

Perspectives on Capitalism in Crisis 3

Hostages to Capitalism: Market Timing, Money Supply & The Economic Imperative

THE TAMRIS Consultancy

Risk and uncertainty over the magnitude of risk is a fact of life. Investment discipline within the portfolio context is structured around this reality. There are times, however when the risk event is of a potentially far greater magnitude and of far longer duration than would be considered normal and manageable within a sensible portfolio construct. The question is, are we in such a period at this moment in time and to what extent?

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1 Introduction

With the downturn in world equity markets the issue of market timing has been driven to the fore. This document focuses on market timing in the context of the ability to sell before a significant fall, (*raising large cash levels*) or further significant falls (*before or during a risk event*), without missing out on subsequent rises, and the ability to buy before a significant rise or further significant rise (during or after a significant risk event) while avoiding the risk of further falls.

The analysis looks at simple linear issues, as well as more complex non linear issues affecting the demand for capital, the return on capital, and the allocation to capital (*asset allocation*) that underlies the market timing problem.

It also looks at the issue of excess money supply growth (*a complex non-linear issue*), the dynamics of money supply in falling interest rate/inflation environments, and, in particular, asset focussed money supply growth as a key driver of asset price booms, and other factors affecting the holding of cash within the “market portfolio”.

The market portfolio in this document is the sum of all cash and asset allocations held by all investors, private and institutional. The document makes the following conclusions, many of which substantiate long held TAMRIS views regarding portfolio structure and management.

- a) Given the physical realities of the relationship between the market portfolio's allocation to money and other asset classes, market timing per se is not an appropriate investment strategy for the market and hence the average investor – see section 2.
- b) That *en-masse-market-timing* is a risk to the integrity of the capitalist system and, anything that risks such is a failure of the system itself; failure to control excess money supply growth, failure to control the development of off-balance sheet financing and the development of a vast over the counter derivatives market place (*and securitised debt market*), alongside the development of significant structural economic imbalances, poses such a risk.
- c) That non-linear issues affecting asset allocation and investment risk (*sections 3 and 4*), are complex and significant: non linear factors that impact and aggravate bull and bear markets, crashes and corrections - *excess money supply growth and other economic risks, and investor cash holding and risk preferences* - have historically shown significant variation; such periods of excess pose such significant risk to short term financial security that their impact cannot be ignored; note the 1960s peak followed by the 1970s, the 1930s depression, Japan in the 1990s, the 1990s technology, media and telecommunications bull market, and the current global financial and structural economic imbalances.
- d) When viewed against influences such as monetary excess and intense structural imbalances, markets do not appear efficient at managing or pricing real long term economic and market relationships. It is possible, that in the absence of an imperative, asset and liability management for instance, that markets are incapable of managing absolute valuation risk in the presence of excess monetary growth; note the importance and activity of highly leveraged hedge funds, private equity as well as the increasing involvement of institutions in these areas.
- e) A well structured portfolio, focussed on both the short and the long term relationships between financial liabilities and asset risk and return, is needed to provide the necessary management of risks that market timers are looking to manage. Such portfolio structure, planning and management, can only manage at most significant natural economic and market risk, and that periods such as the great depression of the 1930s and Japan in the 1990s fall outside of such parameters.
- f) That adjustment, at the margin, of the portfolio to the excesses of advanced market and economic cycles, by those with short to medium term liabilities, would seem rationale and efficient. This

document states that **a)** adjustments to asset allocations at the margin are justified in response to changing liability profiles and, that **b)** these adjustments should be sensitive to excesses associated with market and economic cycles and, that **c)** (a) and (b), are rationale decisions where markets are prone to short term misallocation of demand and therefore incorrect valuation of assets and asset risks.

- g) Investors cannot exit en masse from risky investments. Investors are *hostage* to the workings of the capitalist system; hence the management of its structural integrity is critical. The current market and economic crisis represents a failure of the management and regulation of the capitalist system, and poses a significant and real risk to capitalism itself. The developments in “*off-balance sheet*” financial innovation and OTC derivative markets, excessive consumer and financial leverage, low interest rates and excess money supply growth, have all placed the capitalist system at risk. This is a failure of capitalism, and a crisis of capitalism given the potential impact of such risks on all factors affecting asset prices; real saving, investment, consumption and real production.
- h) That most optimisation models that purport to determine efficient asset allocation are really individual models and not market models: risk/return does not stay fixed as market asset allocations are optimised.
- i) The importance of managing broad money supply has been all too easily ignored by many of the world's central banks. Indeed, more attention needs to be paid the relationship between preferred cash holdings and the impact of changes in preferred cash holdings on economic activity. Central banks need to focus on the long term risks to financial stability (*asset prices*) as well as the short term (*consumer prices*) – see sections 4 and 5.

The capitalist system is a complex, integrated, physical construct. The asset allocation of the market portfolio should represent the sum total of consumption, production, saving and investment decisions and, therefore, both short and long term investment horizons. Total flight to cash has no economic and no market rationale, but a balanced allocation to assets that represent the sum of short and long term economic decisions does. Significant short term structural and systematic¹ (*financial system*) risks impacts this the integrity of these relationships.

There is already much debate as to whether market timing adds value and many academics would state that market timing does not add value after accounting for transaction costs. This document does not provide a detailed analysis of the strengths and weaknesses of research into this area but looks instead at the physics of market timing and its relationship with **a)** money supply and money supply growth and, **b)** how **(a)** impacts the fundamental market and economic relationships of saving and investment, consumption and production.

¹ A system is both a structure and a process; a systematic risk is anything which risks the integrity of that structure and process or the integrity of a relationship which depends on that structure and process. A flawed system is a systematic risk in itself.

2 Simple Linear Physical Dynamics

In practical terms, market timing per se is a marginal investment activity. This does not mean that investors should not be engaged in some form of structured adjustment to asset allocation during periods of market excess, or that risk and hence valuations do not move to extremes; this document does not believe that markets can efficiently price risk at all points of the market and economic cycle, for a number of reasons. There is also a big difference between arbitrage, market timing and structured adjustment to asset allocations based on liability profile (*the economic imperative*); arbitrage and structured adjustment are both valid and necessary.

2.1 Point in time market timing

At any one point in time there is only so much money in the economy; part of this money is allocated towards transactions and expenditure and part towards money holdings in individual and institutional portfolios.

If investors want to increase, en masse, the amount of money they hold, and reduce the amount of equities they hold in their portfolios, all they can do is reduce the value of equities to the point that the amount of cash they hold as a percentage of their portfolio increases.

Let us assume, that in the market portfolio (*the sum of all investors holdings*) there is 10% cash, 30% fixed interest and 60% equities². The following table shows the impact of investors attempting to increase their cash holdings as well as reducing their equity holdings.

Table 1³

1	2	3	4	5	6	7	8	9	10
Cash \$	Bonds \$	Equities \$	Total \$	Cash Allocation %	S&P/TSX Index	Market rise or fall	Cash allocation %	Bond allocation %	Equity allocation %
10	30	127	166.67	6.0%	30,611	111%	6%	18%	76%
10	30	85	125.00	8.0%	20,542	42%	8%	24%	68%
10	30	71	111.11	9.0%	17,185	19%	9%	27%	64%
10	30	60	100.00	10.0%	14,500	0%	10%	30%	60%
10	30	55	95.24	10.5%	13,349	-8%	11%	32%	58%
10	30	51	90.91	11.0%	12,303	-15%	11%	33%	56%
10	30	43	83.33	12.0%	10,472	-28%	12%	36%	52%
10	30	27	66.67	15.0%	6,444	-56%	15%	45%	40%
10	30	10	50.00	20.0%	2,417	-83%	20%	60%	20%

Column 1 shows the nominal dollar amount of money in the market portfolio (the sum of all individual portfolios), column 2 the dollar value of bonds, and 3 the dollar value of equities.

Column 3 shows the impact of marginal changes in demand for money and equities, on the value of equities in the portfolio and column 4, the total value of the portfolio. All transactions happen between cash and equities.

Column 5 shows the allocation to money as a percentage of the portfolio, as the market attempts to increase or decrease cash holdings. Since the amount of money supply in an economy is fixed at any one point in time, the market, as a whole, cannot increase/decrease the amount of money it holds by selling equities. All the market can do, is reduce/increase the value of equities. In this example, there is no change

² This is a simplifying assumption since, for example, the US debt markets exceed the value of the US equity markets. A lower equity allocation actually exacerbates the results of the analysis increasing the impact of changes in cash holding preferences on the value of the equity market.

³ Inspiration for this type of analysis is originally drawn from Professor Tim Congdon's essay for Institute of Economic Affairs: Money and Asset Prices in Boom and Bust - http://papers.ssrn.com/sol3/papers.cfm?abstract_id=839866

in demand for bonds; all we are doing is assessing the impact of market timing between cash and equities – the impact of changes to bond allocations are discussed in section 2.3.

If the market wants to increase cash holdings from 10% to 10.5% of the portfolio, the stock market will need to fall by 8%. A preferred 2% increase in cash holdings, as a percentage of the market portfolio, results in a market correction of 28%. An attempt to increase the cash allocation to 20% would see an 83% fall in the market. The impact of changes in relative demand on individual stocks and sectors is even more pronounced, and illustrates how stocks, sectors and market cap components can easily become significantly under and over valued.

On the other hand if allocations to asset classes remained the same, a 7% increase in money supply would see a 7% increase in asset prices. As such, short term changes in risk preferences have a much greater impact than annual increases in money supply.

This analysis should also be of interest to those that use linear models to determine mean/variance efficient portfolios. The simple analysis used in the MVA model does not adjust for the impact of changes in asset allocation, due to changes in monetary demand, on risk/return relationships. Effectively these mean variance models are models of individual portfolio allocation and not a market portfolio model.

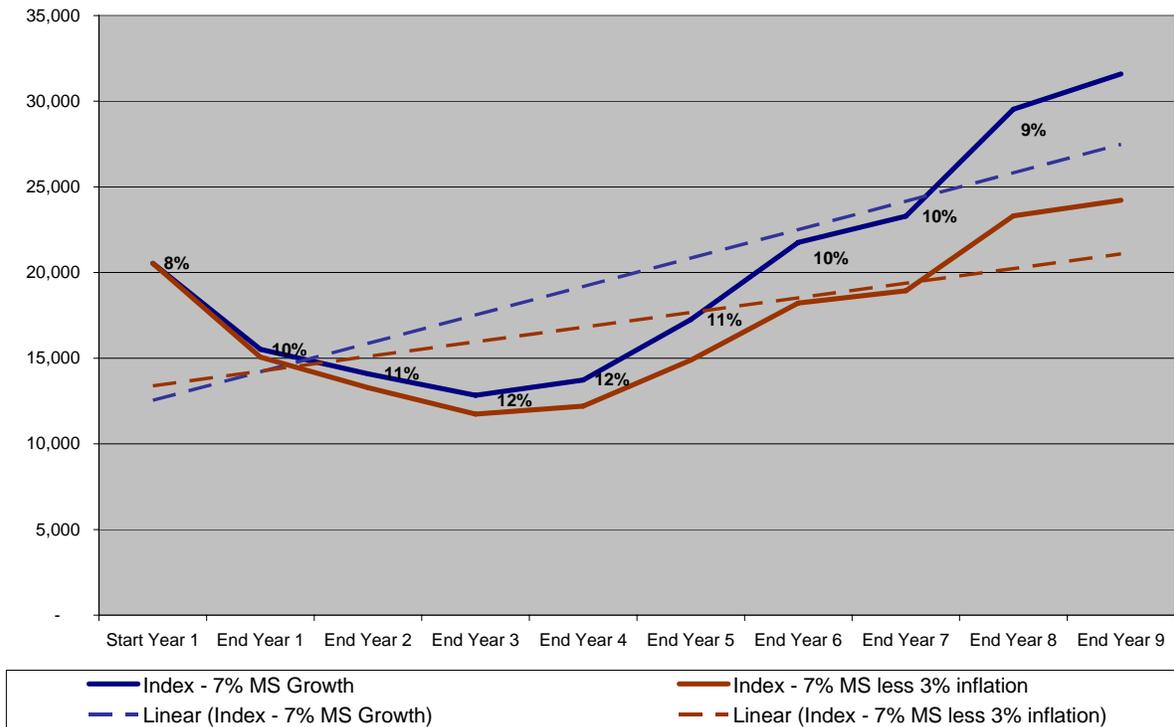
2.2 Over time, market timing

Over time, the absolute valuation of assets depends primarily on the demand for money within the market portfolio, relative to other assets.

Using the same asset allocation benchmarks as the previous analysis, the following looks at the impact of changing preferences for holding money within the market portfolio and annual increases in broad money supply growth.

Chart 1

Money supply growth and changes in demand for cash



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We assume that preferred cash holdings start at 8% of the portfolio, at the peak of the market and economic cycle, and move up to 12% at the nadir of the market and economic cycle, recovering to 9% towards the next market and economic peak. In this analysis a 10% cash allocation is assumed to be an average or equilibrium allocation.

The **dark red line** on chart 1 represents the real return (*after 3% per annum inflation*) on the equity component, and **the blue** the nominal return. Money supply is growing by 7% a year; the market valuation, at any point in time, adjusts for this increase to bring back the allocation to money within the portfolio to the appropriate level (*be it 8%, 9%, 10%, 11%, 12% etc*).

The chart does not show the impact of a decline in money supply or stagnant money supply growth - *something which could happen following an asset price bubble* -, nor does it show the impact of higher inflation and lower growth (*stagflation*) on real earnings growth and its valuation.

What it does illustrate, is the impact of changes in cash holding preferences and money supply growth on market performance. It retranslates the market timing imperative into one that should be focussed on protecting the ability of a portfolio to meet financial liabilities over time frames sufficient to cover the risk of events that change the demand for money within the market portfolio.

Chart 2 shows the valuation perspective – the long term risk/return profile of asset classes at different stages of the market and economic cycle. This is the market risk of buying at various stages of the market and economic cycle as represented by changes in relative cash holdings. Those who purchase at low portfolio cash allocations depend on future cycles exhibiting similar extreme allocations.

Chart 2

Cash Allocation / Valuation Risk

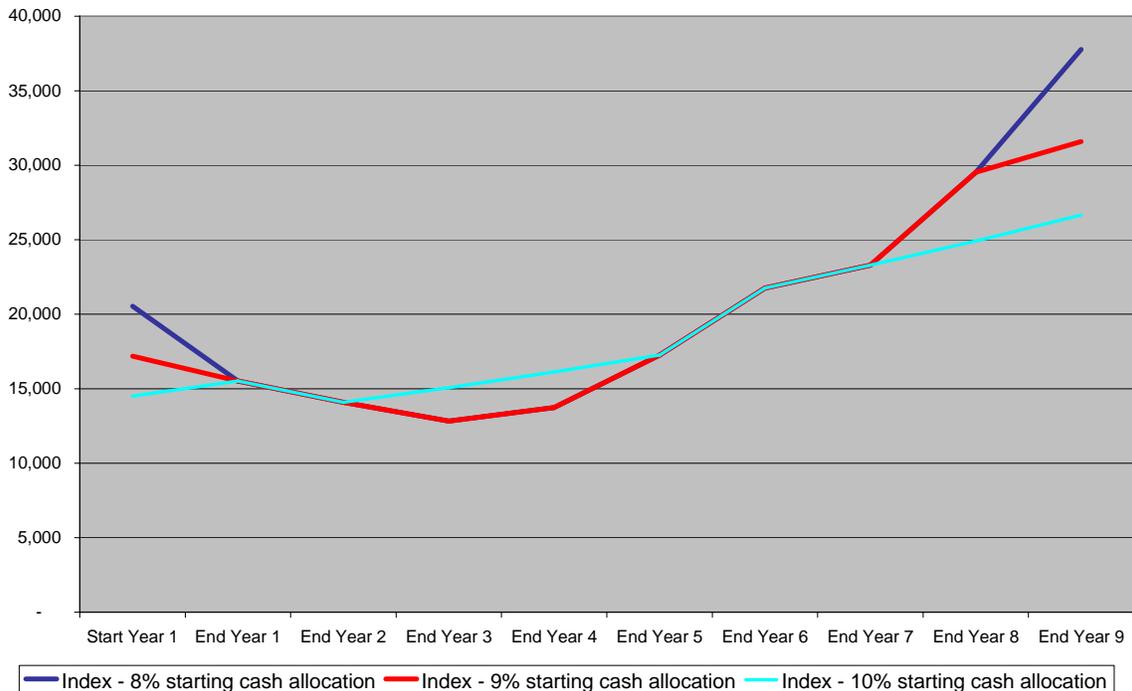
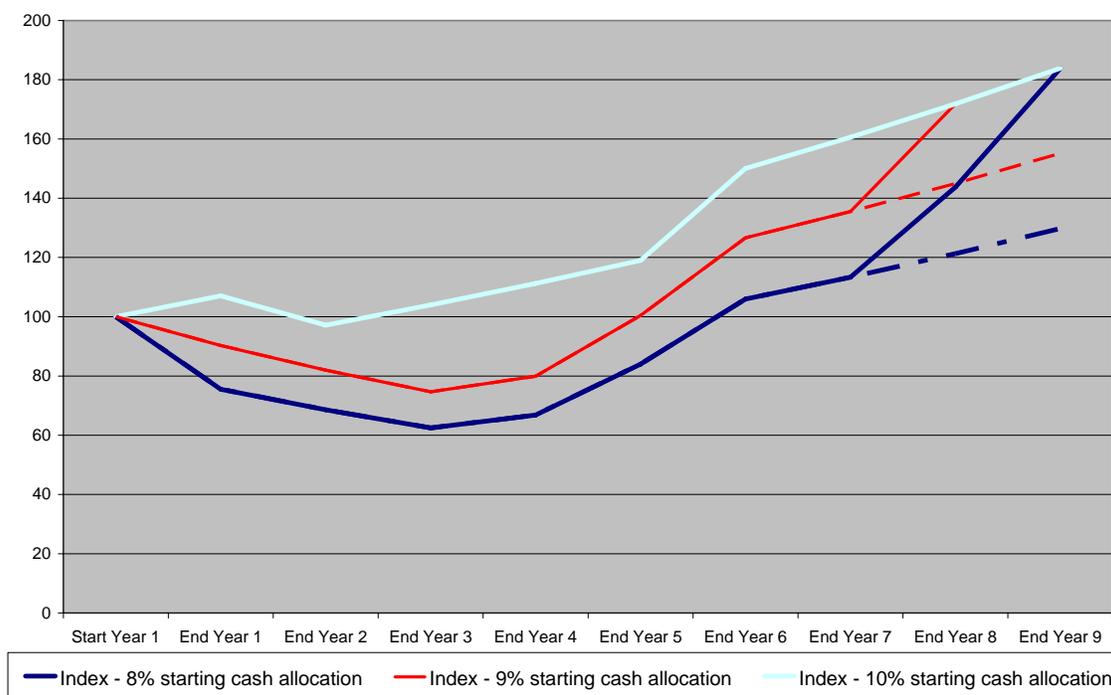


Chart 3 shows the impact on return to investors of different starting positions. The dotted red and blue lines show the respective capital index positions of equities if the cash allocation remained at 10% instead of moving back to an excess of 8% (blue line) and 9% (red line). In other words, market peaks are extreme positions; where these peaks are exacerbated by excess, asset focussed, money supply growth, they are

also points that cannot be supported by real consumption, production, savings and investment relationships – for explanation see sections 3 and 4.

