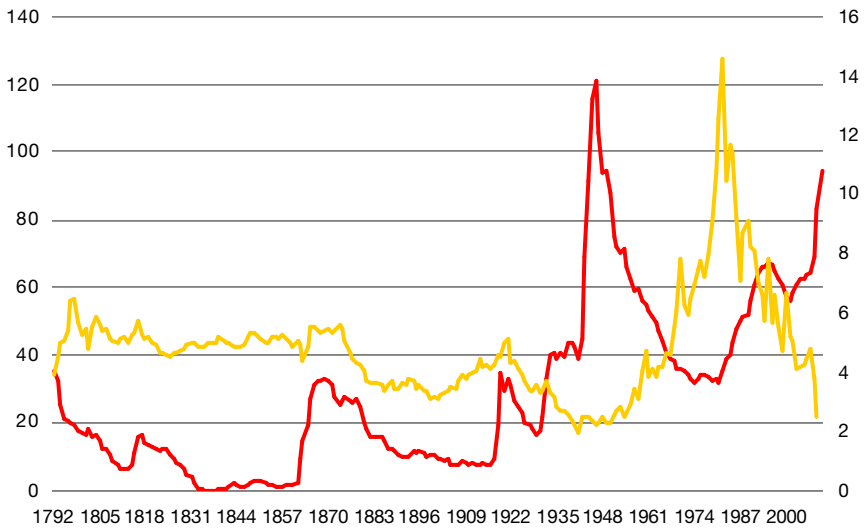


Figure 7
US Debt/GDP Ratio and Bond Yields
Percentage 1792-2010
Source
US Treasury

Figure 8 shows the absence of correlation across the OECD economies between household savings rates and median population ages over the past two decades. Even counting a nudge from rising life-spans as older populations reach retirement age, we should not expect fewer net savings as nest eggs are run-down. Japan is still someway off her peak prospective median population age, but she has already suffered a collapse in her once high household savings ratio. The fall in Japanese savings owes much more to abysmally low wage growth. Indeed, what we should conclude from the data is that older populations mean higher State spending, lower productivity gains and hence sluggish economic growth. It is true that this suggests weak future tax payments and potentially more debt issuance, but slower economic growth is far more likely to negatively affect equities than bonds, viz. post-1990 Japan. In other words, average asset duration may fall because of demographics, not savings ratios, and bond yields may not necessarily rise as a result.

Overall, the issuance of long-term paper and the supply of household savings seem to make little difference to bond yields. Rather bond yields reveal *persistence*, or stickiness. Investors appear to establish a psychological norm, or *conventional basis of valuation*. Yet, at certain times, this convention can be overturned. Yield persistence, followed by large, step-changes in bond yields, suggest both the existence of 'investment regimes' and, more importantly, 'regime shifts'. **These 'regimes' are closely related to exchange rate policy, and specifically to periods of *monetary inflation* and *monetary deflation*.**

In short, there is more than one type of inflation (or deflation): we distinguish between monetary inflation, consumer inflation, cost inflation, asset price inflation and commodity price inflation. Think of consumer or high-street inflation (deflation) consisting of two parts – *cost inflation* (deflation) from the effect of higher wages and material prices, and *monetary inflation* (deflation) from the undermining of the monetary standard through the over-issuance of short-term paper, aka. *printing money*. *Asset price inflation* and *commodity inflation* are different again, but both tend to be most influenced by the pace of monetary inflation. In addition, unilateral *monetary inflation* also shows up in bi-lateral exchange rate volatility. So, if the US Fed alone 'prints money', the US dollar will slide against other paper currencies.

Monetary inflation is the common denominator in all forms of inflation, but uniquely cost *inflation* (or deflation) alone has a further major effect on consumer prices. Put differently, with due apologies to Milton Friedman: *asset price* and *commodity price inflation* are always and everywhere monetary phenomena; *cost inflation* is always and everywhere a real economy phenomenon; and *consumer price inflation* is sometimes one, sometimes the other, and often both.

Concern over inflation is a modern problem. Across history the dominant trend has been deflation, or more accurately *cost deflation*: our long-term vision may have been blinded by the inflationary 1970s, when private sector costs were challenged by expanding government, militant labour unions and swamped with young, capital-hungry but 'inexperienced' baby-boomers who dragged down productivity. We have forgotten that Capitalism excels at slashing costs. Looking ahead, unless the public sector is able to gain significant traction, it seems more likely that competitive forces in the World economy, and particularly from emerging markets, will force the prices of traded goods even lower. This may, of course, still mean higher prices for non-traded goods, services and assets, but official indexes of consumer prices – and hence 'perceptions' of inflation – are greatly affected by traded goods. The impact of monetary inflation on consumer prices can often be offset by a cost deflation. **It is when this downward flexibility of costs fails to occur that bond markets become unhinged.** Figure 9 shows benchmark 'global' yields, using a weighted average of US and UK bond yields, against changes in average consumer inflation.

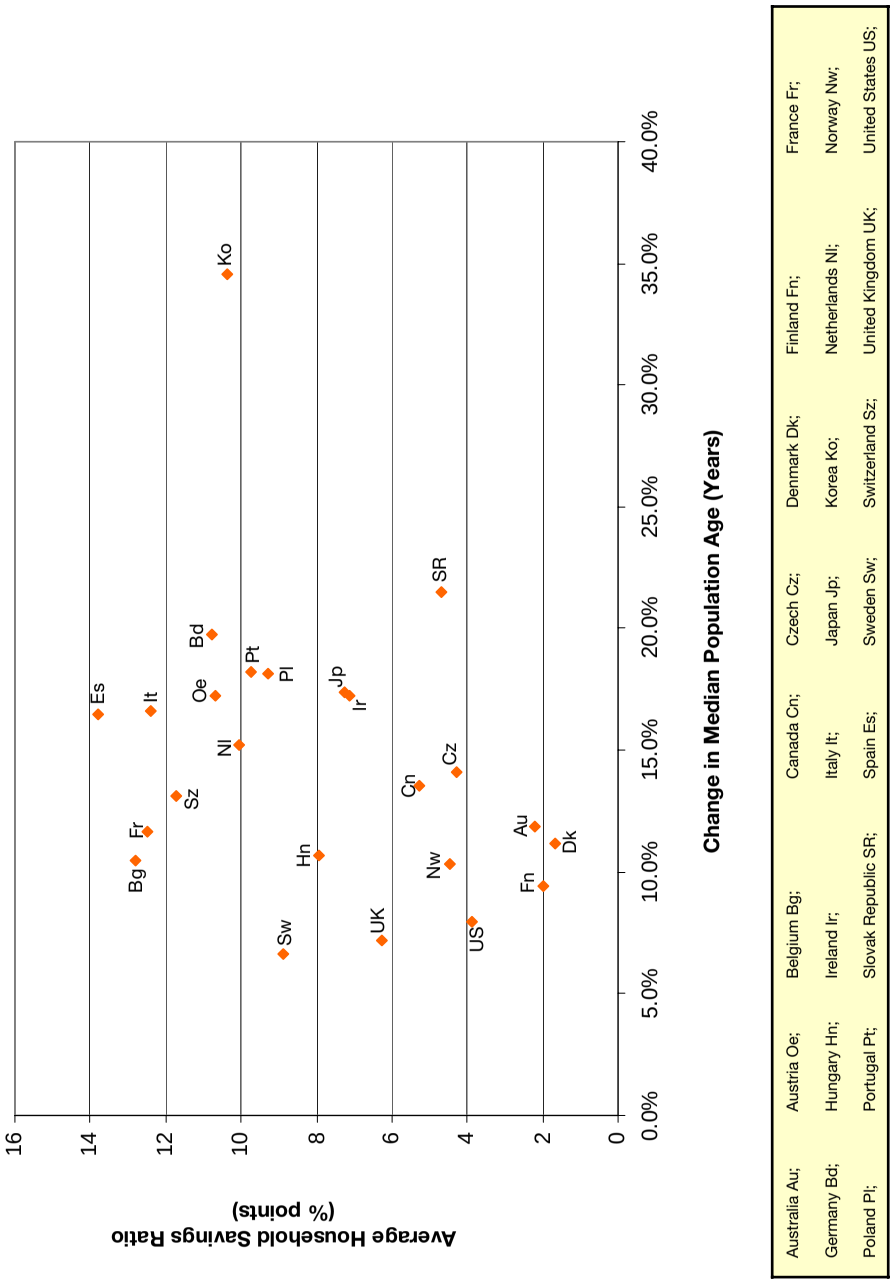


Figure 8
Change in OECD Median Population Ages and Average Household Savings Rations
2000 – 2010
Source-
OECD

Yield Curves, Currencies and Lessons from the History of Bond Markets

Bond yields are influenced by perceptions of future inflation. History shows that they are not determined by expectations of short-term rates over time, as many academics and some policy-makers today still assert. Long-term yields are simply not low because short-term interest rates are low. Rather low short-term interest rates can reflect both abundant liquidity and low long-term yields. Long-term interest rates are low because of either cost deflation or monetary deflation, but by definition the coming monetary inflation implied by abundant liquidity may quickly reverse any previous monetary deflation.