Chart 3

Cash Allocation / Valuation Risk



The risks noted in chart 3, for the blue and the red lines, assuming that money supply growth is not affected, are not fundamentally economic risks, but risks caused by changes in portfolio cash holding preferences. Since extremes in market valuations are often associated with excess asset focussed money supply growth, periods associated with asset price booms would see greater risks to the returns depicted in graphs 2 and 3.

2.3 Point in time market timing, equities to cash to bonds

In a risk event, many investors will also be selling equities to buy fixed interest investments. If the equities-to-cash analysis provides a sober assessment of the realities of market timing, the transaction component of cash-to-bonds is also worth considering.

Let us say a market portfolio has 10% cash, 30% bonds and 60% in equities. If the market wanted to increase the bond holding to 39%, it would a) need to raise cash by 1% of the portfolio to 11%, resulting in a fall in equities of 15% and a rise in bonds to 33%, and b) then reduce cash from 11% of the portfolio to 10%, by raising the allocation to bonds to 39%. All in all, stocks fall by 15% and bonds rise in price by 30%.

If cash were 10% and bonds and equities 45% each at the start, an increase in the bond allocation to 55% would see a fall in equities of 20% and a rise in bond prices of 20%. This all for a 1% shift in the cash allocation; sell equities increase cash holding by 1%, buy bonds reduce cash allocation by 1%.

If you sell towards halfway or more to the end of the market shift, and bought halfway or more to the end of the bond shift, you would end up losing money before transaction costs. Also, because only small shifts in cash need be made by existing investors, to change the bond/equity allocation, investors will automatically benefit from a rise in bond prices during this process.

2.4 Transitional dynamics of Saving and Dissaving

What makes more sense than selling when everybody else is selling? Selling assets while the demand (*money flow*) for those assets is still strong; a liability imperative should force investors to sell higher risk investments at fair to high absolute market valuations and avoid selling at low valuations.

An important function of the market place is that of allowing the opportunity for consumption of capital; this does not work effectively for risky assets during market and economic crisis. However, at most other times traffic can move both ways, with marginal sellers of equities (*and other higher risk assets*) receiving more or less their full market value. The extent, to which, investors can sell higher risk assets in exchange for cash, depends on a number of factors.

- The rate of money supply growth and, within this, the rate of asset focused money supply growth, and the increase or decrease in the preference for holding cash in the portfolio.
 - In Japan, cash represents some 50%⁴ of household assets, up from 30% in 1990⁵; broad money supply growth also sharply decelerated in the 1990s from the asset bubble's peak⁶.
- The distribution of wealth across the market place; very wealthy individuals will not need to adjust asset allocation for liability concerns, while less wealthy individuals may well consume more or less all their investment assets during their lifetime.
 - In the US, 1% of the population holds 50% of the wealth and, most wealth is held by those close to or in retirement.
 - In the UK age groups up to and including the 50 to 54 age group are in a net debt position; only those are 55 and above are in a net asset position⁷.
- The extent to which the wealth of the newly deceased is transferred as is or is sold; this releases a supply of equity and fixed interest and property etc for all market segments.
- The demographics of saving and consumption and its impact on final demand for output – see sections 3 and 4 for further information regarding the importance of final demand for asset pricing and asset allocation.

Just for the sake of analysis; if 60% of the market place is held by those close to or in retirement, but only 50% of those (*30% of the market place*) assets are held by those looking to partially or wholly consume capital over time, then a 10% increase in money supply (*allocated to equities*⁸) and a reduction in the other 40% of the market's cash holding preferences by 2% (*from whatever starting figure*), would allow those consumers of capital to sell 3.7% of higher risk assets for cash. If the average gross consumption of those consuming capital was 4.5% and the gross yield was 2.5%, then the gross differential would be 2%. Divide 3.7% by 2%, and we have 1.83, or an additional 1.83 years of capital needed to meet future financial needs.

If those close to, or, in retirement, but not needing to consume capital, wanted to reduce their cash allocations, then a higher level of cash could be raised by those wishing to do so. Not everybody in the need-to-realize-camp would do so, meaning that the leeway for those who wanted to raise capital for consumption would be greater. Other factors important to the transitional dynamics of the market include but are not limited to the following.

⁴ <http://uk.reuters.com/article/marketsNewsUS/idUKT34688720070918>

⁵ http://www.tcf.or.jp/data/20051121-22_Sachiko_Miyamoto.pdf

⁶ <http://www.nli-research.co.jp/english/economics/2000/eco0007a.pdf>

⁷ http://libsurvey.essex.ac.uk/reports/2006LIB_RR.htm

⁸ The actual increase on broad money supply towards investors would be skewed towards who are directly impacted by areas benefiting from money supply increases. Retired investors with a greater proportion of fixed asset allocations would have a smaller share of any increase. If money supply growth is in excess of nominal GDP, then those reliant on assets alone for cash flow would receive a still smaller percentage of the increase in money supply.

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- Up to age 55 or older, people accumulating capital, may not even need to transfer equity capital for lower risk assets since there may well be sufficient savings out of income to achieve the transition.
- While in retirement, absolute demand for real allocations to fixed income should remain constant (*assuming real expenditure remains constant*), in the absence of excess market valuations. The balance of demand and supply for fixed interest will be impacted by deceased investors (*estate selling assets*), and new or close to retirement investors accumulating lower risk assets.
- Not every individual will need to manage liability risks; very wealthy individuals will either be able to meet all income and capital needs from dividend and interest income (or sources of earned income) or even continue to accumulate as interest and dividends are reinvested.
- Those who are consuming capital in retirement will see cash balances falling; portfolio structure and management should be focused on managing the ability to generate cash for consumption purposes. As such, dis-savers will be spending cash and looking for ways to realize capital, and those who are saving and accumulating, will be increasing cash and looking for ways to invest excess cash balances.

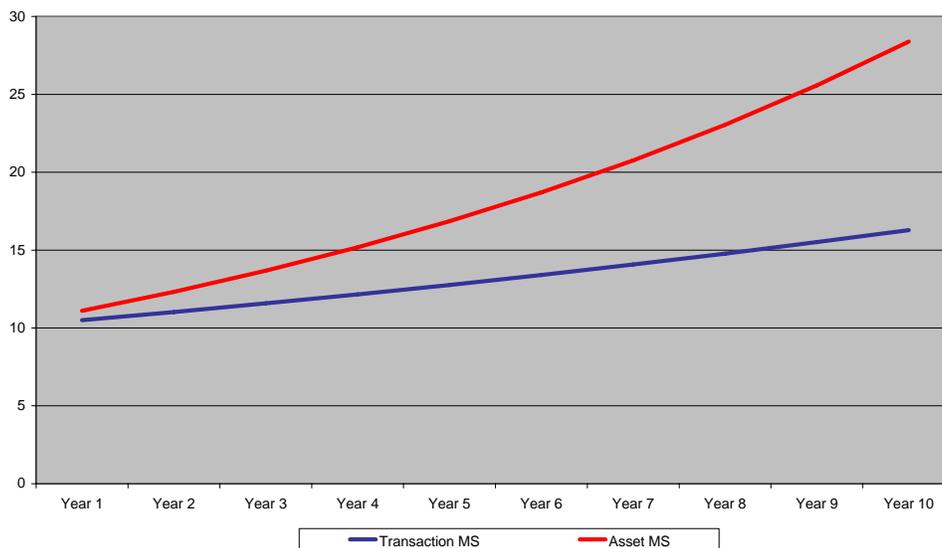
The importance of the transitional dynamics of markets confirms one of the problems with market timing indicators; these indicators need confirmation of changes in price and volume, by which time the opportunity for investors to exit strategically for consumption purposes would risk being impaired – we would have market timers competing for demand. Waiting to time the market for the management of liability risks is counter intuitive.

2.5 Linear dynamics of excess money supply growth

Let us assume that nominal economic growth is say 5% (real 3%), and money supply growth is 8%, money stock is \$20 and the asset allocation component of money supply starts at 50% of the stock of broad money. The asset allocation component starts at \$10. If nominal GDP growth is 5%, then return on equities would be 5% plus dividends. With a 3% excess money supply growth, the growth rate of asset focused money supply is 11% or 220% of nominal economic growth; this annual rate of excess money supply growth is similar to average excess broad money supply growth in the US from 1995, based on the data in chart 7.

Chart 4

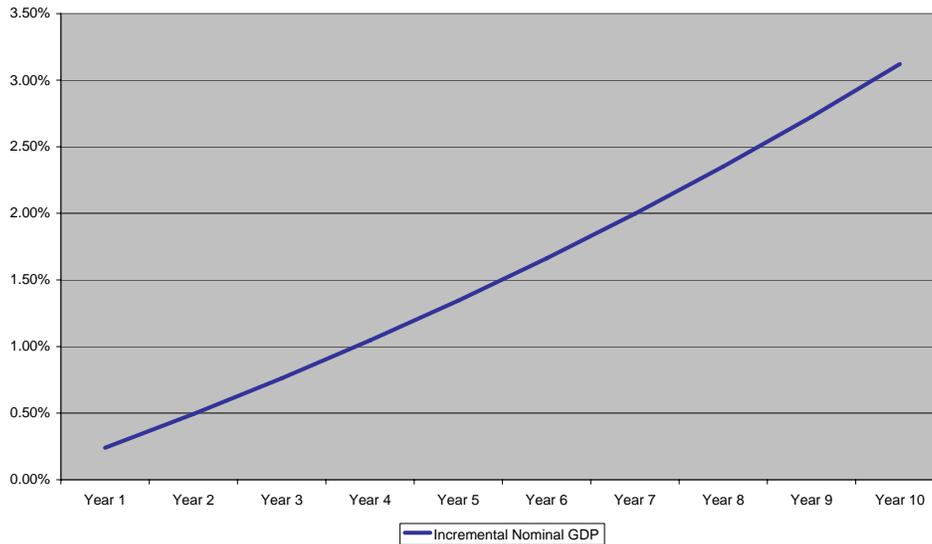
Impact of excess money supply growth (3% p.a. over 10 years) on asset focussed money supply growth



Over 1 year, assuming 4% of the additional wealth is consumed each year, GDP growth would increase by an additional 0.24%; after 10 years, nominal GDP growth would increase by an additional 3.1% per annum; in other words, an additional 3.1% of inflation in the absence of a higher real rate of economic growth.

Chart 5

Incremental Nominal GDP assuming 4% of additional wealth consumed per annum



The real non linear world is more complex, but the imperative implied by the dynamics remains. Sustained excess money supply growth, over long periods of time, can build significant amounts of excess demand in the global economy; the ability to manage this excess demand depends on balanced economic growth, a factor lacking in the current environment.

2.6 Linear portfolio allocation

Mean variance optimizers look at historic risk/return relationships. As noted in this analysis, risk and return for asset classes are impacted by demand and supply. Many of these linear allocation tools hold the risk and return relationships constant while determining optimum allocations to these assets/securities. This is clearly flawed, since only small changes in net demand need significantly impact price/risk and return; higher allocations to an asset not only increases its price and reduces its return per unit of risk but, also reduces the price of other assets and increase their prospective return per unit of risk. You cannot hold risk/return relationships constant when asset allocation/demand are being adjusted.

2.7 Conclusion: Simple Linear Dynamics

Looking at the simple linear physical dynamics of the market timing problem and its relationship between money supply and money supply growth, we can see the following:

- If the overall money supply remains unaffected and investor preferences, with respect to equity markets, return to their original level (*say the 10% cash and 60% equities noted in section 2.1*), then, *the risk of the downturn falls squarely on those who have moved out of the market place*. Those who hold diversified portfolios should be ultimately unaffected.
 - The duel is between those who have moved out of equities and into cash. Ultimately, if cash preferences and cash balances move back to equilibrium, the transition is a zero sum game for the average market timer (*before costs*), with additional timing risks for the average and below.

Obviously, those who are able to execute superior timing will earn a superior return, but the average market timing investor will ultimately lose out once we include transaction costs.

- There may well be an arbitrage return, but the timing and magnitude of this return (*interest rate based return versus equity based return*) is uncertain. However, this (*arbitrage*) is a valuation driven return and not a technical “*avoid-the-market-drop*”, wait-for-the-price-and-volume confirmation kind of return. An arbitrage based return is a short term fine tuning, “*efficient-market-type-of-return*”, but only a very small number of market participants can access this type of return.
- In a real economy, the risks to those “*out of the market*” are not limited to “*out timing*” the other timers. There will be **a)** those investors, who will be buying low and reducing their own demand for money and, **b)** future money supply growth and future saving out of increased money supply growth and, **c)** in a global market place, reallocation of global demand which though unable to increase domestic money supply would reduce the demand for money within the market portfolio.
 - In this context, during most time periods, the duel between those who have moved out of the market becomes complicated by new sources of demand that increase the odds against the success of market timing.
 - Indeed, given the impact of money supply growth and value investors, market timers are more likely to depend on significant and persistent market declines that cannot be overcome by short term money supply growth and marginal reallocation of value investor cash holdings.
- That mitigating the risks that market timers look to manage by selling risky assets when valuations are high and moving up, than when they are falling and down, makes more strategic sense. Indeed, if investors were to actively manage liability/consumption risks, then we might see fewer extremes in asset prices and an earlier transmission of excess asset focussed money supply growth into consumer price inflation.

The simple dynamics of market timing argues that there is little or no practical, economic rationale for market timing per se. While successful market timers may end up with higher risk adjusted returns (ex post), the end result, the absolute total eventual return, risks being marginally insignificant. Analysis of historical data that supports market timing a) ignores the global physics of the problem (*it is impossible for large numbers of market timers to move out of the market place*) and b) ignores the ex ante risk of the exercise itself – the true risk is not the average return to market timing strategies but the dispersion of that return. Indeed, hold a well structured portfolio capable of meeting financial needs, without having to sell equities, during the time frame associated with market timing and we have all the risk management a market timing exercise would provide.

If markets were only impacted by short term movements in risk preferences and preferred holdings of cash within portfolios (*due either to small shocks or management of normal business cycle excess*), then the issue of market timing would be inconsequential: there would be no risk in holding a long term asset allocation; markets and cash holdings would return to equilibrium and economies would keep on expanding. Normal market and economic risk should not impact long term financial security and most investors should hold to their long term asset allocation⁹ profile, presuming it relates to their consumption/liability profile.

The following three sections look at non linear issues impacting the determinants of the market portfolio's asset allocation.

⁹ Long term asset allocation should also bear in mind long term consumption/saving balances in domestic and global economies.

3 Saving & Consumption, Non-Linear Dynamics

But what determines the allocation of the market portfolio in the first place? The allocation of the market portfolio to asset classes (*excluding unincorporated businesses and residential property*) will reflect a number of factors; risk preferences; risk/return profiles of assets; short and long term consumption/liability profiles of investors, which, effectively determines valuations and the evolution of valuations. Of the three, the latter is the most important.

The market place is essentially split between those who are accumulating capital (*saving or reinvesting interest and dividends*) and those that are “consuming capital” (*real value of investment capital declining over time due to excessive yield, capital consumption or inflation on nominal assets*), just as businesses are split between mature/declining businesses (*depreciating capital/using less capital*) and growth businesses (*accumulating capital/using more capital*).

At the individual (*marginal*) investor level, the nature of asset class risk and return relative to their liability profile should be a major determinant (*if the not most important determinant*) of asset allocation; at the market and economic level, the sum of consumption and production and the sum of demand for short and long term assets is the major determinant of asset class risk and return. Consumers (*sellers of capital*) will be doing one or more of the following; moving to a higher yielding equity portfolio; partially realizing their equity holdings¹⁰ in favour of lower risk higher yielding fixed interests; spending capital from maturing fixed interest.

As such, while market timing between cash and bonds and equities may not be a valid short term strategy for the market as a whole, there is, for many individuals, a need to shift the asset allocation profile (*depending on relative and absolute valuations*) of a portfolio as retirement or other income and capital liabilities draw near.

As to what proportion of the market place “consumers of capital” occupy, specific data is not available¹¹; this will depend on the sum of the individual ratio of liabilities to assets; some may only consume interest, others only a portion of interest, while others will consume both interest and capital to varying degrees. Consumers of capital (*sellers*) are supplying capital to accumulators (*buyers*). While many assets will not be consumed during an investor’s lifetime (*real estate, unincorporated businesses, etc*), they will often be placed on the open market after death and impact the demand/supply of assets and prices, irrespective. In a growing economy the demand for investment assets and the supply of investment assets will be growing and the economy, on the whole, will be accumulating capital.

The relative balance of saving and dissaving, in any one period, impact the relative valuation of asset classes and the return on capital via changes in monetary demand for both assets and consumption.

- Providing the level of consumption and production is not affected (*return on productive capital remains the same*), in a market place where there is insufficient demand for equities to support prices, earnings yields on equities would move higher.
- In a market place where consumption fell for structural reasons, for a long period of time, returns on capital invested in productive assets would fall, as would the amount of capital employed in production and ultimately money supply¹².

¹⁰ Depending on relative valuations: if equities yielded more than bonds then it would not make sense to realise equities! Selling assets, for current consumption, where the current price over values future return makes sense in terms of optimising consumption; this is not the case where the price of an asset under values an asset’s future return -this does not maximise current and future consumption. Portfolios aim to balance (optimise) current and future utility.

¹¹ Many so called savers have been consuming capital in the form of home equity withdrawals, especially over the last few years.

¹² The debt component of money supply used to fund present consumption and production or investment would contract; capital therefore needs to be continuously re-employed.

- If savers were no longer saving, but consuming and borrowing against asset values, the demand for asset sales by natural savers would fall, and so would asset prices. That is, unless external demand for assets was available, or if the banking system provided loans to facilitate leveraged purchase of assets, thereby artificially fuelling demand.
 - An increase in demand for output would need to be met by higher levels of goods and service production. If domestic real output growth was insufficient to meet demand, higher imports and/or higher prices would be needed to bring demand for goods and services into equilibrium with supply. Note also that the amount of capital needed to provide an increase in output is often greater than the annual incremental increase in revenue; as such higher national output would need access to bank loans or foreign investors in the event that the supply of savings out of national income fell.
 - In the absence of increases in earnings (*labour*), asset values would need to keep rising to allow consumption to be maintained at current growth rates; and more so to cover the additional interest costs on debt. Otherwise high debt levels would impact consumption, demand for assets and returns on assets. High levels of debt would only be taken on board if consumers expected asset prices to keep on rising, or future earnings' growth were to accommodate the higher levels of debt. Additionally, external demand for assets and or leverage would also need to keep growing at the same rate. Note the current situation in many countries, the US in particular – see Capitalism In Crisis 2 for further information on US and international consumers.
- If the demographics were to move towards older individuals, overall consumption would fall unless productivity growth and earnings improved amongst those still earning and overseas demand for domestic production increased¹³. A lower level of demand would impact the return on assets, remove the support for debt used to purchase capital, and ultimately impact the money supply and the demand for capital.
 - Higher proportions of retired investors consuming assets may well see lower levels of overall demand in the economy; in which case there may well be a surplus of capital for domestic production which will need to be reallocated abroad; with fewer workers capital employed there may also be a need to be more productive, freeing up yet more capital; with lower future income streams from domestic capital employed variable asset prices may fall.
- A change in risk preferences and the demand for money within the portfolio would impact all of the above. Asset prices would be exposed to significant long term declines.
- If money supply growth had been focussed on consumption then section 4.1.1 is relevant, if money supply growth had also been asset focussed then section 4.1.2 is relevant.

3.1 Consumption of capital

Unless dividends and interest represent partial repayment of capital, the underlying capital representing investments is not literally consumed (*that is transacted for goods or services*); instead investment assets are sold for cash/money which is then used to transact for consumption of goods and services.

Where assets are consumed, this is in the form of depreciation (*durable goods, real estate*) which is a decline in the economic value of an asset and for which there is an ultimate replacement cost. On the production side, capital is not literally consumed but depreciates in economic value; depreciation is a cost of production. In a growing economy, where capital is allowed to be depreciated without replacement or additional capital investment, this is merely a transfer of capital from one form of output to another; higher cash yields (*with an element of return of capital*) are spent or reinvested and hence reallocated. In a

¹³ Retired individuals on average spend less than they did when they were earning.

declining economy, depreciation of capital is likely to be accompanied by a decline in consumption, saving, investment, production and broad money supply; in a sense, capital cannot be consumed, only transferred if there is demand, or destroyed if not.

In a growing economy, economic agents are constantly producing goods for consumption and re-investing cash flow in capital to maintain the productive potential of assets, or investing in new capacity to produce new goods and services. This process of maintaining the capital base and investing in new capital is what provides support to and growth of demand and asset prices. While growth in demand cannot force an increase in supply that cannot be met by current output constraints, a fall in demand can impact the demand for supply.

The maintenance of capacity and the growth of capacity are dependent on the stability and growth rate of final domestic demand, which is itself dependent on the real rate of growth of output. While capital itself is quantifiable (even intellectual capital), its value is dependent on the demand for and supply of its output, the nominal value of which is dependent on the supply of money in an economy.

But just as the value of capital is dependent on the demand for and supply of money, a collapse in demand will impact both the broad supply of money and the value of assets. Broad money supply is comprised of debt, which via the banking system is used to finance asset purchases, transactions/spending and output. A significant decline in demand impacts the future income stream and hence value of an asset; risking default on the debt used to finance that activity; risking a decline in money supply. Indeed, less output needs less capital, which, needs less money supply.

3.2 Conclusion

The demand for capital, the return on capital and the allocation to capital depend on savings/consumption and investment/production relationships. A growing population and growth in productivity will see greater demand for capital, greater return on capital and a rationale for allocation to capital. Anything which impacts the balance of these relationships, risks a decline in return, a decline in the demand for and the supply of capital. In this context, when looking at historical returns from equities, we need to be able to differentiate the return from demographics, the return from productivity growth, the return from financial and economic leverage and excess money supply growth, the return from asset allocation, and the return associated with a given interest rate and inflation environment.

4 Money supply growth, consumer and asset price inflation and portfolio physics, Non-Linear Dynamics

Consumption and saving relationships in the economy impact the demand for capital (*productive capital*), the return on such capital, the securitised value of such capital (*security price*) and the allocation to such capital (*portfolio asset allocation*), making the overall asset allocation decision complex, integrated and interdependent.

What complicates the market timing problem further still, are the structural imbalances caused by excess money supply growth: excess money supply growth is money supply growth over and above that which is needed to finance increases in real output growth without resulting in an increase in inflation¹⁴.

If money supply is important in determining demand for and pricing of assets, then money supply growth and factors which affect the supply of and the demand for money, over the course of the market and economic cycle, are likewise critical. Money supply growth, if excessive, can cause instability in both the securities and the goods and services market place. Excess money supply growth creates one or both of consumer price and asset price inflation, and a lack of sufficient money supply growth, asset and or consumer/producer price deflation.

Central banks, with the exception of the European Central Bank, no longer target broad money supply growth, and the US Federal Reserve no longer records broad money supply growth. Yet, as Perspectives on Capitalism in Crisis 1 and 2 have stated, broad money supply growth and growth in consumer debt have exploded since the mid 1990s. The consequences of a reversal of past excesses could well be significant for asset markets, especially when we consider the relationship between debt, final demand, asset prices and the asset allocation of the market portfolio.

Determining when money supply growth is impacting asset prices is more complex than an analysis of the general level of the price of goods and services; asset prices are more responsive to supply and demand, and price movements can be either towards or away from an equilibrium valuation; many asset prices naturally increase in price at a rate which reflects reinvestment of capital, something which the price of goods and services do not reflect; asset prices also reflect future expectations over return and not just the present and are therefore important in allocating capital within the economy.

But, just as interest rate policy does not target prices on individual goods and concentrates on the overall price level, so should monetary policy focus on the overall demand for assets and the overall absolute price changes¹⁵. Unfortunately monetary policy focuses principally on consumer and producer price inflation and not on asset price inflation: broad monetary aggregates are designed to pick up liquidity that may directly impact expenditure and not asset prices¹⁶.

4.1.1 Bear markets and consumer and producer price inflation

If the adjustment of excess money supply is initially in the consumption and production of goods, consumer price inflation adjusts demand (*money supply*) with supply¹⁷ (of goods by *price*).

In the long run,¹⁸ the nominal prices of real investment assets, more or less adjust, to the increase in money supply and its impact on consumer and producer prices, because investors eventually react to **a)** higher than desired levels of cash holdings and **b)** the higher nominal returns on real assets.

¹⁴ A higher level of inflation: most central banks target an inflation rate band; some inflation

¹⁵ The dynamics of transition can sometimes be complex: new industries require capital in advance of production and existing industries still require capital to produce. During periods of economic transition from old to new, excess capital may be needed to fund the transition period: this makes it difficult to gauge the amount of excess money supply growth needed to fund the transition.

¹⁶ Bank of England; Proposals to Modify the measurement of broad money in the UK - <http://www.bankofengland.co.uk/publications/quarterlybulletin/qb070304.pdf>

¹⁷ A good does not need to be in short supply for its price to react to changes in demand if demand does not react to changes in price.

Returns on real assets therefore equal real growth in output per unit of capital (*the amount of money supply growth absorbed by increases in the supply of a good/service or asset*) plus the nominal growth in output per unit of capital (*the impact of money supply growth absorbed by increases in price of goods and services and not supply*). Returns on the prices of real assets will also be impacted by relative demand for different asset classes, which, are impacted over the short term by changes in risk and cash holding preferences due to, inter alia, changes in interest rates and inflation¹⁹.

A bear market or correction is likely to ensue as interest rates are raised to dampen demand, in the face of inflationary pressures, impacting both the demand for and the supply of money via four routes.

- a) Rising interest rates enhance returns to cash (*also raising yield returns on bonds as demand for fixed interest and bond prices fall*) relative to equities. Cash holdings are likely to rise as a percentage of the portfolio, as the return on cash rises and other asset prices adjust.
 - o A higher rate of consumer price inflation *without a commensurate increase in cash yields* should in the long run result in a preference for a smaller portfolio holding of cash²⁰. Indeed demand for alternative assets like commodities and precious metals may result from concerns over the safety and the certainty of cash returns in an inflationary environment.
 - o Likewise, with only small marginal changes in cash allocations capable of significantly impacting market valuations, failure to raise rates early enough in the economic cycle could force a higher allocation to higher risk investments whose returns are more sensitive to economic demand. In this respect, you do not need excess asset focussed money supply growth to force assets to grow, over the short term, at rates above the nominal rate of GDP growth, but a reallocation of cash within the portfolio.
 - o There is an opportunity for short term arbitrage where rates have risen; short term cash rates are higher than they would be relative to returns on other assets but only for a short period of time until asset prices adjust; it makes sense for some marginal demand to take advantage of this. This also applies as cash rates are adjusted downwards.
- b) Rising interest rates increases the cost of borrowing (*and reduces the certainty of repayment*), reducing the demand (*and availability*) for borrowing, which ultimately dampens money supply growth (*given that much of broad money supply is debt*²¹) and monetary driven demand in the economy. Reduced demand/demand growth lowers nominal returns (*or growth rate of returns*) on productive assets and increases uncertainty over nominal rates of return on productive assets. This can take time to work through the economy, and hence the impact of interest rate rises on portfolio allocations, as a result of changes to returns on assets, can also take time to adjust.
- c) At the systematic financial level, the cost of lower demand is also felt via marginal consumer and corporate defaults on debt, the extent of which depends partially on the length and depth of the downturn, which, is itself dependent on the size and magnitude of the excesses of the upturn. This causes banks to be more conservative in lending and to increase reserves against default, thus slowing down money supply growth further. This should not ordinarily be a problem if the impact of higher interest rates is to limit the potential for further excess money supply growth, which, would otherwise have filtered into either consumer/producer or asset prices. As such, the systematic

¹⁸ For a given set of preferences regarding risk and cash holdings as well as interest rates and inflation; these factors all impact the demand for money and risky assets which determine the final allocation to asset classes and hence their prices.

¹⁹ It is interesting to note that many portfolio theorists state that markets are efficient when the market is deemed incapable of setting interest rates: interest rates are set by central banks. This must mean that markets are not efficient at pricing the demand for and supply of money on their own, and since money supply is an integral component of asset valuation, then markets cannot therefore be efficient in setting real prices.

²⁰ Note that while a unit of money is exposed to inflationary risk, the overall money supply should more or less retain its real purchasing power.

²¹ Cash is deposited in a bank, a bank lends this cash to a borrower who uses it to finance a purchase; the purchaser deposits the cash into a bank that then uses the cash to lend to a borrower to finance a purchase; and so on.

financial impact depends on the overall reaction of demand/money supply and output to changes in interest rate costs and demand for money²².

- d) Uncertainty over the direction of markets and economies may force investors and consumers to be more conservative, cutting back on expenditure, reducing allocation to risky assets and paying back debt instead of spending, ultimately reinforcing the economic and market downturn. It is this risk preference aspect of the transmission that has the quickest and most significant impact on asset prices. As we have shown in section in section 2, only small changes in cash allocations are needed in order to have a significant impact on asset prices.

All of the above factors result in investors in general increasing cash preferences and reducing exposure to risky assets at the margin. Theoretically, providing money supply growth does not decline (*and money supply continues to grow in line with the demands of real output growth*), all higher short term interest rates should ultimately do is to reduce the growth rate of future inflation leaving the potential long term real rate of growth of asset returns unchanged.

As such, it is the tendency for market prices to move higher/lower than they should (*as interest rates, money supply growth, expectations and risk preferences change*) which creates the short term risks that market timers are looking to avoid or take advantage of.

A normal market and business cycle (one that is not impacted by severe exogenous shocks or extreme structural imbalances), even with inflationary risk, should not pose a danger to long term financial security. Ultimately the short term adjustment to higher interest rates and lower returns will reverse as interest rates are once again lowered to either stimulate economic activity or to bring back money supply growth inline with economic demands. Yes, some investors may take a while to feel comfortable about markets (hence preferred cash levels may take time to move back), earnings may take some time to recover to prior levels, but ultimately long term investors in real assets should be able to ride out short term market and economic risks. Further discussion of the management of natural market and economic risk via portfolio structure can be found in section 6.

What can complicate a bear market caused by the normal business cycle are large exogenous shocks to the economic system. For example, in the 1970s, we had the large increases in commodity prices which added further stress to the economic and market system; this caused interest rates to move higher and remain higher for longer and, for inflation to move higher and remain higher for longer. This impacted both real economic activity and market portfolio allocation. However, even here, long term equity investors with appropriately structured portfolios would have weathered the storm.