Paper money in large part makes up liquidity. The more that Central Banks expand the volume of their paper monies, the greater the risk that the currency unit will devalue against gold, thereby creating *monetary inflation*. **In other words, over-use of liquidity will ultimately savage a currency and so help push up nominal bond yields.** Thus, the persistence of low short-term interest rates owes most to abundant liquidity. Liquidity forces short-term interest rates to trade at a premium and at a discount to long-term yields. Abundant liquidity forces a strongly positive spread between long- and short-term rates, whereas tight liquidity causes a negative spread. Liquidity drives the yield curve.

Despite often frequent changes to short-term interest rates, they have maintained a remarkably stable range of fluctuations relative to bond yields over time. Since 1900 the data show an average cycle of around 8.3 years, and a slightly longer one of 8.9 years since 1760. These fluctuations mirror the monetary or liquidity cycle. In other words, yield curves have also been astonishingly well-behaved in the face of recession, depression, World War and high inflation. **Bond market history, therefore, supports our contention that it is the level of long-term interest rates that ultimately determines the level of short-term rates, and not vice versa.**

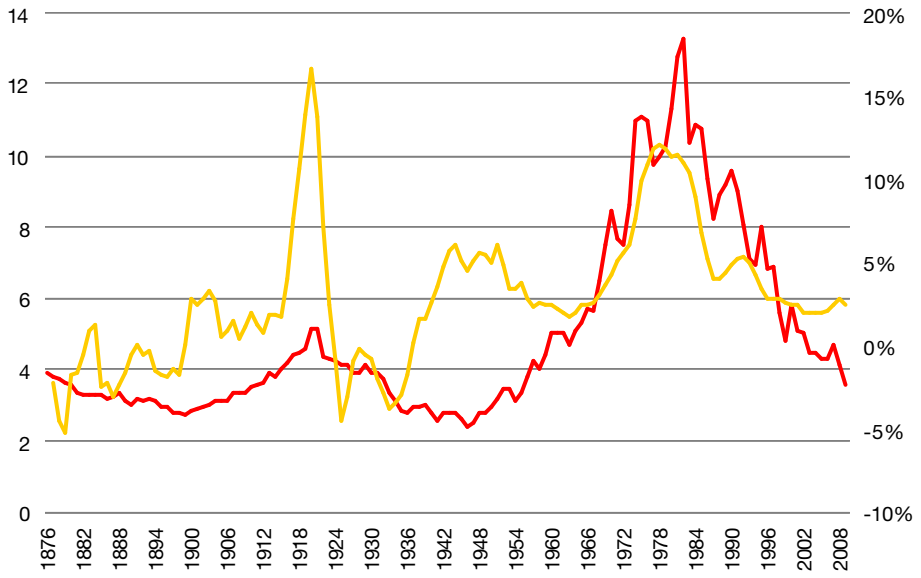


Figure 9
'Global' Bond Yields and Consumer Inflation
1872-2009
Source
CrossBorder Capital

Keeping short-term rates below bond yields cannot permanently stop bond yields from rising. True, short-term rates ultimately gravitate back towards long rates, but they follow rather than lead. Also, for long periods of time, even decades, short rates can trade above long-term yields – as in the 1919-30 period. Falling, as opposed to rising, US long-term yields through the 1920s probably resulted from these 'high' short-term rates and a monetary squeeze. Moreover, the only way to break rising yields, as Fed Chairman Volcker found in the early-1980s, is to sharply tighten liquidity sufficient to crush inflation expectations between an inverted yield curve, a strong paper currency exchange rate, and rising unemployment to curtail costs.

Thus, the main factor driving bond yields is inflation expectations, and they must remain anchored at low levels to keep yields down. Disciplined expectations, in turn, depend significantly on the integrity of the monetary standard. A stable currency is a clear signal that neither 'too much' nor 'too little' money has been created. It is no coincidence that low yields occur during periods of *stable money* and when paper currency volatility is largely absent: such as the British Gold Standard (from 1717 'de facto' and 1821 'de jure' until 1914), International Gold Standard 1870-1914, and the Bretton Woods fixed exchange rate system 1944-71.

Remarkably, the integrity of the monetary standard has been maintained for roughly three-quarters of the time since the start of the eighteenth century. Ideally we need a new Bretton Woods-style fixed exchange rate system to ensure future discipline, but at present this looks too impractical to wish for.

Without this formal monetary rule, it seems inevitable that *monetary inflation* will take hold to some degree, not least because sluggish economies may need to be goosed forward by liquidity injections. But, as we argued earlier, it is by no means certain that faster monetary inflation will pass through into more rapid increases in consumer prices, because falling costs may intervene. **Although asset prices and commodity prices should generally increase, by far the best barometer of monetary inflation is a rising nominal gold price.**

Of course, future policy-makers might try to 'de-monetise' gold by publically disparaging its role as a store of value and/or by making it difficult to serve as a standard of value. One 'dirty trick' might be for governments to periodically 'dump' some of their remaining official gold holdings into markets to sharply weaken the gold price. Ignoring gold and always thinking in terms of paper currency cross-rates disguises monetary inflation, particularly if beleaguered Western governments inflate their paper monies at similar rates. The rise in headline consumer inflation rates might then be mitigated. Notwithstanding, gold and emerging market currencies would appreciate. Arguably, this is what has been happening for the past decade. See Figure 10.

Over this period, the potential strength in certain emerging market currencies (e.g. Chinese RMB) was sacrificed by local policy-makers eager to maintain trade competitiveness and to build forex reserves instead.

These history lessons teach us that the key decision for investors is not about buying or selling bonds. **Rather it is which currencies should they hold their wealth in? Monetary inflation and weak paper currencies are a far more certain prospect than much higher bond yields.** Whether or not bond yields reflect monetary inflation depends on prevailing cost deflation.

Our central conclusion is that gold must remain a choice investment over the medium term. The prospect of widespread monetization, even latent monetization, will cause it to appreciate in value. Equally, up-coming emerging market and commodity-based 'reserve currencies' should be accumulated. For now, the most obvious are the Singapore, Australian and Canadian dollars.

In addition, those Western economies that can still garner *seigniorage* gains, or have currencies that serve as general *means of settlement* will do relatively better. Seigniorage defines the difference between the face value of notes and the cost of producing them: examples are the overseas or external circulation of high denomination banknotes, such as the E500 and the SFr1000 banknotes, and the US$100 bill.

The most obvious winner is America because, *pace* the Euro, the US dollar remains the World's main standard of value. Worryingly, Japan, with its whopping debt burden, can find least shelter here because the Yen is not an internationally traded currency.

We have argued elsewhere that the only way that a strong World economy – or at least a strong Asia – can get the US dollars needed to lubricate its markets is by the US running a sizeable current account deficit.[2]

America obliged in the mid-2000s via greedy investment banks parceling-up and rebranding sub-prime mortgages as triple-A securities that could substitute for short-term government paper.

[2] It has been argued that the US could instead (or as well) run a capital account deficit. However, this ignores an important asymmetry. When foreigners hold US dollar assets, this increases the net liabilities of the US economy and is posted in the balance of payment statistics as a capital inflow, much equivalent to a loan. Because America, in practice, tends not to manage her forex reserves, this net capital inflow much match an equivalent payments outflow, which by definition must mean a current account deficit. However, what the demand for short-term US dollar paper could be met from long-term US dollar outflows of, say, FDI. Thus, if foreigners demanded US$100 billion in short-term US dollar instruments, and US firms invested US$120 billion through FDI , the capital account would record a net nil balance; as would the current account. In practice, this tends not to happen. The adjustment factor tends to be the current account.

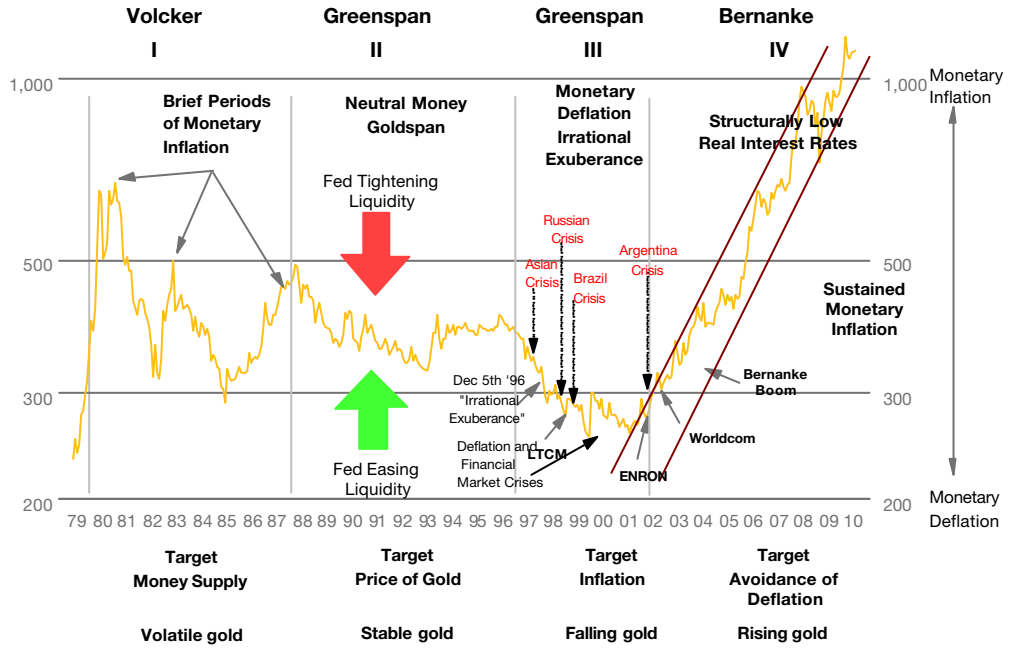


Figure 10
Evidence of Monetary Inflation: Nominal Gold Price
US dollars per Ounce 1979-2010
Source CrossBorder Capital

This facilitated a US current account deficit of circa 6% of GDP but also required the American private sector to take-on imprudently large debts. This option is now impossible. Therefore, given that the US deficit has since shrunk to 2-3% of GDP, we figure that this small deficit is incompatible with the World economy growing at the 5-6% clip that the IMF predicts over the medium term, without the US dollar rising in value. See Figure 11.

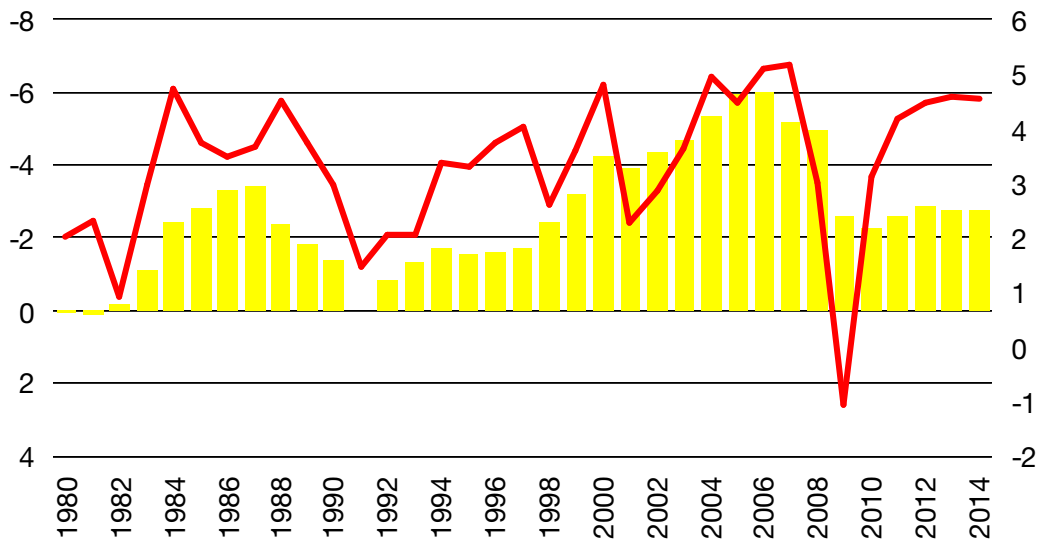


Figure 11
World Economic Growth and US Current Account Balance
1980-2014P
Source
CrossBorder Capital, IMF

Conclusion: The Long History of Bond Markets

The long history of bonds shows four distinct features:

(1) **Supply:** Neither the available pool of savings nor debt supply appears to trouble yields very much. Instances exist where over-issue and shortages of debt make a difference, but generally it is hard to find compelling long-term correlations. High debt/GDP ratios in the immediate post-WW2 period were linked to very low yields. What matters more is the supply of short-term paper, i.e. *monetary inflation*.

(2) **Necessity:** *Monetary inflation* and *cost inflation* together are required to push bond yields higher. In short, both forms of inflation are necessary to raise yields. Contrast the cost and monetary inflations of the early 1970s with the post-1990 cost deflation. The Fall of Communism and the jump in the numbers of hard-working, middle-aged professionals in the West drove up global capital productivity through the 1990s. Therefore, World real interest rates and cost pressures were markedly higher in the late-1970s and early-1980s than they are today.

(3) **Sufficiency:** *Monetary deflation* and *cost deflation* are, even taken alone, powerful drivers of lower bond yields. In other words, by themselves either a cost deflation or a monetary deflation is sufficient to push down yields, e.g. 1930s, 1980s and 2000s.

(4) **Policy:** Rises in long yields can be mitigated, at least over the short term, if Central Banks pump enough liquidity into their financial systems to force yield curves to steepen significantly. For example, the recent extreme steepness of the UK yield curve may have subtracted as much as 175-200 bp off British gilt yields by lowering the short-term cost of carry. But in the long term, bond yields determine the level of short-term rates, and not vice versa.

Looking ahead, Western governments may be ultimately forced to monetize their debts, but over the next 4/5 years we expect that benchmark bond yields will only edge up and not soar higher. **We do not yet see the dangerous cocktail of faster monetary inflation and rising costs.** Consumer inflation expectations will be held in check by continued cost deflation from emerging markets and, at least initially, by some check to the current heady pace of Western monetary inflation. The demand for US dollars from the emerging World should help the US currency to maintain its value both against gold and against other paper units. History also confirms that reserve currencies tend to 'die' slowly. The UK was eclipsed economically by the US in 1870, but it took until 1955, eighty-five years later, before sterling was overtaken in official reserves by the US dollar. Ageing demographics will add some downward pressure to bond yields as economic growth slips, but this may simply offset upward pressure coming from the demands such aged populations put on budget deficits. Overall, it is more likely that equities will suffer than bonds, much as Japan has experienced since 1990, although in fairness much of this latter experience has been down to the BoJ's policy of deliberate monetary deflation.

CrossBorderCapital
Implementing Insight

Global View

June 2011

The Bear Market in Valuations and The Bull Market in History

Post-bubble Japan and Pre-WW2 Europe are history lessons investors need to ponder. Deflationary trends then weakened economies, upset financial markets and devastated existing currency relationships. They were the precursor to soaring commodity prices and marked a significant change in economic leadership. Looking ahead with this perspective underscores our belief in rising commodity prices and buoyant Emerging Markets. Western investments may remain stuck in the doldrums.

The two best investment areas from a secular perspective remain commodities and emerging markets. Their attractions will be enhanced by the on-going bear market in Western investment valuations.