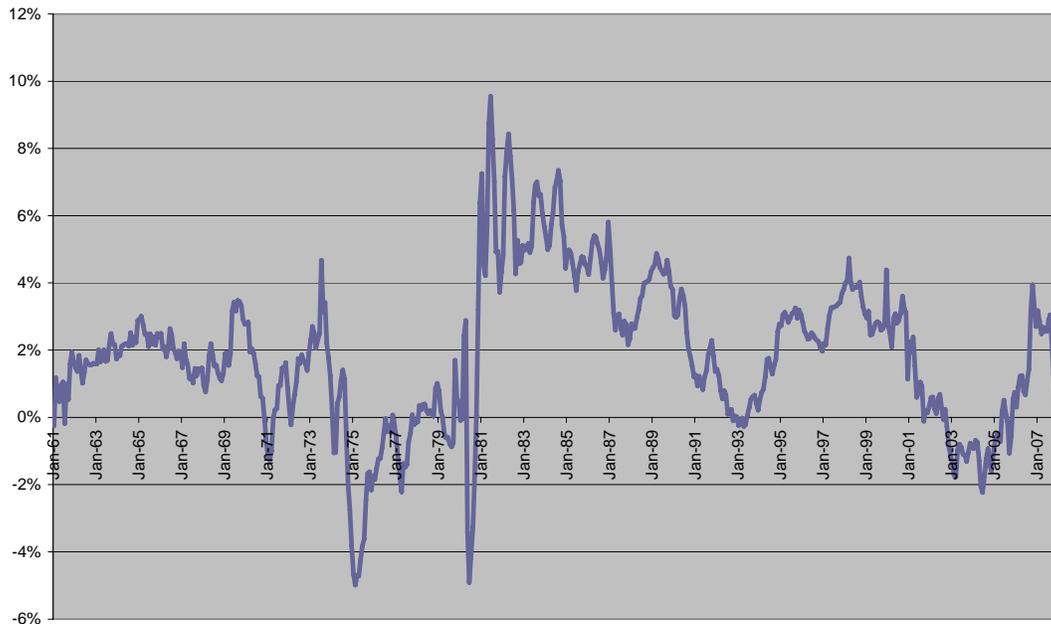
As seen in the chart below, monetary policy in the US in the 1970s was highly accommodative to inflation (although nominal interest rates were higher) and we are currently in such a scenario now.

²² The actual impact on economic activity is more complex in that short term changes in interest rates, inflation and economic activity can impact expectations and hence long term saving, investment, consumption and production plans further exacerbating the short term impact of interest rate changes on asset class returns; interest rates may also be raised higher or lower than needed to impact inflation expectations or consumer and investor confidence. At this point economics diverges between those who believe the economy adjusts on its own and those who believe that fiscal policy is needed to stimulate economic activity.

It is worth looking at the Japanese experience where attempts by the Bank of Japan failed to increase broad money supply growth – note RIETI Japan - <http://www.rieti.go.jp/en/papers/contribution/kobayashi/03.html>

Chart 6

Federal Funds rate less inflation - CPI All Goods



Nominal interest rates are far lower today and real broad money supply growth far higher than they have been since the mid to late 60s – although real GDP growth rates were higher during the 1960s, absorbing much of the higher money supply growth relative to nominal GDP. Combining this chart with chart 7, 8 and 10 in section 5, we can see that periods of low real interest rates and high inflation have also been periods of high relative cash holdings and much lower equity and bond valuations.

Unfortunately, excess demand for goods and services is not the only problem facing the investor when broad money supply is growing at too high a rate. Excess money supply growth can impact asset prices. Asset price bubbles can have negative consequences for key structural economic relationships and hence asset class risk and return.

4.1.2 Bear markets and asset price inflation

“When the quantity of money held by key players in asset markets rises or falls abruptly by a large amount, powerful forces are at work to increase or lower asset prices.”²³

If there is an excess of broad money supply growth over and above nominal GDP growth, then this excess, unless directed towards higher cash balances, will by implication be directed at assets; in this case, we have a different and potentially higher risk investment scenario.

It is worthwhile noting that not all broad money supply measures will incorporate all sources of liquidity likely to impact asset prices: these aggregates are structured to be sensitive to demand for goods and services.

In the long run, the return on an investment is dependent on the future stream of real net earnings (*after taxation, depreciation and amortisation*) and the relationship between that return and the demand for that return relative to other assets. When there is excess demand for investment assets relative to return, the price of return rises, and the margin of return relative to risk falls; the price of return based on historic data

²³ 12. Professor Tim Congdon - Institute of Economic Affairs: Money and Asset Prices in Boom and Bust - <http://www.iea.org.uk/files/upld-book291pdfSummary.pdf>

should only rise if the level of future return has risen, or the return on cash and lower risk assets has fallen; this is not always the case where money is chasing short term capital returns as opposed to long term earnings growth. Subsequently, any re-pricing of risk caused by a change in risk preferences and or economic risks can further impact normal business and market cycle risks on asset prices: this is because asset prices are even further away from where they would normally be in the absence of excess demand.

Ultimately, asset prices are tied to future consumption (*real future final demand is related to the demand for capital and hence its real return and price*), and a rise in asset prices will ultimately lead to a rise in future consumption without which there would be no rationale for higher asset prices. If this future consumption is in excess of the ability of the real economy to provide, then we will see in turn, a rise in inflation, a rise in interest rates, a fall in money supply growth, a fall in the real return on equities and a rise in the relative return between cash and equities.

In other words, unless higher asset prices reflect an increased ability of the economy to generate higher real return, then asset prices driven by excess money supply growth will ultimately fall in real terms due to either inflation or a fall in monetary demand.

In the case of housing, excess supply at higher prices will not be capable of being sustained by final demand unless future output is capable of generating the wages needed to meet interest and capital repayments: wage growth being related to growth in productivity.

Falls in asset prices with their link to debt risk a higher rate of default, greater impact on immediate domestic demand via stress on consumption, broad money supply and money supply growth, and depending on the complexity of the financial system, stress on the financial system.

Therefore, if money supply growth is in excess of the real growth potential of the economy, and this excess is not directed at immediate consumption, but in increasing demand for real and/or investment assets, then the valuation of real assets risks exceeding the ability of those assets to support the higher level of return and final future demand needed to justify the price.

It is the supply/demand imbalance between **a)** the supply of assets (*securities*) for future consumption and the future demand for those assets (*future demand will fall as excess money supply growth is constrained and risky asset demand preferences shift*) and **b)** the impact of **(a)** on consumer and producer price inflation that leads to a fall in the supply of asset focussed excess broad money supply growth that ultimately leads to the collapse of asset price bubbles. In other words, either the expected real return will fall or the excess demand for those assets will abate (in other words monetary growth is constrained), or worse both will occur over certain time periods.

As discussed, one major problem of excess broad money supply growth is that because it is heavily debt based (*current liabilities are fixed whereas future returns are not*), asset price booms fuelled by excess broad money supply growth risk ending with more significant defaults on the debt/money supply used to finance acquisition of assets; not only is there a fall in consumption (*and the consequent fall in return*) but there is a fall in the level of absolute demand as money supply and its growth rate are impacted.

A collapse of an asset price bubble may cause banks to be more conservative in future lending than would be the case in a normal business cycle downturn, and to increase reserves (*itself resulting in either a fall in money supply growth*)²⁴. Defaults impact a bank's ability to lend by reducing the asset base on which lending is based, either significantly slowing money supply growth or in severe situations causing a fall in money supply itself.

Asset price booms can also cause significant over investment in certain sectors of the economy (*note property in the current phase of the latest boom and technology in the late 1990s*) leading to severe demand supply imbalances in real tangible assets that can take years to work out of the system.

²⁴ Again, reference should be made to the Japanese experience of the 1990s to see the impact of high levels of non performing loans on the ability of the central bank to increase broad money supply growth.

Asset price booms, unless they collapse, will ultimately feed into consumer price inflation as consumers start to spend a portion of their increased wealth – this should be tautological. Ultimately, as asset price inflation feeds back into current consumption, the resultant inflationary risks lead to central banks raising interest rates to control inflationary risk: this results in an often larger and longer collapse in asset prices than that caused by producer and consumer price inflation alone. A bear market or correction is likely to ensue, as interest rates are raised to dampen demand in the face of inflationary pressures, leading to further economic and market consequences.

Asset price booms can have a much greater impact on economic output and the valuation of investment assets because of the additional impact of leverage on more volatile assets and the ultimate impact of a crash in asset prices on money supply and money supply growth. Money supply growth risks contraction (*as was the case in the 1930s*) or stagnation (*as was the case in Japan in the 1990s*) or compounded by *commodity price shocks* (the UK in the 1970s).

Bear markets associated with a deflating asset price boom are similar to those associated with consumer and producer price inflation, with the added impact of forced asset sales, greater credit and systematic financial risks and longer term market and economic declines.

Since a fall in asset prices usually has less of an impact on consumption than a fall in employment and earnings, it is not necessarily a given that an asset price boom will be more damaging to economic growth²⁵; inflated asset prices on their own do not pose severe risks to economic growth; an asset price boom highly correlated with severe structural economic imbalances will however pose significant additional risks. If output was running well below capacity then a large increase in asset prices is much more capable of being met from growth in the output of the productive assets supporting the asset prices.

4.2 Transaction/consumption/production and asset focused/investment/saving components of money supply growth

Money supply growth can be impacted by the allocation to different components/objectives of money supply; while broad divisions are a) transaction focused (current consumption and production) and b) asset focused (saving and investment), there is a third component which covers cash held in excess of both long term transaction and asset allocation decisions.

Narrow money supply can be increasing at far higher rates than broader monetary aggregates for fairly long periods of time: this can be influenced by a) money supply moving from accounts linked to loan growth to accounts that impact loan growth to a much lesser degree and b) where the supply and or demand for loans is weak.

During certain time frames, cash held by individuals and economic agents may be higher than required for both transaction and asset allocation purposes; falling inflation, lower returns on cash and increasingly stable economic conditions can stimulate a higher allocation of money supply to transactions and a reduced preference for cash for asset allocation purposes; this reallocation of cash can support increases in domestic demand at a time when broader money supply growth is lackluster; money supply growth does not necessarily need to be expanding strongly to generate growth in domestic demand if money supply itself is in excess of current transaction requirements and asset allocation demand. Falling savings rates may also imply a reduced need for cash holdings.

It is possible for stagnant broad money supply growth to occur during periods of both declining and expanding demand. In the US in the late 1980s and early 1990s broad money supply growth was at levels normally associated with declining demand, yet economic growth (*with the exception of the early '90s recession*) was positive and cash allocations within the market portfolio fell significantly. Similarly, in Japan, in the 1990s, broad money supply growth was stagnant yet cash holdings were rising and economic demand contracting. Financial innovation can also influence the dynamics of this process making the transition more complex to analyze.

²⁵ <http://www.federalreserve.gov/BOARDDOCS/Speeches/2005/20050112/default.htm#f2>

If changes in preferred cash holdings are impacted by deteriorating expectations for economic and market stability, attempts to stimulate increases in monetary demand may be absorbed by preferences for higher cash allocations for both transaction and asset allocation components.

It is therefore plausible for monetary policy to be unable to influence economic activity at key turning points: moving from high inflation to low inflation and towards the end of an asset price boom characterized by high levels of debt. Moving from low interest rates to higher interest rates, from low inflation to higher inflation at the end of asset price boom, where consumers are highly indebted is one scenario where monetary policy may have great difficulty in stimulating economic growth. Indeed, such a scenario may initially see an inflationary period followed by deflation.

4.3 Conclusion

Economic growth, and the allocation of capital that this entails, is not without risk. There are natural risks associated with the business cycle (*capacity constraints, misallocation of resources, consumer and/or producer price inflation*) and these risks impact asset prices over the short term. These risks should not be a problem for the individual investor, provided they have a portfolio structure capable of managing the time frame and the magnitude of these risks. However, where structural risks and excesses are allowed to build and risk the integrity of the economic cycle itself, these risks cannot be managed, at all, except by the marginal investor.

Consumer and producer price inflation is an easy risk to see and a relatively easy risk to manage in the absence of large exogenous shocks. In an imbalanced global economy, with opaque and sophisticated financial systems, a mix of emerging and developed economies, fixed and variable exchange rates, excess money supply growth and highly indebted consumers in key economies, the financial, economic and market imbalances may become unmanageable.

5 Asset Price Booms & Excess Money Supply Growth

This document focuses primarily on US economic data and within this focus, data relevant to the analysis of excess money supply growth and asset price booms. There are a host of other financial, market and economic issues that are addressed in Perspectives 1 and 2 and other TAMRIS economic perspectives; extremely high levels of consumer debt; US and global economic dependence on US consumer expenditure; current account deficits and surpluses; global money supply growth; the risks of highly leveraged asset focussed investment vehicles, securitised debt and over the counter derivatives' market places.

Naturally, asset focussed money supply growth, leveraged investment vehicles, financial innovation and securitised debt, investment of foreign exchange reserves of countries in surplus and factors impacting US consumer debt are all interrelated. The US economy lies at the centre of the current global economic and financial market crisis. In terms of the global market portfolio, it is also one of the most important players; according to the World Health Organisation²⁶ (2006) the US held 34% of the world's household wealth yet accounted for only 6% of the world's population.

5.1 US asset focused money supply growth and household asset allocation

Bear markets associated with asset price booms pose a higher level of risk than normal business and market cycles; still, investors as a whole remain constrained, in their ability to obviate this risk, by the simple linear physics of the market timing problem – see section 2.

Chart 7²⁷

US Asset Price Booms
Broad Money Supply Growth less Nominal GDP growth divided by annual CPI

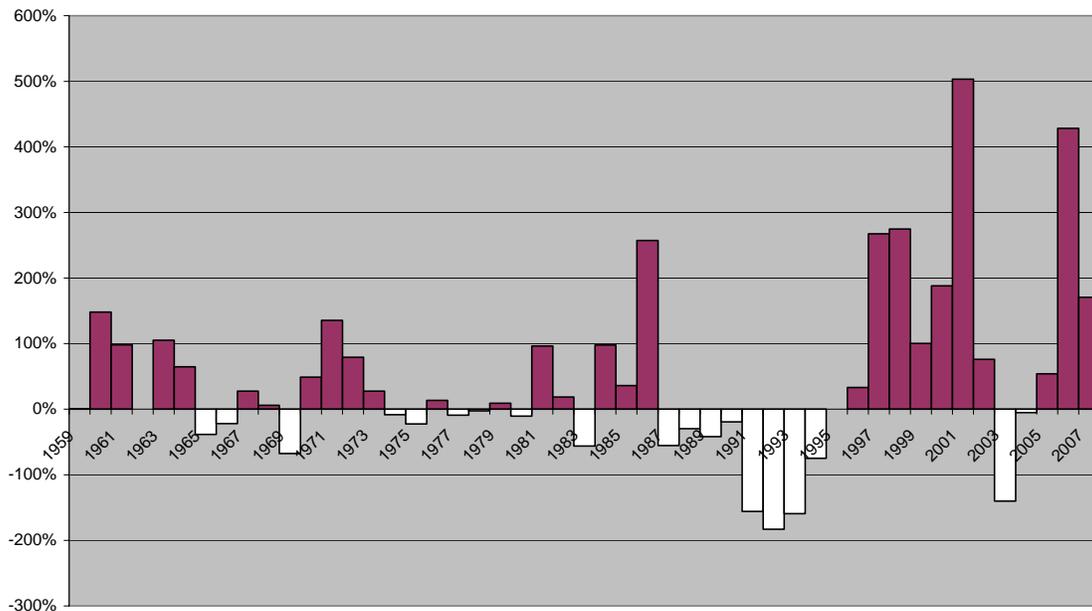


Chart 7 shows US “asset price booms” from 1959 to 2007 by graphing annual broad money supply growth less nominal GDP growth divided by consumer price inflation. This measures broad monetary growth in two dimensions: the first, money supply growth in excess of nominal GDP (*asset focussed*), and, the second, excess asset focussed money supply growth relative to inflation. What it shows is, since 1995, the US has

²⁶ <http://www.mindfully.org/WTO/2006/Household-Wealth-Gap5dec06.htm>

²⁷ Source Federal Reserve M3 growth to 2006 and growth in commercial banks' assets 2006 to 2007.

been in a historically strong period of excess money supply growth relative to GDP and inflation; these are perfect conditions, given stable and low interest rates and inflation, for an outside asset price boom. The early 1960s, the early 1970s and the early to mid 1980s were also periods characterised by a levels of asset focussed money supply growth; the prior periods, however, pale into comparison for a large number of reasons.