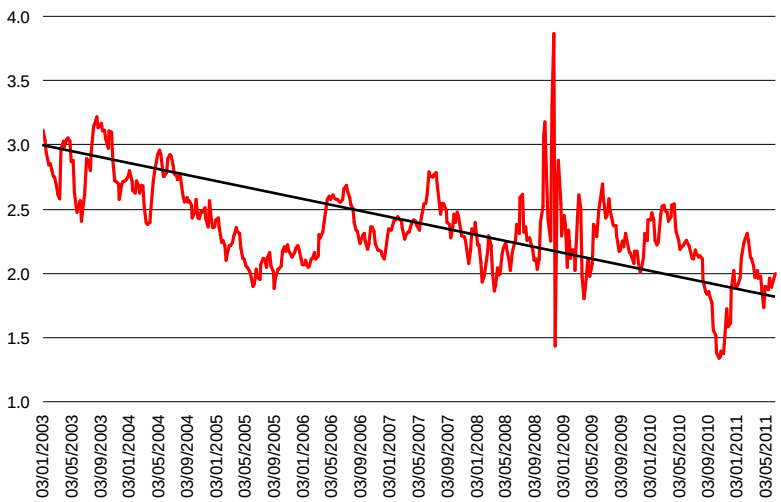
The valuation threat is spelled out by three numbers:

- The visible downtrend in the long-term real interest rate, measured in Figure 1 by the US five year TIPS yield, five-years out, from over 3% in 2003 to under 2% now.
- The latest cyclical pull-back in US long-term inflation expectations in recent weeks from 2.97% in mid-April 2011 to 2.44% now, a drop of 53bp. See Figure 2.
- The continuing negative correlation between the performance of global stock and bond markets, a feature clearly visible for a decade. See Figure 3.

These data tell us, respectively, that: (1) the marginal return on global capital is sliding; (2) there is limited (or no) pass-through from recent QE policies to core inflation, and (3) the traditional Fed model or equivalent Gordon Growth model used for decades to value investments, no longer works.

Why? Our thesis is a simple one. The 1989 *Fall of the Berlin Wall* radically changed the World. The 2008 collapse of Lehman Brothers was a symptom of this and not a cause.

Figure 1
US Five-Year TIPS Yield, Five-Years Out
Weekly 2003-2011



Source
CrossBorder Capital, US Federal Reserve

96 Baker Street
London W1U 6TJ
Tel (44) 20 7908 2800
crossbordercapital.com

By economically enfranchising 3-4 billion people, the ensuing demise of Communism propelled Emerging Markets into the forefront of growth and at the same time created a new dominant producer region that quickly challenged the competitiveness of the West. Too much capital, rather than the silly idea of a global savings glut, destroyed Western marginal profitability and undermined the integrity of much associated debt. To relieve their beleaguered private sectors, this debt was ultimately absorbed on to the balance sheets of Western governments. Despite attempts to boost growth through easy credit policies and financial de-regulation, the West's underlying growth trends shuddered to a near-standstill.

High street prices hammered lower by goods often dumped from the EM threatened a downward spiral of debt deflation. Policy-makers reacted, at varying speeds, to create offsetting bouts of *monetary inflation*. Monetary inflation is not the same thing as cost inflation. Because it does not necessarily affect production costs, monetary inflation tends to influence asset prices far more than it does the real economy. Consequently, we face secular high street deflation alongside cyclical asset price inflation. Bond markets price off the falling marginal return on capital and consequently perform well. Equity markets price off the wobbly average return on capital and so fail to see or understand these trends until it is too late.

Not surprisingly, equity performance frequently suffers air pockets as up-beat expectations are suddenly forced back to reality.

Sagging debt burdens need to be eliminated and the most effective way to do this is through inflation, but policy-makers can only create monetary inflation, i.e. by trashing their paper currencies. The immediate beneficiary of this is gold, but as we have often noted, all other commodities move in a close orbit with gold. With a gold/oil ratio of 13-14 times (its long-term average) a US$1,500/oz. gold price is consistent with a US$110/bbl oil price.

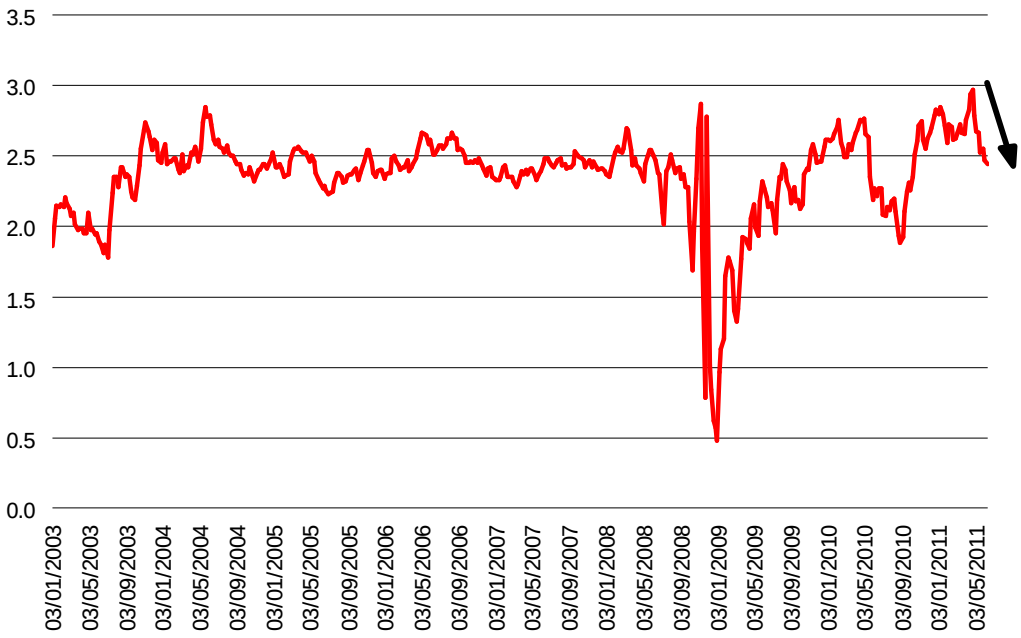


Figure 2
US Long-Term Inflation Expectations (5-Year Implied Inflation, 5 Years Out)
Weekly 2003-2011

Source
CrossBorder Capital, US Federal Reserve

Meanwhile, emerging market economies, helped by economic catch-up, enjoy real per capita growth rates at least 3-4% above equivalent Western rates. As we have argued, extrapolating its stubborn 18% up-trend (see Figure 4), the nominal gold price looks set to double from here within five years, so hitting US$3,000/oz., and the emerging economies look set to double their real per capita incomes by 2030 (see Figure 5).

Ben Bernanke ought to be celebrated. His famous 'Deflation: Making Sure 'It' Doesn't Happen Here' speech in 2002 marked the beginning of a more active Fed quantity monetary policy. It inadvertently helped goose the shadow bank boom, but it did its job in devaluing the US dollar and destroying debt.

Figure 6 shows the value of all outstanding US debt (public and private, including financials) in gold terms.

Looking ahead, Western investment valuations will be adversely affected. The major risk is highlighted by the diagram below. See Figure 7. It shows that equity valuations follow a bell-curve, with peak readings at a low inflation rate and with ratings falling away either side as either inflation accelerates or deflation approaches. There are two critical points on the chart. First, point B where the equity valuation charts peaks. To the right of point B, equities and bonds are positively correlated: to the left, they are negatively correlated. Second, point A shows the cross-over point between equity and bond valuations, and to the left of this point the value of each unit of equity income falls below the equivalent value of a unit of bond income.

The Japanese stock market peaked in 1990 and it began to correlate negatively with Japanese bonds around the early 1990s. Equity valuations fell below Japanese bond valuations in the early 2000s as the economy moved close to outright deflation. The major Western markets are around a decade behind Japan. Equity valuations peaked in 2000, just after the Y2K bubble. Throughout the following decade, stock and bond markets have moved negatively. Thus, as economies cooled and bond markets rallied, so equity P/Es contracted, dealing a negative double-whammy to stock prices.

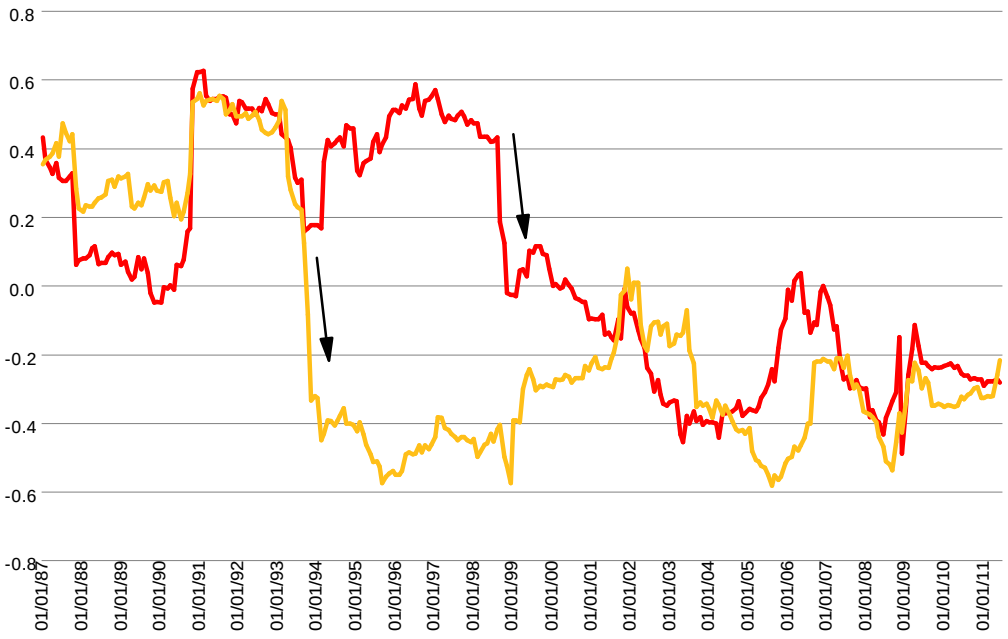


Figure 3
Correlation Between Stock and Bond Markets
Three-Year Rolling Correlation of Monthly Percentage Change 1987-2011
Source
CrossBorder Capital, Datastream

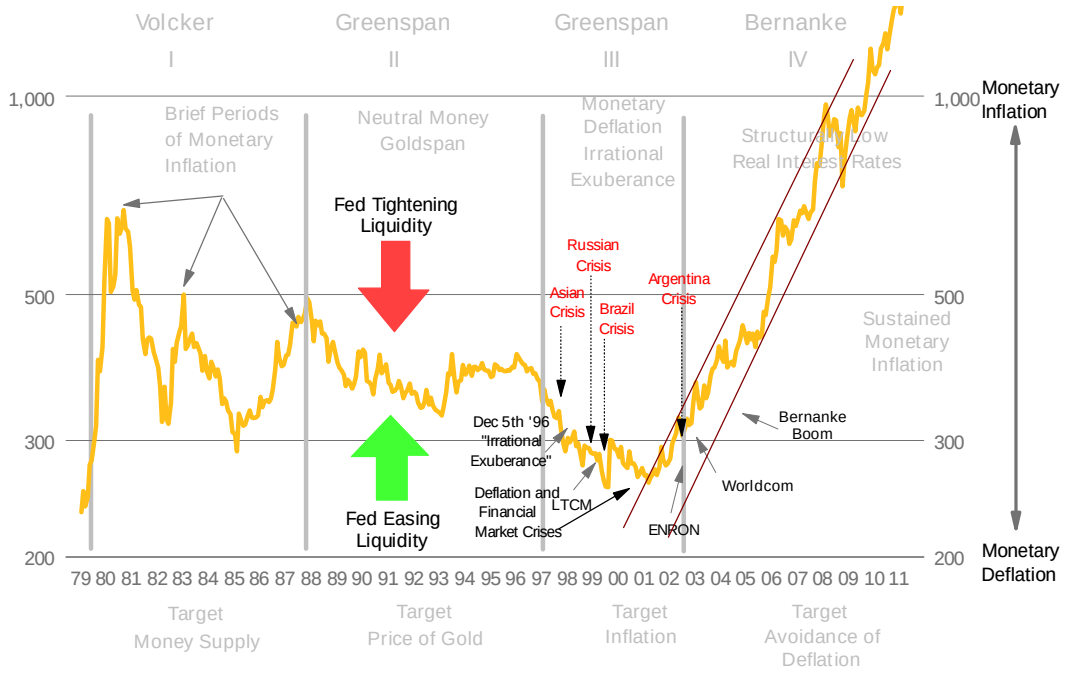


Figure 4
Nominal Gold Prices
US dollar/oz. 1980-2011
Source CrossBorder Capital, Datastream

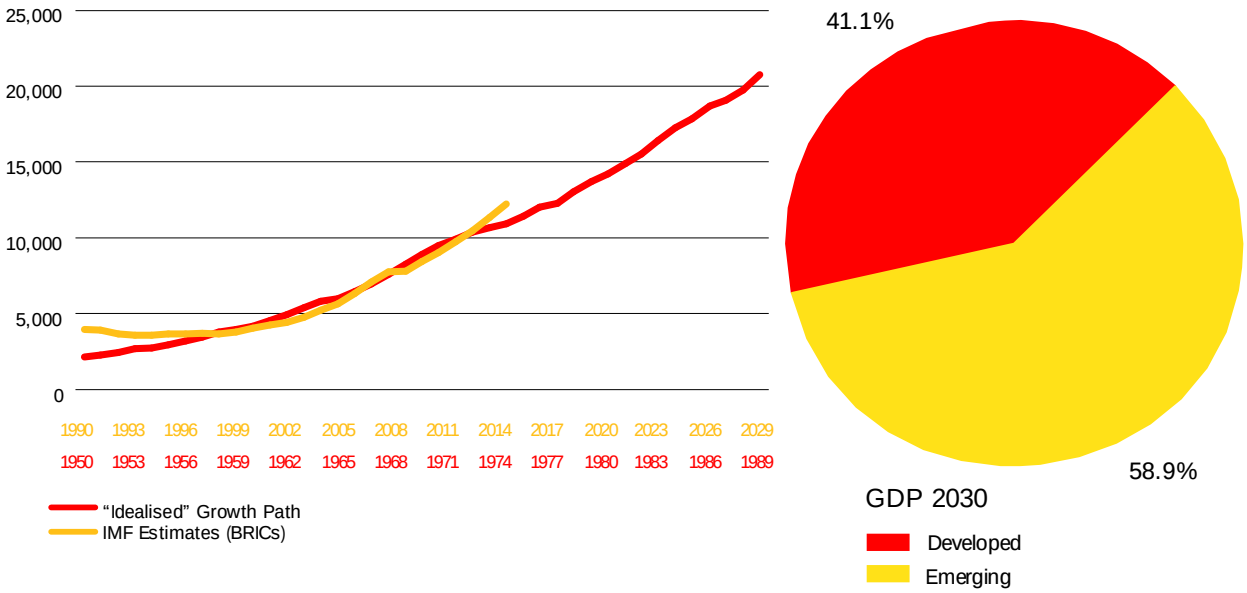


Figure 5
Emerging Economies Growth Path of Real Per Capita Incomes
Real US Dollars and IMF Estimates 1950-2030
Source CrossBorder Capital, IMF

Yet, the reverse also occurred, causing stock markets to move pro-cyclically, a fact that may have been further reinforced in the West by the rapacious pro-cyclical growth of the now infamous shadow banking system. In short, what goes up comes down ... and often with a bump.

In fact, a close look at the data shows two curious features. First, emerging markets seem to demonstrate the same pro-cyclicality, even though they suffer much higher core inflation rates and have far less well-developed bond markets. Second, a similar pro-cyclicality has nearly always been seen in mainland Europe, whereas the UK follows the behaviour of the US. Here the reasoning is that lower P/E multiples probably tell us that low inflation has long been a fact for the European economy.

Consequently, they have always operated to the left of point B, where stocks and bonds correlate negatively.

Emerging Markets' behaviour is harder to rationalise, but we figure that valuations are pro-cyclical because of the nature of the capital flows they receive. Foreign investors tend to accumulate EM shares during booms. Moreover, the overall Emerging Market economies tend to enjoy strong payments surpluses when the World economy is buoyant because exports grow and commodity prices increase often substantially. All these inflows tend to be monetized by local monetary policy-makers, partly because they lack the necessary array of market instruments to sterilise them and partly because in their insistence on tracking the US dollar they allow liquidity to fluctuate rather than their exchange rates.

The conclusion today is that risk markets are increasingly pro-cyclical. If that is the case, then the better long-term prospects for Emerging Markets should see their equity valuations expand, whereas the West, like Japan before it, will see its valuations beaten down still lower. Figure 8 shows the depressing long-run trend in US industrial output growth and capacity utilization. The so-called Great Moderation has disappeared! Even watching the so-called Shiller P/E will not much help to understand these trends. A sense of history is more important and, in this regard, we cannot help thinking about two things: 1990s Japan and 1930s America and Europe.