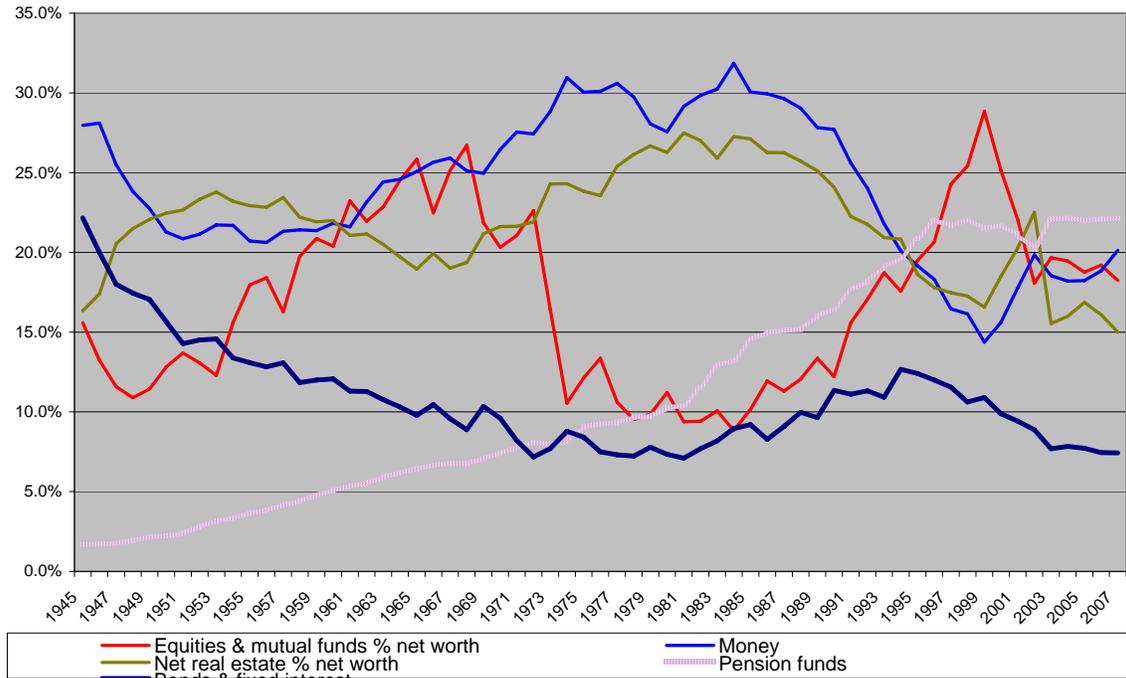
It is worthwhile noting that money measures differ and do not cover all liquid assets likely to impact demand for assets; some measures exclude institutional cash holdings, non resident holdings as well as holdings of foreign exchange, while others include these items to lesser or greater degree. As such the analysis in this document is about the significance of absolutes and relatives.

US equity (*and other world markets*) produced poor capital returns from the mid to late '60s to the early '90s: part of this was due to the severe economic problems of the 1970s; part due to large increases in percentage cash holdings (*see chart 9*), and part due to the high equity valuations reached in the mid to late '60s (*real valuations surpassed only by the '90s*).

Over the last twenty to thirty years²⁸ (*and the first few years of the current millennium in particular*) we have had progressively lower returns on cash/interest rates and lower inflation, a less volatile market and economic environment, large increases in broad money supply growth (*latter 1990s onwards in particular*) and an explosion in financial innovation; the securitised debt market in particular has allowed, in theory, investors to hold a higher allocation to risky assets via structures that were supposed to lower investment risk while providing higher lower risk yields.

Chart 8

US Household Portfolio Components - Federal Reserve FLOW of Funds Accounts



²⁸ Please see Capitalism in Crisis paper 1 which deals with money supply growth.

The previous chart (*Chart 8*) shows data drawn from the Federal Reserve Flow of Funds accounts and shows the percentage of cash and risky assets held by US investors since the 1940s²⁹.

Money holdings are less debt³⁰ (*excluding mortgage debt*) as a percentage of net worth; short term debt is taken off cash and money balances³¹. Real estate assets are also less mortgage debt and represented as a percentage of net worth: it is worth noting that despite a house price boom, net real estate values have been falling: house prices had been rising strongly till 2005 but so has mortgage debt. Equities, bonds and pension fund assets are represented gross as a percentage of net worth. The chart does not show all the components of the household and non profit organisations balance sheet.

The chart shows cash balances as a percentage of household net worth falling till late 1999. Cash balances will have recovered from 2000 onwards due to the real decline in equity markets, increased cash balances during the bear market, money supply growth and partially because a large element of consumer expenditure came from home equity withdrawals (*which will have gone some way to reducing the net value of real estate as a percentage of the overall household portfolio*).

Of interest is the overall increase in holdings of risky assets, as represented by higher leverage on property, and increased holdings of both equities and pension fund investments. Indeed we can see a long term increase in the percentage of risk assets held by households (*including non profit organisations*) as evinced by much larger institutional holdings. This would likely be the main reason for the disappearance of the reverse yield gap (*that and the fact that debt issuance has increased significantly since the 1950s*); once upon a time bonds yielded less than equities. Additionally the 1970s were a period of significant risk where equity holdings and cash balances fell and rose significantly as a percentage of the household portfolio. One can clearly see a small increase in cash balances (*1.3%*) between 2006 and the end of 2007 and a reduction in the allocation to both property and equities.

A large component of what has been significant broad money supply growth has presumably been focussed on the debt market (*financial institutions and hedge funds*), where the ability to borrow short at low interest rates and invest long in higher risk higher yielding assets, within structures that were supposed to lower risk, has allowed both an increase in supply and demand for real estate assets, in particular, and an increase in home equity withdrawals used to support expenditure.

This increase in debt at the expense of equity markets can be seen in the chart 9; it is worthwhile noting that debt and equity are both capital and, aside from the physics of risk and return of the different components, should be interchangeable in terms of financing economic growth.

²⁹ Federal Reserve Flow Funds' household data is drawn by inference from residuals. As such the trends are more important than the actual numbers.

³⁰ Consumer credit, bank loans, other loans and advances, security credit, life insurance premiums; trade payables are assumed to be aligned to unincorporated businesses.

³¹ This is to mirror the portfolio relationship between assets and liabilities and is designed to show a net portfolio position.

Chart 9³²

Asset Price Bubbles - US Broad Money Supply Growth and debt and equity prices

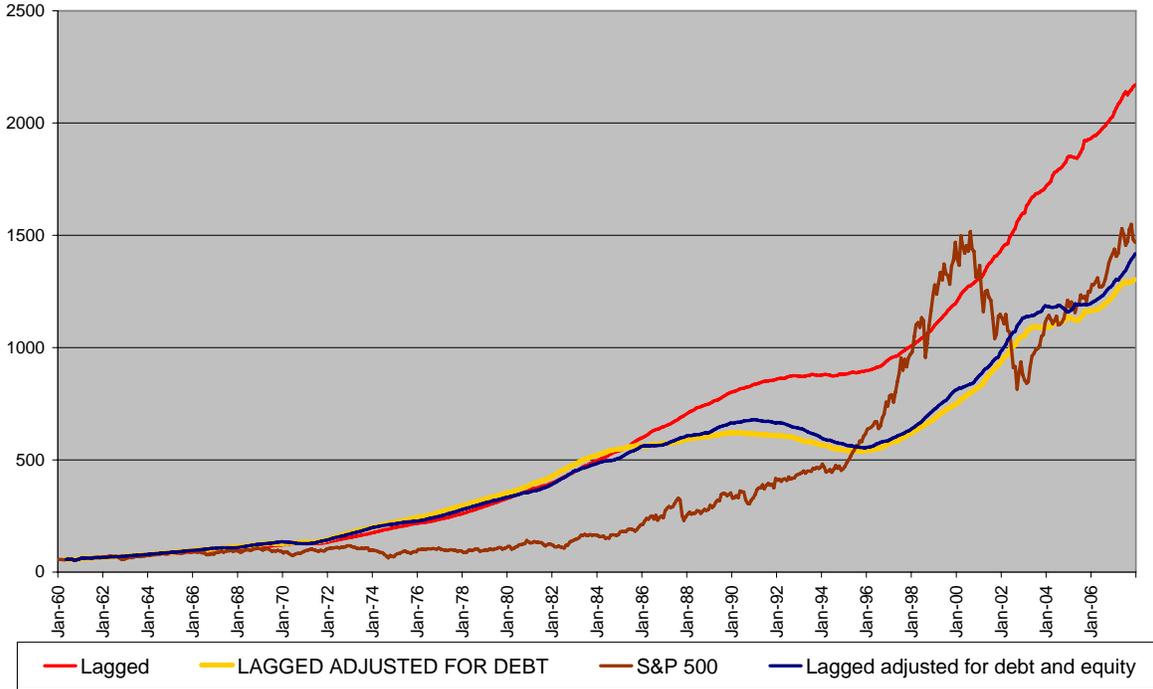


Chart 9 shows the capital performance of the S&P 500 since 1960, the performance of the S&P 500 if it had moved up in line with money supply (*lagged 12 months and without adjustment for net equity issues or debt*), and the performance of the S&P if it had increased in line with money supply, after adjusting for the increase in allocation to debt markets and new equity issuance³³.

What this shows is that the increase in debt as an asset class has been significant since the mid 1980s and that this parallels the large increase in debt used to finance consumption and purchase of real estate investment. Obviously this chart does not include other asset classes to which excess money supply might have been allocated to.

Chart 9 backs up chart 8 in that we see a decline in the valuation of the stock market relative to money supply growth from the early 1970s, and this is likely attributable to increased aversion to holding equities, higher short term cash rates and lower real economic returns. Likewise the increase in the index post 1995, above that allowed for by money supply growth and adjustments, is accounted for by reduced demand for money and increased demand for risky assets.

³² Source Federal Reserve.

³³ Again data taken from Federal Reserve Flow of Funds Accounts.

Chart 10

Annual Growth In Household Debt, Adjusted AGHD Less Inflation/Inflation, AGHD less nominal GDP growth/inflation

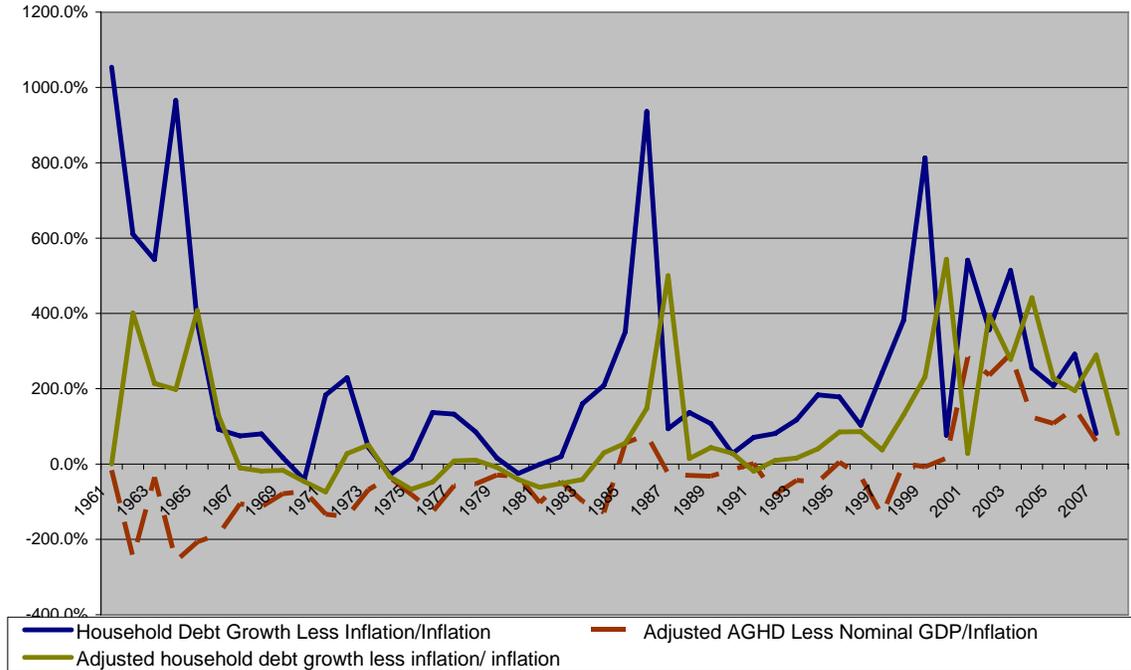


Chart 10 adds perspective to Chart 8: the blue line shows growth in household debt less inflation divided by inflation; the green line, growth in household debt adjusted for the current level of household debt (2008) as a percentage of GDP, less inflation and divided by inflation; the maroon line, adjusted growth in household debt less nominal GDP growth, divided by inflation.

The adjustment on household debt growth is made via multiplying annual debt growth in any one year by the relationship between debt to GDP in that year and a reference year: for example, **(debt growth 1963 * (household debt to GDP ratio in 1963/household debt to GDP ratio in 2007))**.

What the graph shows, is that household debt growth was strong in the 1960s, but relative to current debt as a percentage of GDP growth, overall debt growth was much less significant. Also, relative to GDP growth and current debt to GDP ratios, growth in household debt was significantly less relative to current growth rates; negative to be exact. Current growth in debt is both historically high and historically divergent from real economic relationships.

Over the last few years we have also had historically low rates of wage growth which has most likely been another factor as to why the primary impact of excess money supply growth has been first of all towards an increase in assets (*securitised debt*) and asset prices; higher earnings may have seen money supply growth impacting demand for consumer goods to a greater extent. Consumers have not had the spending power to generate excess demand from their own transaction component of the money supply, but have instead turned to taking on debt based on higher valuation of their homes. This availability of debt finance has been driven by the large supply of asset focussed money supply, itself driven by low interest rates and financial innovation.

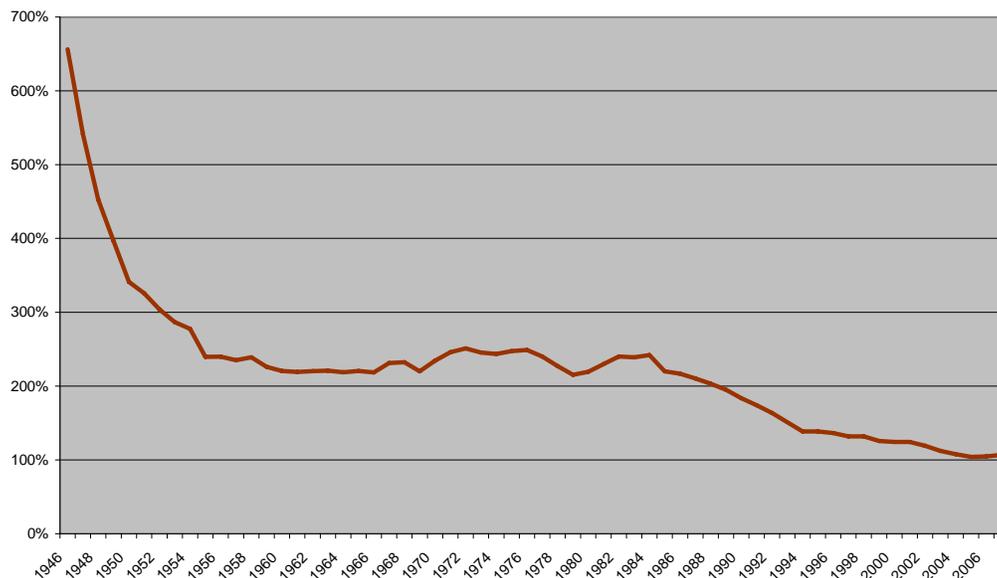
Inflationary pressures have also been held off via the supply of cheap imports; much of this demand has been recycled via overseas central bank foreign exchange reserves back into US assets, *effectively trading consumer price inflation for asset price inflation*. Fewer imports would have meant either higher nominal GDP growth and higher inflation or, via lower increases in asset prices, reduced growth in personal consumer expenditure.

Unfortunately when asset prices are driven higher by excess money supply growth, the ability of real economic growth to sustain those asset prices most likely diminishes; unless nominal returns on productive assets and the factors of production (*in particular labour*) increase. Recently, instead of economic growth driving consumption, it has been debt derived from asset values that has been driving economic growth.

The following chart shows the relationship between household cash balances and household debt (*households including non profit organisations as per Federal Funds Flow Accounts*). While it ignores the fact that asset prices have gone up and hence overall asset relationships, it does show the exposure of households to debt and the impact falling asset prices (including real estate) could well have on the composition of future household portfolios and hence security prices.

Chart 11

Household (including non profit) money as a percentage of household debt



5.2 The adjustment process was interrupted

An increase in nominal returns on productive assets over and above the rate at which the economy can grow in real terms can only be achieved by inflation, which, means a transmission of excess money supply from assets to consumer demand. This is what was starting to happen in the US in 2005 and was a reason why interest rates were being raised. The problem was that rising interest rates cut off the adjustment process by which asset prices moved back into equilibrium with nominal returns on productive assets; note wages are not high enough for to support mortgage debt at higher interest rates.

Note that this is a problem – though inflation is not a positive outcome - because a large part of the transmission mechanism in the current asset price boom is through the banking system. It is interesting to note that part of the transmission mechanism for inflation has been global demand and output (*fostered partially by rising asset prices*) and by a suspected marginal reallocation of asset focussed money supply growth to commodities.

Falling asset prices are a problem because much of the securitised debt related to housing was held above the banking system (*in addition to liabilities already held directly by the banking system*), via over the counter credit derivatives, off balance sheet conduits and other financing vehicles; much of the other debt associated with the asset price boom is also likely held above the banking system. The collapse in asset prices that has ensued has logically gone to the heart of the banking system. This by itself has risked a) a

sharp slowdown in monetary growth and b) a possible collapse in the banking system which would cause a decline in money supply and a collapse of a market based economy. For the moment the path of the credit crunch appears to have been held by a hefty series of interest rate cuts and radical moves by the Federal Reserve and other central banks to lend against much of the securitised debt clogging up the banking system.