Is it no coincidence that Japan, arguably the geographically 'closest' major developed economy to China, was the first to 'import' deflation.

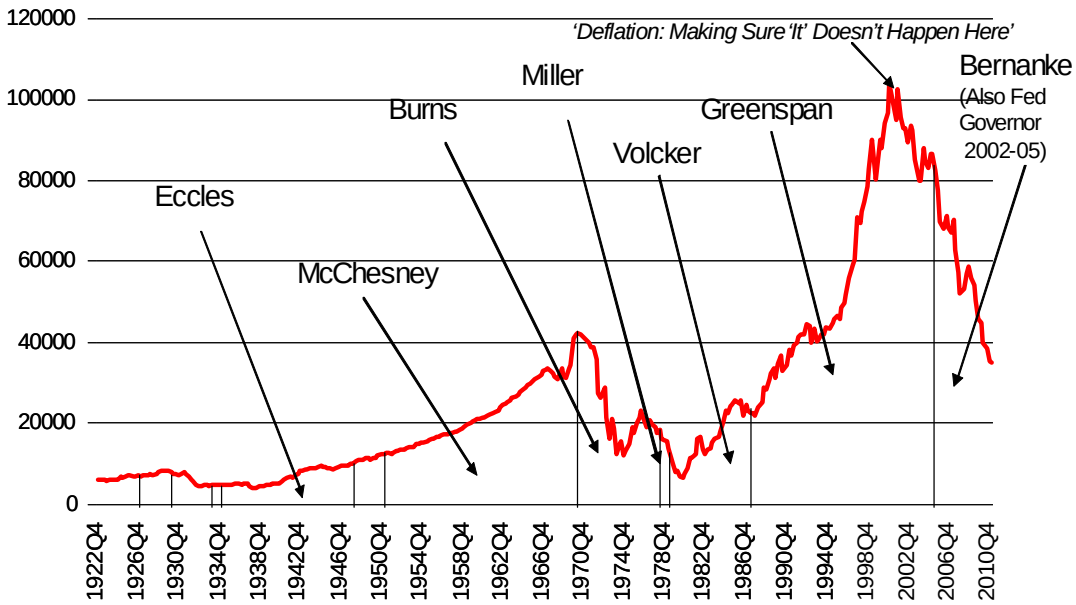


Figure 6
'Real' US Debt (Public and Private including Financials) - *Terms of Federal Reserve Chairmen Identified*
Gold Terms, Millions oz. 1922-2011

Source CrossBorder Capital, US Federal Reserve, US Treasury

It is not unreasonable, of course, to lay the blame for Japan's woes on the1980s bubble economy, her rapidly ageing demographics, her weak banks and the often viciously tight monetary stance adopted by the BoJ. But America has lately followed Japan's path a decade later and without most of these other impediments. Therefore, should we expect deflationary pressures in the high street to worsen? With the Capitalist labour force having tripled since the end of Communism, it is a thought worth holding.

The exit from a similar overproduction problem in the 1930s proved ugly. Excess capital was destroyed by war. The 1930s decade saw the rise of Fascism, notably in several of those same countries currently in the grip of huge debt problems. It also highlighted the effectiveness of monetary inflation policies, albeit at the cost of massive paper currency devaluation, whopping bouts of currency volatility and surges in the prices of commodities. Then, as now, the soaring gold price was at the centre of these changes. Yet the descent into the abyss of World War 2 was essentially triggered by the need to secure national supplies of these increasingly precious resources, e.g. Russian and Indonesian oil, and by the desire for 'living space' by 'newly' emergent economies, e.g. Germany, Japan and the US. Where will future imperialism strike?

Monetary inflation remains with us. It remains the only reasonable solution for the West to eliminate its huge debt problems. Britain and America have acted. Eurozone is putting off the inevitable. It is trying to struggle on by 'extending and pretending' that its whopping debts can be paid back.

Without the unlikely developments of a pan-European fiscal Union, involving vast annual transfers from rich to poor, and a pan-European banking regulator, the Eurozone too must bow to the inevitable and print. Think of the Euro as the French Franc of the 1930s! Very strong and then very, very weak. We have stressed that monetary inflation need not mean faster high street inflation because this also depends on what is happening to costs. Moreover, monetary inflation does not move in a straight line. It acts as a cycle, punctuated according to how much devaluation the Western monetary authorities can foist on the rest of the World and how much pain and imbalance its own banking systems can take before they inevitably and periodically collapse. The history of the past couple of decades has been punctuated by a near regular financial/ banking crisis. The next Western banking crisis is slated for 2016...

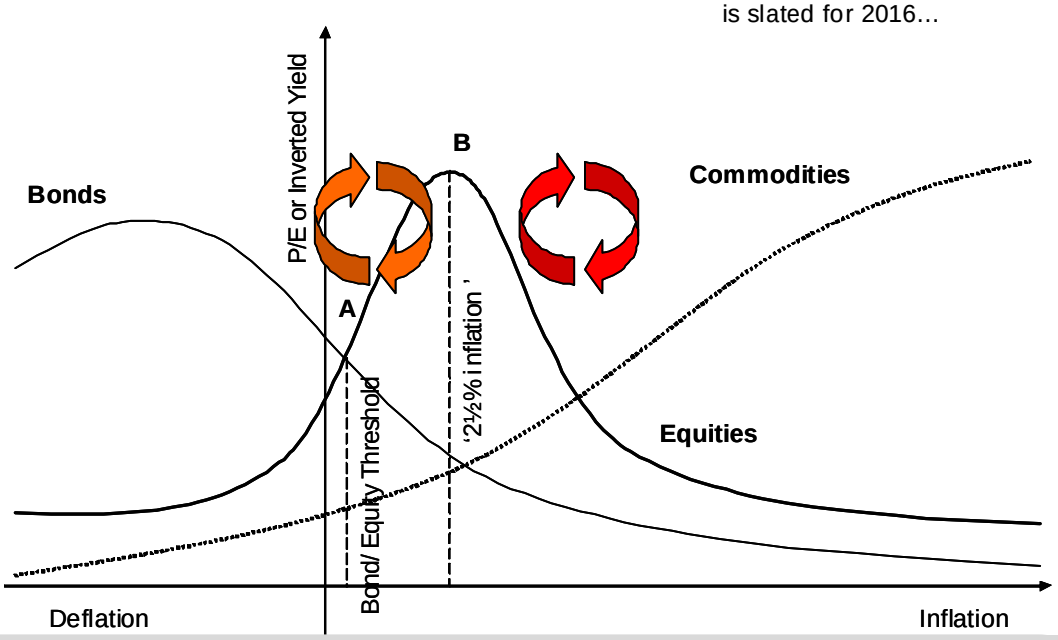


Figure 7
Theoretical Relationship Between Equities, Bonds, Commodities and Inflation Schematic

Source CrossBorder Capital

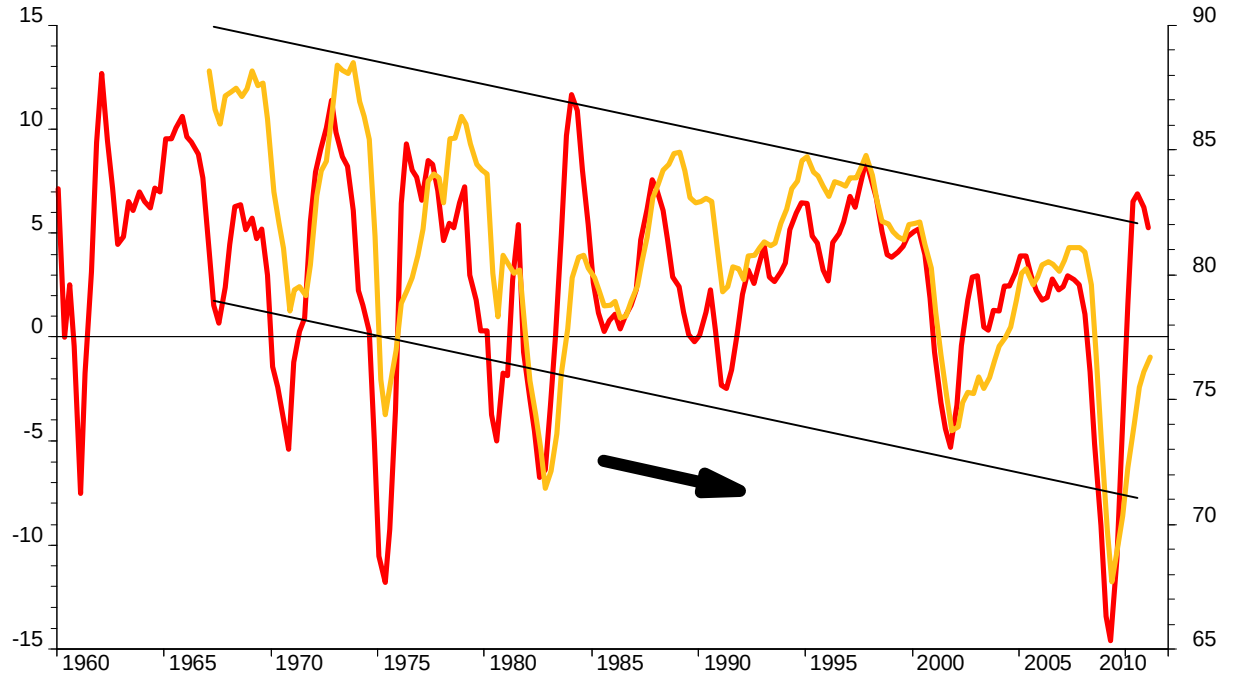


Figure 8
The Great Moderation or the Great Decline? US Industrial Output and Capacity Utilisation
Annual Growth and Percent 1960-2011

Source CrossBorder Capital, US Federal Reserve

CROSSBORDER CAPITAL LIMITED
96 BAKER STREET
LONDON W1U 6TJ
TELEPHONE 020 7908 2800 FACSIMILE 020 7908 2835

CrossBorderCapital
Implementing Insight

Global View

September 2011

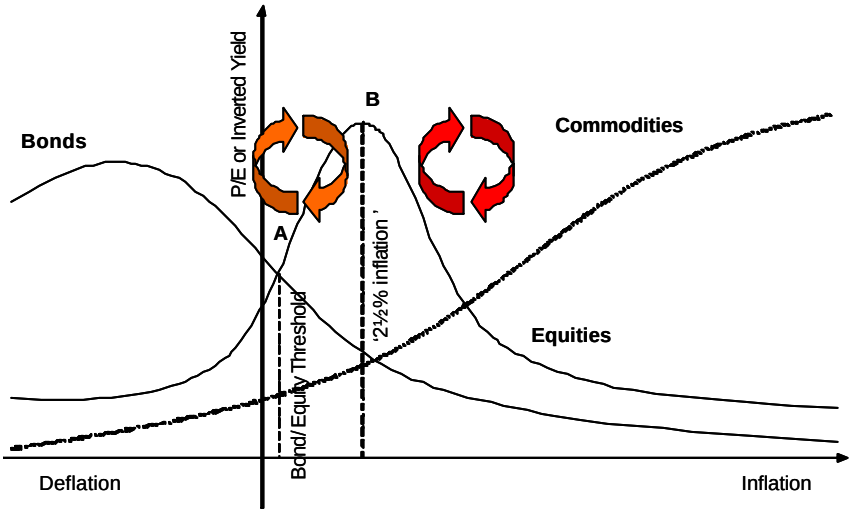
The Bear Market in Valuations ... Part 2

Economies may lack traction, but, more worryingly, the valuations of their risk assets are seemingly in free-fall. Thus, the *crie-de-coeur* of many portfolio managers is that stocks are cheap at 15 times, or is it now 14 times, earnings, and it is therefore right to buy the 'dips'. We caution that the same message was delivered year-after-year, post-Bubble, about Japanese stocks, and yet they still slid, undeterred, towards lower-and-lower valuation multiples. We adapted our asset allocation models to cope with this change by valuing securities against the prevailing monetary standard and not against each other, e.g. through relative yields. In other words, inflation and deflation matter a lot.

Figure 1 shows our standard valuation diagram. Some have noted its resemblance to Napoleon's hat! This diagram not only can explain many of the Market's recent tensions, but it has also worked well in helping us understand Japan over the past two decades. The chart shows three separate lines: one for the valuation levels of each of the three main asset classes - bonds, stocks and commodities. Bonds and commodities both behave in stable and predictable ways. Commodity prices typically rise alongside inflation, moving oppositely to bond prices, which favour deflation. Throughout periods of deflation and inflation, bond and commodity prices see a negative correction.

The spanner in the engine comes from equities. The bell-shaped curve in Figure 1 shows the changing valuation of stocks, i.e. P/E multiples. There is a sweet-spot in equity valuations at around 2-3% inflation. Here P/Es reach a maximum, and at inflation rates both higher and lower (including deflation) their valuations fall away. We denote the peak PE multiple by the letter B. The letter A is assigned to the point where the valuation of stocks falls below the equivalent valuation of bonds. This occurs at very low inflation rates, or possibly deflation.

Figure 1
Theoretical Relationship Between Equities, Bonds, Commodities and Inflation
Schematic



Source
CrossBorder Capital

Figure 2 shows the recent history of Japanese valuations. In Japan, peak prospective P/E multiples (point B) occurred around the mid-1990s, i.e. ignoring the recession-induced drop in earnings in 2000, when inflation was around 2%. The cross-over of bond and equity valuations (point A) took place in 2001, roughly around the time that the economy entered deflation.

Exactly why equity valuations collectively behave in this way is not certain, but we can conjecture. First, high inflation rates can generate sizeable inventory profits simply from the holding of goods in store that subsequently rise in price. These gains are still recorded as 'profits', but their sustainability and hence quality must be severely questioned.

Not surprisingly, they command a lower valuation. Second, in a deflation the real value of debt begins to escalate. Therefore, highly leveraged firms struggle because profits flag and both real interest rates and the real value of principal repayments rise. The resulting heightened risk of bankruptcy forces the stock to sell at a larger discount than might otherwise have been the case. Admittedly, it could be argued that both these income and balance sheet effects are symmetric, but in practice it appears that each sufficiently dominates to explain the bell-shaped pattern indicated in Figure 1.

Returning to the recent Japanese experience, this also confirms three important observations from Figure 1.

First, to the right of point B, stocks and bond movements are positively correlated, but once to the left of point A, they become increasingly negatively correlated. This is true for Japan from mid-1996 onwards. See Figure 2. Clearly, this flip-flop behaviour of correlations upsets traditional mean-variance asset allocation models that require stable variance/covariance matrices of returns. Second, it also follows that relative yield-based valuation models do not work to the left of point B. Buying stocks as inflation falls from high levels back to the 2-3% area identified by point B is always a successful strategy. Indeed, this 'buy on dips' philosophy was generally embraced with aplomb through the 1980s and 1990s.

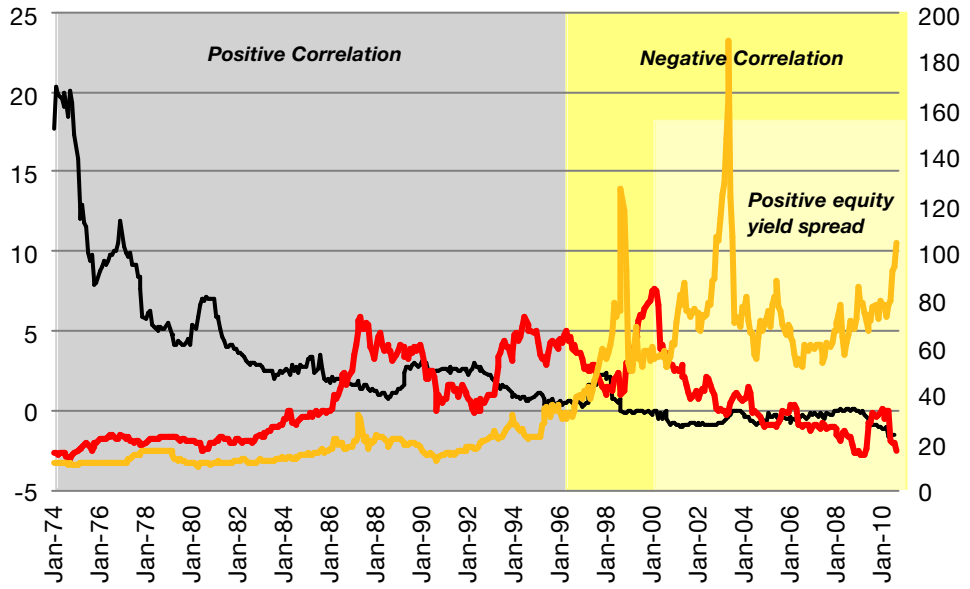


Figure 2
Japanese P/Es, Inverted Bond Yield and CPI Core Inflation
1974-2010
Source
CrossBorder Capital, Datastream

However, it completely fails to identify value to the left of B as inflation rates continue to fall. Rather stocks simply get cheaper-and-cheaper. Thus, yield ratios, yield gaps, and dividend discount models that embody constant risk premia, such as the celebrated 'Fed model' that is followed by US policy-makers, are no longer useful.