The end of all asset price booms directly impacts the banking system by virtue of its impact on the value of bank assets. What makes the current situation different, aside from historically high levels of consumer debt, is the amount of securitized debt held off-balance sheet by financial institutions, and the size of the over the counter credit derivatives market place.

Unfortunately in the securitised debt frenzy and OTC derivative explosion, much more asset price risk is still held above the banking system and must ultimately travel back through the banking system if final demand contracts.

The only way out of this complex structure, without causing a collapse in asset prices and the financial system, was to lower interest rates to support asset prices; to ultimately allow the impact of excess money supply to flow into the prices of goods and services, therefore, bringing the two components of monetary demand into balance. This activity would result in inflation which would ultimately demand higher interest rates.

The other short term option is to get rid of excess money supply, as represented by the liabilities attached to assets, thereby allowing asset focussed money supply and asset prices to correct: falling asset prices takes away the collateral supporting debt leaving either economic and market participants unable to assume more debt or, to initiate default on a portion of that debt. This would be the more sensible option, if it were not for the fact that many assets are still held above the banking system: this means that a fall in asset prices, in general, would impact the banking system directly; if assets were outside the banking system (*not held above it*), leaving markets to clear, only actual defaults would impact reserves.

In the current instance, the major initial adjustment was with respect to the pricing of debt and not equities, which appears to be what we have seen in the market place to date. This does not mean that equity will not be ultimately impacted further, just that the transmission of the risk event has not yet fully hit the real economy³⁴. The large increases in asset focussed money supply growth, and the attendant large increases in financial leverage and personal debt levels, that has been facilitated by the asset price boom, has greatly complicated the role and impact of money supply on asset prices and portfolio risk and return.

The risks to asset valuations, final domestic demand, asset returns, money supply and money supply growth are therefore heightened and have not fully worked through the system. The trend towards lower interest rates and higher asset price multiples, has led investors to hold less cash and more risky assets within their portfolios. A long period of economic and market uncertainty could exacerbate a move away from risky assets.

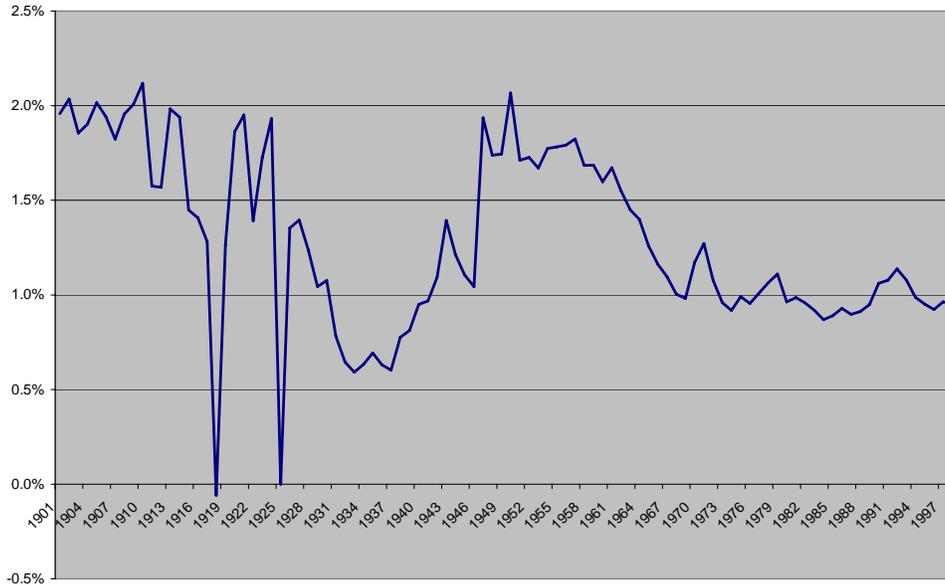
³⁴ As of May/June 2008

5.3 Productivity growth & demographics

In the 1950s and 1960s US productivity growth averaged 2.5%³⁵, from 1972 to 1990 US productivity growth averaged 1.4%, from 1995 to 2000 it averaged 2.5%³⁶

Chart 12

US Population Growth - 1901 to 1998



The higher productivity growth of the 1950s and 1960s was accompanied by the strong post war economic expansion and population growth (*see chart 12, annual US population growth 1901 to 1998*), the low productivity growth of the 1970s and 1980s, the economic problems of that time.

The late 1995 surge in US productivity growth also coincided with a large increase in US consumer demand and an economic boom. Productivity growth therefore appears to be related at one juncture to growth in final demand³⁷, and it is likely that negative demographics combined with a structurally weak US consumer will also see the potential for lower productivity growth; hence weakness in consumer demand following the collapse of an asset price boom is likely to have secondary consequences for the return on capital and hence asset allocation and asset class returns.

While productivity growth is a supply side factor, demand impacts productivity during the economic cycle while also providing an imperative or opportunity for changes in skills, technology and processes that shape productivity growth. Downturns in consumer demand and productivity growth appear to have a close relationship as shown in chart 13.

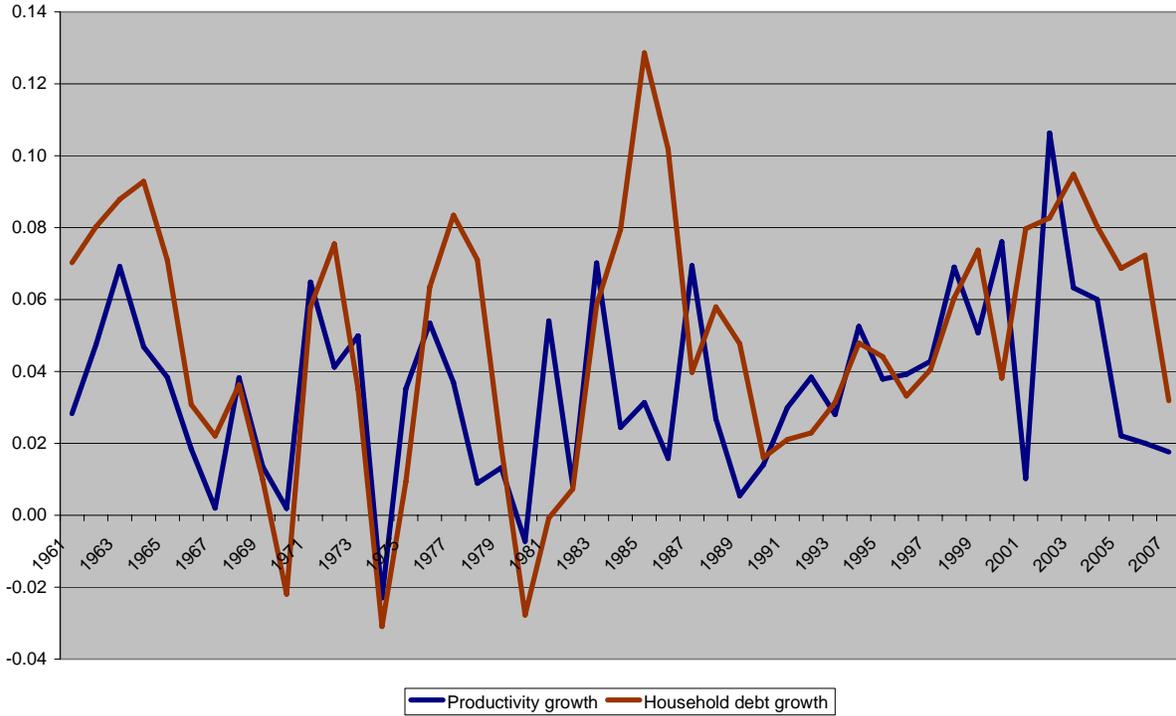
³⁵ <http://www.dallasfed.org/eyi/usecon/0003growth.html>

³⁶ <http://www.mckinsey.com/mgi/publications/us/index.asp>

³⁷ http://findarticles.com/p/articles/mi_ga5461/is_199910/ai_n21447984/pg_3

Chart 13³⁸

Household debt growth (rebased) and productivity growth



5.4 International data

The focus of this report is on the physics of market timing and the importance of the integrity of the financial system to the stability of the market portfolio and therefore the sum of all individual portfolios. That the US financial system is the focus of the analysis should be no surprise: while many other economies have structural problems and relevance to the current financial, market and economic situations, none is more important than the US; the trade deficit, high levels of consumer debt and the dependence of its consumers on asset prices.

Once we start to include analysis of other economies we also need to widen the perspective, a perspective already engendered in previous reports on capitalism in crisis. For example, Asian and European personal consumer expenditure as a percentage of GDP is much lower than the US; Asian and European savings rates are much higher; European (*ex UK and a number of other countries*) consumer debt though historically high is much lower, while Japanese consumer debt remains high. Much of the relative strength of these other economies is dependent on the demand from US and other highly indebted consumers; a demand facilitated by low interest rates, financial innovation, lax lending standards and excessive money supply growth. The question is, can global excess money supply be directed towards production and consumption in those economies less skewed towards consumption and consumer debt? Previous analysis has suggested, “not in the time frame required”.

5.4.1 UK broad money supply growth

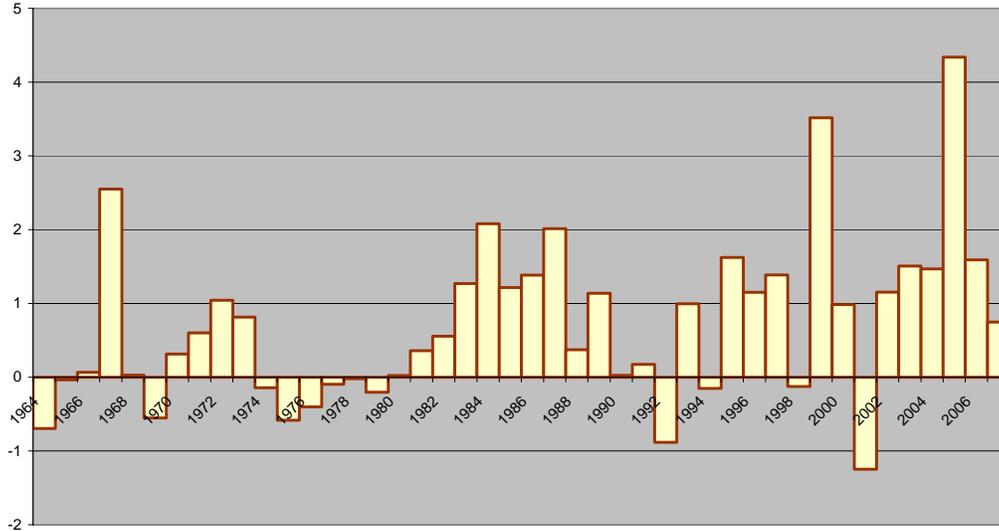
The following chart shows UK broad money supply growth (*source Bank of England*) from 1964 to end 2007, relative to nominal GDP growth and the retail price index (*source Office of National Statistics*). It

³⁸ Source, Bureau of Labour Statistics and Federal Funds Flow Accounts; household debt growth rebased by dividing by 10.

clearly shows three distinct periods of excess money supply growth (the 1970s Heath/Barber boom), the 1980s (Thatcher/Lawson boom) and the late 1990s/2000s global economic boom.

Chart 14

Broad Money Supply Growth (M4) (-) less nominal GDP growth divided by inflation (RPI)



As noted elsewhere, broad monetary aggregates do not include all liquidity likely to impact asset prices.

Chart 15

Monetary Financial Institution holdings of foreign currency by residents and MFI holdings of sterling deposits by non residents (all in sterling) versus M4 annual growth

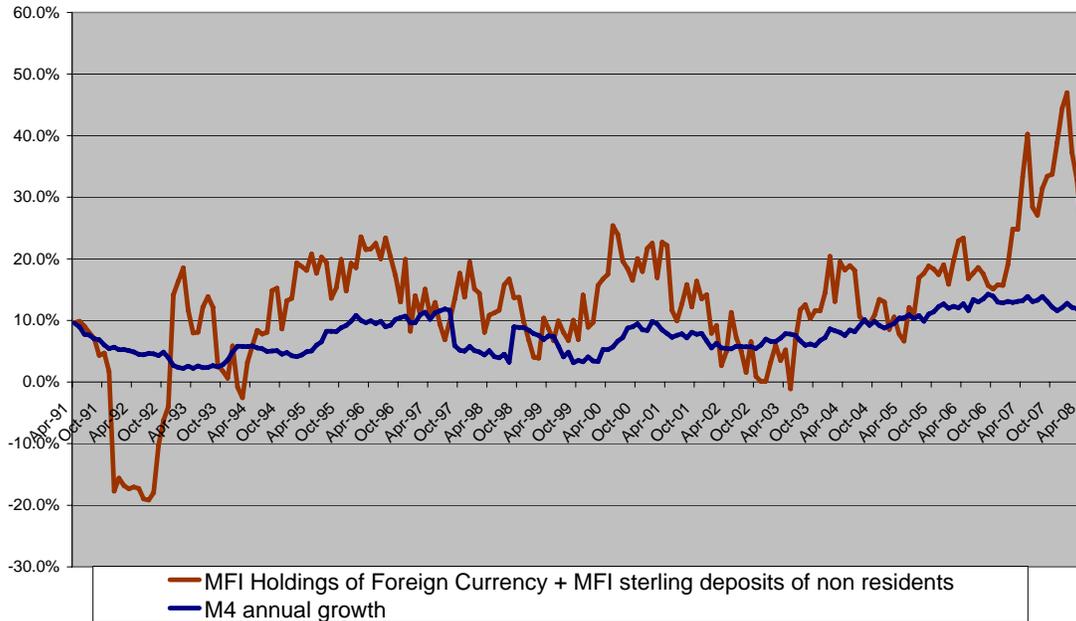
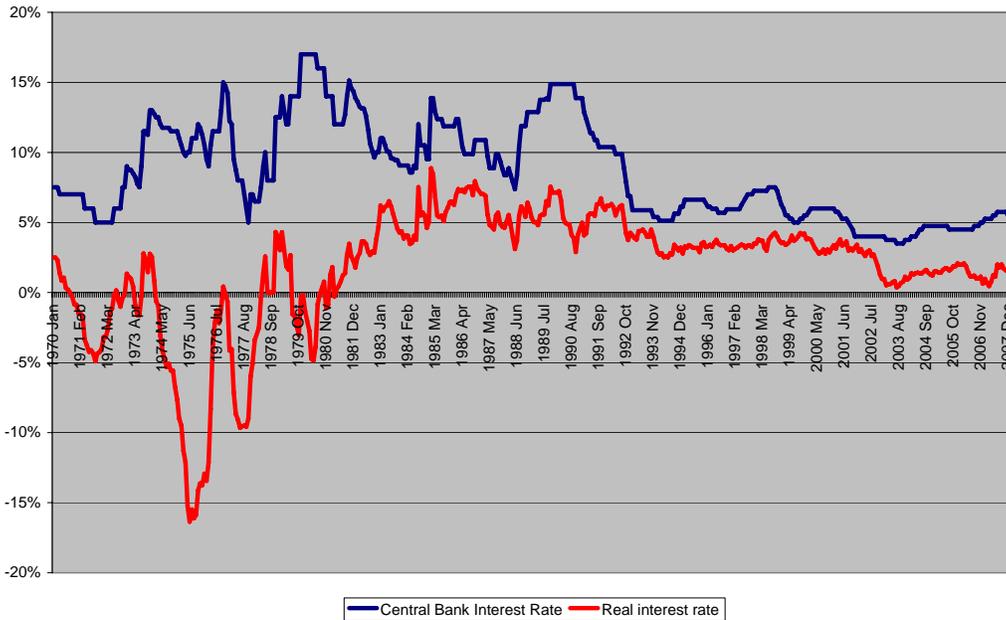


Chart 15 shows broad money supply growth (M4) against two of the many liquidity measures not included in M4: these are foreign currency deposits held by UK residents with monetary financial institutions (MFI) and sterling deposits held by non residents with monetary financial institutions. The growth rate of these measures of liquidity has been in excess of broad M4 growth over the period. Even within M4, money supply growth for the “other financial corporations” segment has been well in excess of the component held by households confirming, again, an excess of asset focused money supply growth in the UK.

As a final perspective and comparison, chart 16 shows UK interest rates and real interest rates since 1970. Real interest rates are at their lowest levels since the early 1980s, but have not yet descended into negative territory as per the US – see chart 6.

Chart 16

UK Interest rates, nominal and inflation adjusted



5.4.2 European broad money supply growth

Chart 17 shows European broad money supply growth (*source European Central Bank and Eurostat*) less nominal GDP growth from 1997. Historical data for money supply, inflation and nominal GDP are not as extensive as for the UK and the US. There is a clear excess of money supply growth from 2002 to 2007, growth which is above that for both the UK and the US; both the UK and the European monetary aggregates are very extensive and it may be that part of the differential can be explained by differences in the composition of money supply.