Third, the Japanese data also highlight another market phenomenon. The 'spikiness' of the equity valuation bell-curve suggests that small changes in the inflation rate close to the 2-3% threshold trigger sharp jumps and collapses in equity prices. We have labelled these zones before, respectively, as 'crises of monetary inflation' and 'crises of monetary deflation'.

In other words, the move from an 'ideal' 2-3% inflation rate towards deflation is as likely to trigger an equity market crash as an acceleration upwards towards a slightly higher inflation rate, e.g. 5%. In this regard, former Fed Chairman Paul Volcker's recent warnings that 'a little more inflation' is a dangerous thing are as prescient as current incumbent Ben Bernanke's parallel fixation with avoiding deflation.

Looking back in history, we can therefore identify the 1929 Wall Street Crash, the 1987 Crash and the 1990 Japanese Bubble as 'crises of monetary inflation'. Similarly, the 1931 collapse on Wall Street, the 1997-98 Asian Crisis, the Y2K Bubble and the 2007-2011 Financial Crisis are all more likely 'crises of monetary deflation'.

Figure 3 shows an annotated chart of US median and trimmed mean inflation as calculated by the Federal Reserve of Cleveland. The areas of tension and subsequent crisis slightly precede these movements in US core inflation. Looking ahead, although core inflation has lately picked up from its lows, its ability to keep rising is questionable.

Inflation and deflation are clearly critical factors behind equity valuation. Looked at another way, for bonds and commodities the direction of inflation matters, but for stocks both the direction and the level of inflation must be known. This fact means that equities are often a difficult asset to incorporate into an asset allocation process because ultimate success significantly depends on getting the inflation level correct.

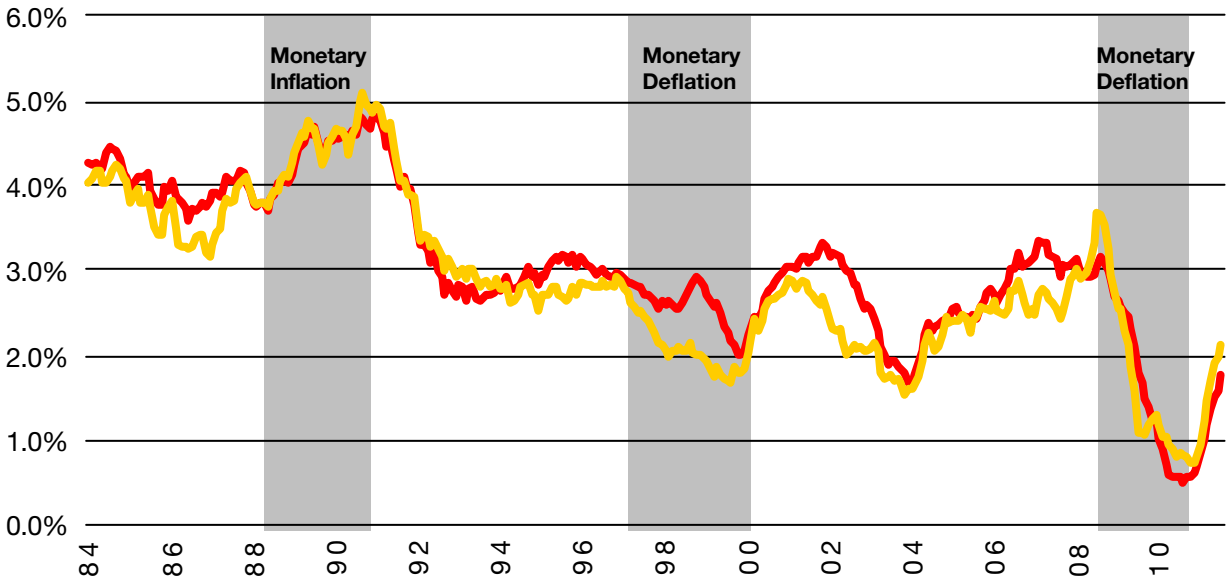


Figure 3
US 'Core' Inflation
Annual Percentage Changes in Median and Trimmed Mean CPI Monthly 1984-2011
Source
CrossBorder Capital, US Federal Reserve

In contrast, an equally-weighted portfolio of bonds and commodities will likely be *immunised* against unforeseen changes in the inflation rate. In other words, trustees should closely question whether large equity weightings can still be justified?

Indeed, looking at Figure 4, we might be even more wary of strategically committing to holding large proportions of portfolios in stocks. This chart shows the close correlation between Tokyo stocks and Wall Street lagged by 10 1/2 years, with both indexes expressed in the common currency of SDRs. In other words, we must not be fooled into muddling up a nominal rise in Wall Street with a fall in the value of the US dollar: think of this chart as measuring the 'true' value of each market, say, for international investors.

The common path currently being trodden by both indexes not only suggests that Wall Street may possess today less value than commonly-supposed, but that the forces of deflation may not be so easily beaten!

Indeed, this is our fear. Tactically, a shift into risk assets, such as equities, feels right, but seen in this light the strategic case still remains weak. Our Central Bankers may well aspire to create more inflation to help ease our current plight, but as Japan shows us and, in fact, as the 1930s spelled-out more dramatically, creating inflation is often easier said than done. The history of Capitalism is the history of deflation simply because its inherent competitive process hastens cost-cutting, innovation and productivity growth, all of which act to reduce prices.

Only when industrial competition is suspended, as with the expansion of the State in the 1970s, does inflation begin to rise. The Fall of the Berlin Wall in 1989, by economically enfranchising some 3-4 billion people and effectively quadrupling the size of the Capitalist labour force, so unleashed a new, huge deflationary wave towards the West.

One of our favourite and most prescient economic commentators on the 1920-60 period was the political cartoonist David Low. He worked in a similar period haunted by industrial overproduction, cost deflation, mass unemployment and political turmoil. Low's work highlighted the stupidity of bankers in the 1920s; the arrogance and naivety of politicians in the 1930s, and the inevitability of inflation from the 1950s.

Figure 4
US S&P (lagged 10.5 years) and the Japanese Topix
SDR Terms 1970-2011

Source CrossBorder Capital, Datastream

The key point here is that following a similar time-line we stand at the equivalent of the 1930s: today, we are watching well-meaning, but ineffective politicians, and with a noticeable (and hoped for) inflation perhaps still some 25 years away! Have we equity investors already been recently warned by Japan? Whether this proves to be a bear market in risk assets, it almost certainly is a bear market in valuations. Deflation may simply overwhelm.

CROSSBORDER CAPITAL LIMITED
96 BAKER STREET
LONDON W1U 6TJ
TELEPHONE 020 7908 2800 FACSIMILE 020 7908 2835

About the Author

Michael Howell is CEO of CrossBorder Capital, a London-based independent research firm that he founded in 1996. Previously he was Head of Research for Baring Securities and Research Director of Salomon Brothers, the US investment bank. The liquidity methodology he pioneered monitors Central Bank behaviour in over 70 countries world-wide on a monthly basis. Liquidity flows are a central part of CrossBorder Capital's asset allocation advice, which is currently provided to around 100 major global investors, including institutional asset managers, government agencies, Central Banks and endowment funds. CrossBorder Capital is also the investment advisor to the *Solar* (hedge fund of funds) and the *Pulsar Funds* (quant based funds using ETFs). Michael has been in financial markets since 1981 and is a regular conference speaker and media commentator. He graduated from Bristol and London Universities, and lives in Oxford with his family.