Chart 18 compares excess money supply measures for Europe (blue), the UK (maroon) and the US (yellow). Irrespective, what is clear is that excess money supply growth was fairly extensive across Europe and the US over the last ten years.

Chart 17

European Broad Money Supply Growth (M3) less Nominal GDP Growth

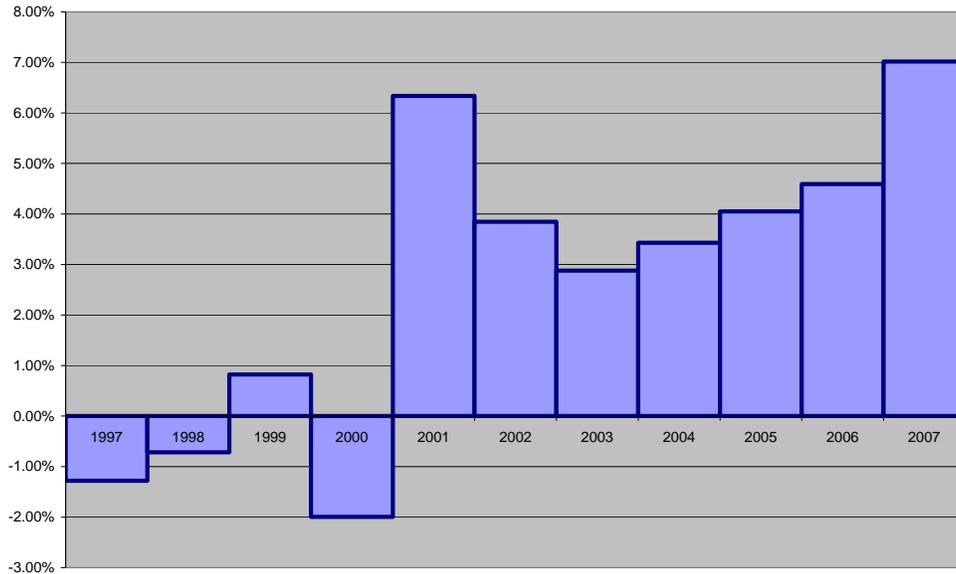
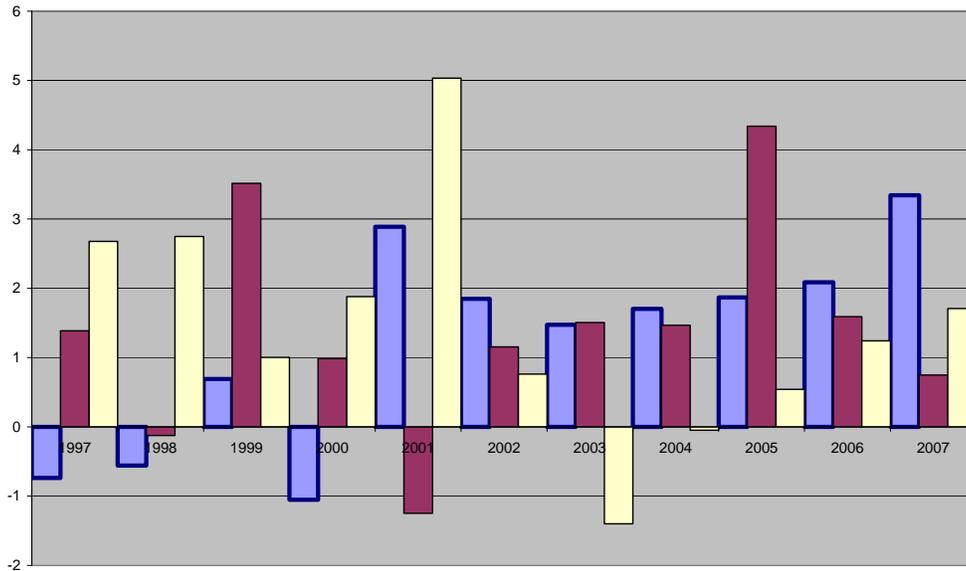


Chart 18

European, UK and US Broad Money Supply Growth (M3) less Nominal GDP Growth



5.4.3 Japan, broad money supply growth

Chart 19 shows broad money supply growth (source Bank of Japan; M2 plus CDs, 1974 to 1999, M3 new series 2003 onwards; M3 old series 1999 to 2003) relative to nominal GDP growth. Japan has suffered from a long period of deflation, slow money supply growth and falling asset prices. While we can clearly see a rise in money supply growth strongly in excess of nominal GDP growth in the late 1990s, this was not associated with strong asset price or economic growth.

Chart 19

Japanese Money Supply(M2 plus CDs to 2003, M3 post 2003), less nominal GDP

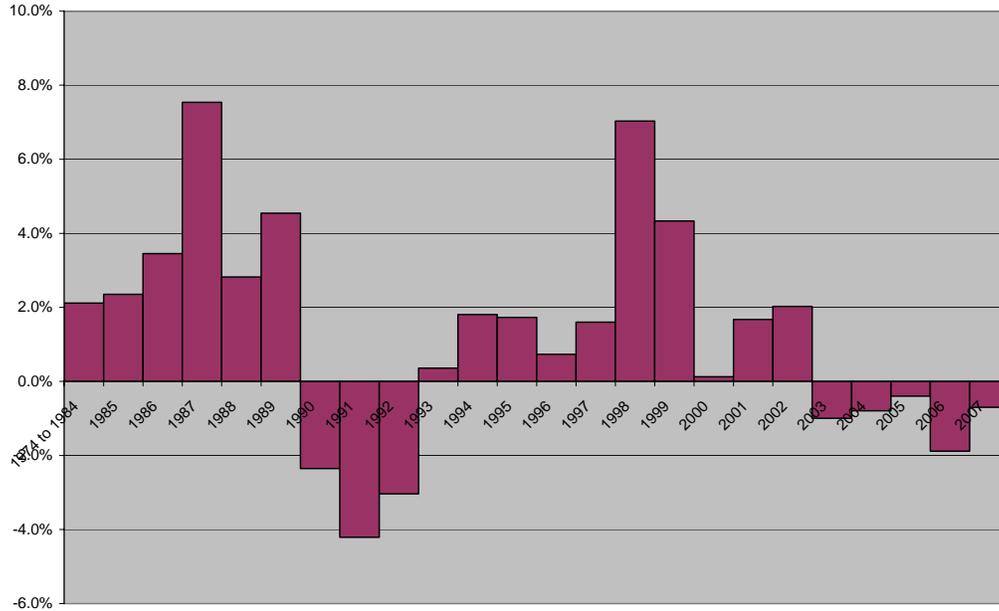


Chart 20

Money Supply Growth, Nominal GDP Growth

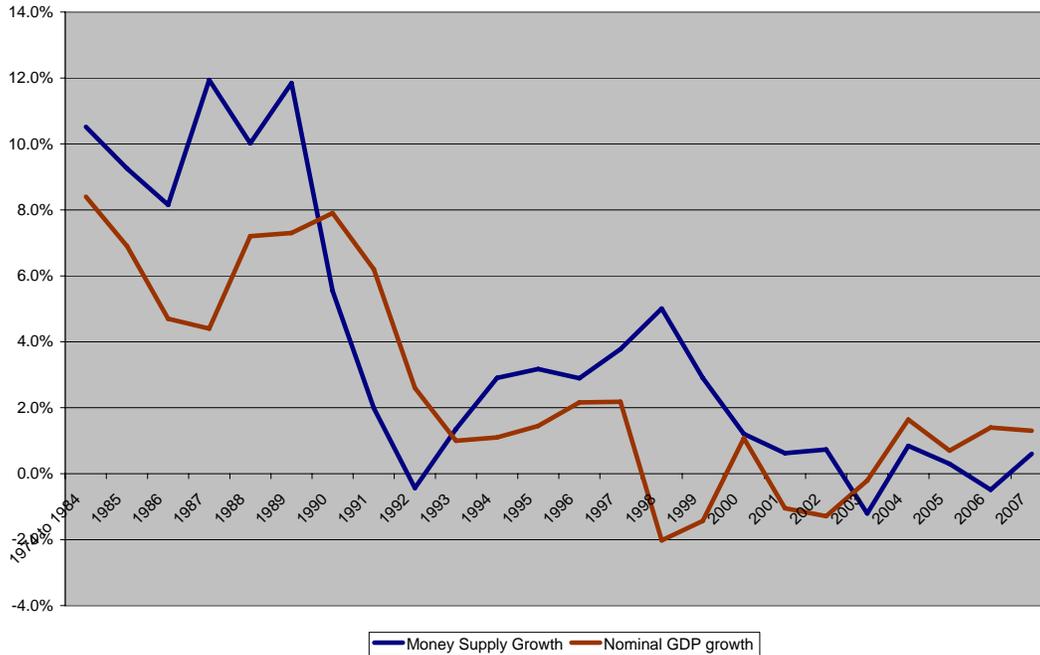


Chart 20 shows the two series, money supply growth and nominal GDP growth; we can see nominal GDP growth falling at precisely the time money supply growth is expanding in the late 1990s. Since 2003 money supply growth has been less than nominal GDP. Whereas the fall in money supply growth in Japan in the early 1990s had much to do with a stagnant economy and rising risk aversion on behalf of economic agents (*higher cash holdings*), the decline in US money supply growth during the same period was different: US cash holdings as a percentage of the market portfolio decline sharply while Japanese cash holdings rose.

5.5 Relationship between money supply and consumer and asset price inflation

This report states that excess money supply growth over and above nominal GDP growth leads to asset price inflation. This one would presume should also mean money supply growth below nominal GDP growth should lead to asset price deflation, and/or falling economic growth.

However, as discussed in section 4.2, this would only be the case if cash holdings with respect to transactions and asset allocation were also likewise fixed. In the US in the late 1980s and early 1990s we had falling inflation, falling interest rates on cash, increasing financial innovation with respect higher interest cash accounts and a very significant reduction in the allocation to cash within the market portfolio (see section 5).

Real money supply growth (m2 and m3) was negative between 1991 and 1993. Despite this, personal consumer expenditure as a percentage of GDP kept rising; from 1993 to 1998 when money supply growth recovered personal consumer expenditure as a percentage of GDP stabilized and barely moved; the recovery in money supply growth also coincided with a sharp increase in personal consumer expenditure as a percentage of disposable personal income.

There are obviously many more factors that impacted money supply growth at the time – the early 1990s saw a significant recession in many countries and a declining real estate market – but the declines in interest rates, inflation and cash holdings within the market portfolio were significant. We also note from the UK data that broad money supply growth was less than nominal GDP over the period 1990 to 1992 and strongly negative in Japan (1990 to 1992 and 2003 to 2007).

Instead of detracting from an argument that emphasizes the risks of excess asset focussed money supply growth, such monetary dynamics accentuate the risks of asset price booms accompanied by structural financial, market and economic imbalances.

Initially, following an asset price boom, there will be sufficient excess money supply still in the system for interest rate policy to have some impact on asset prices, but the impact of falling asset prices on the banking systems ability and willingness to continue to lend will ultimately impact money supply growth. If, as is the case at the present moment, consumers are very highly indebted and economic growth stalls and declines, consumers will become more cautious and increase their preference for holding cash, thereby absorbing central bank attempts to reflate broad money supply growth. Monetary excess not only creates structural imbalances but also sets in place an environment where central banks are unable to influence monetary policy.

5.6 Foreign Exchange Reserves

Foreign demand for domestic assets does not on its own increase money supply within an economy, but such demand does increase the asset focus of broad money supply.

According to the Bank of International Settlements, global foreign exchange reserves more than tripled between 2001 and 2007³⁹, with much of this increase coming as a result of foreign exchange intervention. This development, given that much of foreign exchange reserves is used for investment in western markets, has allowed consumer price inflation to be exchanged for asset price inflation while being a factor in the large increases in global broad money supply growth. Such large scale intervention in foreign exchange markets has allowed the excesses and structural imbalances in the world's financial and economic system to continue for longer than would have been the case if market forces had been allowed to adjust exchange rates and hence prices. Given the simple linear physical dynamics of the relationship between asset prices and money supply, a \$6.3 trillion dollar foreign exchange reserve is capable of having a significant impact on asset prices.

³⁹ <http://www.bis.org/publ/bppdf/bispap40.pdf>

As noted in the BIS report referred to above, “Reserve management practices have evolved substantially in recent years. In the process, they have increasingly come to resemble asset management practices more generally. There has been a gradual shift towards more return-oriented strategies, as most concretely manifested in an expansion of the investable universe, greater reliance on external managers and the setting-up of dedicated SWFs.”⁴⁰

5.7 Hedge funds and institutions

Tim Congdon, in his essay for Institute of Economic Affairs titled Money and Asset Prices in Boom and Bust, stated that “...in the UK in the 40-year period under review....Companies and financial institutions were particularly active in asset price determination. It has been shown that the corporate and financial sectors’ money balances were consistently more volatile than personal-sector money, and the volatility in their money holdings was reflected in asset prices.”

Assets in hedge funds before taking into account leverage are between \$1.5 and \$2 trillion. Assets held in hedge funds have exploded since the turn of the millennium adding yet another element to the asset price boom: hedge fund leverage increases the asset focus of excess money supply.

5.8 Conclusion

There has clearly been an excess of money supply growth in certain key geographical areas over the last 10 years and this excess money supply has helped foster an asset price boom that is now collapsing at the margin.

Consumers in key economies, overburdened by historically high levels of debt, are currently unable to maintain domestic demand growth at a pace needed to support asset prices at a time when asset prices, in particular real estate, have been key to supporting consumer demand growth.

The current asset price boom has also coincided with severe structural imbalances (*high consumer debt, large trade deficits and exchange rate and foreign currency reserve imbalances*) that have served to accentuate the asset price bubble and its ultimate deflation.

Factors which have served to reduce the cash held by individuals are likely to yield to those which favour a higher cash allocation. In a deflationary environment (*falling asset prices resulting in debt defaults and contraction in money supply*) attempts to stimulate money supply growth could be countered by increased risk aversion and preferences for higher cash holdings.

The outlook for asset prices in such an environment is gloomy. What makes the current scenario especially risky for asset prices is the exposure of the financial system to securitised debt and over the counter derivatives markets.

⁴⁰ <http://www.bis.org/publ/bppdf/bispap40.pdf>

6 Market timing, Mitigating the Risks

Market timing, in the context of making significant reallocation of portfolio investments to avoid market downturns, and, or to time market rebounds, is impractical for the market as a whole, and unnecessary for most investors with properly structured portfolios.

A properly structured portfolio is one that can meet income and capital needs from interest and dividends, cash balances and maturing lower risk fixed interest investments, over a time frame sufficient to cope with significant market and economic risk. Such a structure allows investors to hold higher risk equity allocations through deep and prolonged market downturns.

The extent to which investors are exposed to market risks depends on their income and capital expenditure needs relative to the amount of capital they own. It also depends, on the economic and market imbalances, as well as the relative valuations of assets.

However, market peaks and troughs are part and parcel of the market and economic climate; such periods tend to coincide with extended/depressed market and economic cycles.

Where portfolios are being depleted over time to meet income and capital expenditure needs, it makes sense for investors to increase the security of the portfolio, (*relative to liabilities*) as the market and economic cycle extends to extremes. This is not market timing, but a partial realisation of higher risk investment capital, at high relative and absolute valuations, to purchase lower risk, shorter term, liquid investments to fund future consumption needs.

For example, within a portfolio that is designed to manage the depletion of capital over time, the allocation⁴¹ to lower risk assets needed to manage short term market and economic risk might be, say, eight years; that is sufficient capital is allocated to lower risk assets, to enable the portfolio to meet income and capital needs from that allocation (including equity dividends and interest), without having to realise equities during that time frame, if need be.

Under stable market and economic conditions, the portfolio's low risk assets are not run down, but rebuilt as income and capital is consumed (*highly valued assets, usually equities, sold to purchase lower risk assets*); this is done by realising highly valued assets (*usually over valued components of the equity portfolio*). The split of the portfolio should be determined by the size and timing of liabilities and should vary as liability profiles change. Throughout most periods, we will have a well balanced portfolio allocated in accordance with the relationship between asset class risk and return over time, and income and capital liabilities over time. In a risk event, the low risk section of the portfolio mitigates the risks market timers are looking to manage, by halting equity realisations and drawing down on low risk capital⁴².

The actual mechanics of the process vary depending on investment disciplines, long term risk/return modelling, and portfolio construction, planning and management methodologies.

At market and economic peaks, low risk allocation relative to liabilities would move up, say to 9, 10 or more years, depending on how extended market and economic cycles are; equities would only be sold again once valuations moved back to appropriate levels⁴³. If the market as a whole was concerned over long term risks to the ability of assets to meet future financial needs, and if this risk was managed, we would find that the market would not move to and from the extremes we have tended to see.

This process is at odds with those who believe that markets are correctly pricing longer term risk to the ability of assets to meet liability risks, at all times, and are capable of restraint during periods of excess. If markets were able to do such, the extremes and excesses we have seen in the past would not have

⁴¹ An optimised allocation; adjusted for inflation, credit, liquidity risks etc, interest and dividend

⁴² The maturity profile of the low risk allocation needs to be matched to the individual liability profile.

⁴³ Levels showing either fair valuation, or excess valuation. A fair valuation is a valuation where short term risk events are not impacting share prices and an excess valuation is where the price of the equity does not provide a sufficient risk premium for holding the investment over long as well as short time frames.

occurred and markets and securities would indeed correctly price for the risks of asset price inflation and other structural imbalances.

The mechanics of such an approach are discussed in detail in [“The Fundamentals of Asset Allocation, Weaknesses of M.P.T. & A Fundamental Framework for the Management of Assets and Liabilities”](#). The approach not only demands an asset/liability management framework but a long term risk/return modelling framework that looks at long term and not just short term risk/return management.

Even an approach that looks at managing short and long term risks to the ability of assets to meet liabilities over time, is incapable of managing extreme systematic risks to the capitalist financial and economic system. If asset prices are extremely over valued, if investors are over optimistic with respect to prices, if excess money supply growth has created economic and market imbalances and if the financial system has taken on far higher levels of risk than can be accommodated by the system’s financial reserves, then there is no balanced structured portfolio that can mitigate this risk entirely. The only position that can mitigate risk is a market timing cash position, which is impractical and in itself a risk to the viability of the financial and economic system.

Portfolio management cannot predict the future; hence the need for structure to mitigate those risks likely to impact a portfolio over time. Natural market and economic risks and the tendency for the market to chase short term returns during certain time frames, are acceptable and manageable risks. Risks such as those currently impacting the world economy, and the US, in particular, are risks which cannot be managed by portfolio structure, and on average cannot be mitigated by any market wide move.

As section 3 states, the make up and balance of the market portfolio must more or less reflect the balance of decisions affecting saving and investment, consumption and production, and that both economic and market imbalances affect the other. Central banks and the world’s governments have a responsibility to make sure that the integrity of the capitalist system is maintained.

7 Conclusion

The simple linear physics of the market timing problem rule out market timing per se as a rationale strategy for the average investor; the average investor is therefore hostage to market and economic structural relationships and therefore exposed to systematic risks building up within this structure.

There is, nevertheless, a rationale for relating the structure of the market portfolio to the time frame of economic decisions and, hence, for individual portfolios to reflect the size and timing of financial needs over time. In this instance, it also makes sense for investors to realise, at the margin, highly valued assets for future consumption during advanced market and economic cycles to optimise the management of portfolio risk and the utility of their capital. This type of market timing is rationale and a mechanism by which imbalances between asset prices and the ability of an economy to produce can be brought back into alignment.

Money supply and money supply growth are key drivers of asset prices, and monetary excess can impact both asset prices and consumer prices. While consumer price inflation is easier to spot, asset price inflation is much more complex; the risk of an asset price boom on markets and economies can be significant to extreme depending on the accompanying structural economic imbalances.

If we relate asset allocation to the saving, investment, consumption and production paradigm of the market economy, then asset prices should reflect future consumption and production of goods and services and the economy's ability to match present and future demand and supply. If asset prices do not reflect the ability of the economy to meet such future demand, then one of a number of things must happen; inflation will rise in response to excess demand from asset drawdowns, reducing the real value of assets; if interest rates are raised to reduce this inflation asset prices will fall as money demand for those asset declines.

One of the problems with an asset price boom is that of debt used to fund the purchase of expected future returns: if these returns fail to materialise, economic agents (*savers and producers*) will be left lower asset values and excess levels of debt; this debt will impact current and future demand as well as risk of default impacting the banking system, money supply and final demand.

While the dynamics of money supply are complex, sustained periods of excess money supply growth over and above nominal demand will ultimately result in over valued assets and an imbalance between market and economic relationships.

What matters to the integrity of the economic and market relationship is not only the extent to which assets are overvalued, but the extent to which the underlying economic relationships have moved out of alignment. Long periods of monetary excess can lead to significant structural economic imbalances. If investors cannot time the market, they are hostage to the market and economic system: actions which foster the development of asset price booms and significant structural economic imbalances risk the very structure underpinning the balance between current and future consumption and current and future production.

Section 5 details the very real monetary excess experienced by the US, the UK and Europe, and by virtue of reference to Japan, the long term impact of monetary excess on the economic and market relationship – Perspective 1 also discusses monetary issues.

There are currently significant economic imbalances; extremely high levels of consumer debt globally; high personal consumer expenditure to GDP ratios in the US and high levels of dependence of global output on US consumer demand; a fragile financial system exposed to further downgrades of consumer and corporate debt and the risk of an implosion of the vast over the counter derivatives market place. Excess money supply growth has led to excessive levels of asset value dependent debt that is likely to impact demand for output and assets for some time to come.

At the same time as vast structural economic imbalances have built up, the allocation of assets within the market place has also become skewed to one representative of low interest rates, low inflation, high consumption and economic stability. An unwinding of economic imbalances is also likely to be accentuated

by a reallocation of assets and higher preferences for cash which will make the process of adjustment yet more complex; it is probable that in such a scenario monetary policy will become ineffectual in reflation economic demand. While much of the analysis with respect to the great depression centred on a declining money base, Japan's own economic stagnation witnessed an inability of its central bank to raise broad money supply growth: increases in narrow money supply merely went to increasing money holdings.

This document puts the "Capitalism in Crisis" into perspective within the context of wealth management, and relates the economic paradigm (*saving, investment, consumption and production*) to the market and hence the individual portfolio. It does so by addressing the issue of market timing and the mitigation of systematic financial risks by the individual investor. It concludes that while small numbers of investors could indeed escape to the sidelines, such a strategy is not a viable short or long term option for most investors and that capitalism is best served by long term portfolios where allocation shifts are best limited to adjusting structure to short and long term liability profiles.

Markets are not perfect, but a sensibly structured portfolio should be able to cope with natural market and economic risks throughout most time periods. Periods of severe systematic risks, such as the present point in time, are not risks which the market portfolio can mitigate; they are risks which capitalism and those charged with managing its integrity must mitigate. As such, investors are hostage to the capitalist system.

The worst thing for the world economy would be for investors to move to the sidelines as this would serve only to further heighten the financial and economic shock.

The hubris, the greed and a misconstrued belief that the market is capable of managing and diversifying these risks on its own, via a non transparent over the counter medium, has been one of many factors that have led to the present point in time. The forces of economic and market growth are indeed powerful and it is not the job of governments and central banks to determine where capital is allocated. It is however the responsibility of both to ensure that market prices are cleared within a transparent and properly defined market place and that broad money supply growth is monitored and managed with respect to its short term (*consumption and output and hence consumer prices*) and long term impact (*asset prices and hence future consumption and production*).

If the average investor is hostage to the physics of the economic and market paradigm, then it is the responsibility of governments, central banks and regulators to make sure that markets and financial systems do not operate to detriment of the average investor and to the benefit of a small select group of individuals. A lot of money has been made by the few as this particular house of cards has been built. While efficient markets reward risk and ultimately eliminate excess return, market trends of the last ten years or more have rewarded excess and structures that have accumulated risk to the detriment of the efficient operation of the economic and market paradigm.

References

Market asset allocation reference information

The following references provide additional information on asset allocation, global financial stock and context for the “market portfolio”.

1. A recent Reuters' poll of leading investment houses showed equity holdings at 58.9%, bonds at 31% and cash at 5.7% dropping from the previous survey's 6%. Other investments accounted for the balance.

https://customers.reuters.com/community/wealthmanagement/market_eye/keep_cash.aspx?

2. According to the Securities Institute and Financial Markets Association (SIFMA), US equity markets were worth some \$22.5 trillion and US debt markets some \$29.2 trillion as of November 2007. According to the US Federal Reserve M2 money stock stood at 7.2 trillion as of February 2008. This loosely places equities at 40%, bonds at 50% and cash at 12% of the market portfolio. Please note that M2 includes cash held for transaction purposes as well as portfolio purposes.

<http://www.sifma.org/>, <http://www.sifma.org/research/pdf/Research-Quarterly-1107.pdf>

3. This analysis with regard to the US is broadened globally by Mckinsey's analysis of global financial stock.

http://www.mckinsey.com/mgi/publications/gcm/images/cap_markets_map.swf

4. A recent BIS report (Feb 2007) “Institutional Investors, global savings and asset allocation is also worthwhile reading.

<http://www.bis.org/publ/cgfs27.pdf?noframes=1>

5. The following Scotia Capital report also provides useful insight on the distribution of Canadian household assets.

http://www.scotiacapital.com/English/bns_econ/special0912.pdf

6. Information on European Household assets.

- a. <http://www.ecb.int/press/key/date/2006/html/sp061115.en.html>

7. Federal Reserve Board of San Francisco - <http://www.frbsf.org/publications/economics/letter/2003/el2003-09.html>

8. The following links provide information on Japanese household asset allocation.

- a. http://www.tcf.or.jp/data/20051121-22_Sachiko_Miyamoto.pdf

9. Insurance Information Institute - <http://www.iii.org/financial2/savings/ah/>

10. Federal Reserve Board; A comparison of the household sector from the flow of funds accounts and the survey of consumer finances - http://www.federalreserve.gov/pubs/oss/oss2/papers/antoniewicz_paper.pdf

11. Conference Board - http://www.conference-board.org/utilities/pressDetail.cfm?press_ID=3046

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12. St Louis Federal Reserve; The Demographics of the US Wealth Distribution (August 1997) - <http://research.stlouisfed.org/publications/review/97/07/9707jw.pdf>
 13. Mckinsey Global Institute; The Coming Demographic Deficit - <http://www.mckinsey.com/mgi/publications/demographics/index.asp>
 14. International Longevity Centre UK - <http://www.ilcuk.org.uk/>
 15. Singapore Dept of Statistics - <http://unpan1.un.org/intradoc/groups/public/documents/APCITY/UNPAN024569.pdf>
 16. Institute for Fiscal Studies: UK Household portfolios - <http://eprints.ucl.ac.uk/3921/>
 17. Nomura Research Institute/ Financial and Economic Research Center:
 - a. Household Asset Allocation Trends - <http://www.nri.co.jp/english/opinion/lakyara/2007/pdf/lkr200730.pdf>
 - b. How Households' Balance Sheets Affect Their Asset Allocation: Implications for Future Private Outflows from Japan; http://www.tcf.or.jp/data/20051121-22_Sachiko_Miyamoto.pdf
 - c. Bequests and Household Assets http://search.ssm.com/sol3/papers.cfm?abstract_id=968529
 18. Reuters, Japan Household mutual fund assets - <http://uk.reuters.com/article/marketsNewsUS/idUKT34688720070918>
 19. Allianz Dresdner Economic Research; An International Comparison of Household Assets - http://www.group-economics.allianz.com/images_english/pdf_downloads/economy_and_markets/financial_markets/sep_07_e_haushaltsvermoegen.pdf
 20. http://libsurvey.essex.ac.uk/reports/2006LIB_RR.htm
 21. Bank of England Monetary Policy Committee & LSE - <http://www.nuffield.ox.ac.uk/users/nickell/papers/House%20Prices%20and%20Consumption%20Growth.pdf>
 22. Aston Business School; UK Household Sector Demand for Risky Money - UK <http://www.abs.aston.ac.uk/newweb/research/publications/docs/RP0410.pdf>
 23. <http://www.mckinsey.com/mgi/mginews/aginggracefully.asp>
 24. Nomura Securities; http://www.tcf.or.jp/data/20051121-22_Sachiko_Miyamoto.pdf
 25. UK FSA, Household Sector Saving and Wealth Accumulation, 2000 - <http://www.fsa.gov.uk/pubs/occpapers/OP05.pdf>
 26. Institute for Social and Economic Research: Living in Britain 2006, http://libsurvey.essex.ac.uk/reports/2006LIB_RR.htm
 27. World Distribution of Wealth - <http://www.mindfully.org/WTO/2006/Household-Wealth-Gap5dec06.htm>
- University of Frankfurt, Household Portfolios <http://www.wiwi.uni-frankfurt.de/Professoren/haliassos/research/hp.pdf>

AMRIS; Independent, Impartial, Objective

29. UniCredit Group, Household Wealth Monitor -
http://www.afiz.cz/dataimg/clanky/wealth_monitor_final.pdf
30. Household Wealth in the National Accounts of Europe,
<http://www.oecd.org/dataoecd/32/18/1954803.doc>
31. Japan Real Estate Institute [monthly report](#)

Money supply and asset price booms

1. European Central Bank:
- a. <http://www.ecb.int/pub/pdf/scpwps/ecbwp732.pdf>
 - b. <http://www.ecb.de/pub/pdf/scpwps/ecbwp364.pdf>
 - c. <http://www.ecb.int/press/key/date/2005/html/sp050608.en.html>
 - d. The Accumulation of Foreign Reserves - <http://www.ecb.int/pub/pdf/scpops/ecbocp43.pdf>
 - e. Monthly Bulletin May 2008 - <http://www.ecb.int/pub/pdf/mobu/mb200805en.pdf>
 - f. Monthly Bulletin October 2004 – <http://www.ecb.int/pub/pdf/mobu/mb200410en.pdf>
 - g. <http://www.ecb.int/press/key/date/2005/html/sp050603.en.html>
2. Federal Reserve - <http://www.federalreserve.gov/BOARDDOCS/Speeches/2005/20050112/default.htm>
3. National Bank of Belgium - http://www.bnb.be/doc/ts/Enterprise/Press/2007/cp20070803En_WP117.pdf
4. Institute of Economic Affairs: Money and Asset Prices in Boom and Bust -
http://papers.ssrn.com/sol3/papers.cfm?abstract_id=839866
5. European Parliament Committee on Economic and Monetary affairs
http://www.europarl.europa.eu/comparl/econ/emu/20061220/schwartz_en.pdf
6. Federal Reserve Bank of New York – Consumption and Wealth; http://www.bcentral.cl/conferencias-seminarios/otras-conferencias/pdf/2005monetarypolicy/simon_potter.pdf.
7. RIETI Japan - <http://www.rieti.go.jp/en/papers/contribution/kobayashi/03.html>
8. OECD Monetary Aggregates -
<http://stats.oecd.org/wbos/default.aspx?querytype=view&queryname=170>
9. B of E, Interpreting Movements in Broad Money -
<http://www.bankofengland.co.uk/publications/quarterlybulletin/qb070302.pdf>
10. B of E, Proposals to Modify the measurement of broad money in the UK -
<http://www.bankofengland.co.uk/publications/quarterlybulletin/qb070304.pdf>
11. B of E Quarterly Bulletin; money articles -
<http://www.bankofengland.co.uk/publications/quarterlybulletin/money.htm>
12. Why Money Matters, Milton Friedman - <http://www.hoover.org/publications/digest/5830011.html>

AMRIS; Independent, Impartial, Objective

13. Monetary & Economic Studies; Monetary Policy, Deflation and Economic History - <http://www.imes.boj.or.jp/english/publication/mes/2001/me19-s1-6.pdf>
14. <http://www.e.u-tokyo.ac.jp/cirje/research/workshops/macro/macropaper04/miyao.pdf>
15. Tim Congdon, Institute of Economic Affairs: Money and Asset Prices in Boom and Bust - http://papers.ssrn.com/sol3/papers.cfm?abstract_id=839866
16. Economic and Industrial Research Group: Monetary Policy in a Zero Interest Environment - <http://www.nli-research.co.jp/english/economics/2000/eco0007a.pdf>
17. Bank of Japan: The Role of Money and Monetary Policy in Japan - <http://www.boj.or.jp/en/type/press/koen/ko0611b.pdf>
18. Use of Money Supply in the Conduct of Japan's Monetary Policy - <http://www.e.u-tokyo.ac.jp/cirje/research/workshops/macro/macropaper04/miyao.pdf>
19. High Growth Rates of Monetary Aggregates And Low Inflation http://www.europarl.europa.eu/comparl/econ/emu/20061220/schwartz_en.pdf
20. International Capital Flows, Financial Stability and Growth - http://www.un.org/esa/desa/papers/2005/wp10_2005.pdf
21. IMF Foreign Currency Reserve Data - <http://www.imf.org/external/np/sta/cofer/eng/cofer.pdf>
22. Bank of Canada Review Autumn 2007 - <http://www.banqueducanada.ca/en/review/autumn07/barker.pdf>
23. Bank of England Quarterly Bulletin, Q1 2008 - <http://www.bankofengland.co.uk/publications/quarterlybulletin/qb0801.pdf>
24. IMF Survey Magazine - <http://www.imf.org/external/pubs/ft/survey/so/2007/NUM0912A.htm>
25. BIS ; FX Reserve Management: Trends and Challenges - <http://www.bis.org/publ/bppdf/bispap40.pdf>

Market timing

John Cochrane Asset Pricing (2001) - *“Despite decades of dredging the data, and the popularity of media reports that purport to explain where markets are going, trading rules that reliably survive transactions costs and do not implicitly expose the investor to risk have not yet been reliably demonstrated.”*

Bernard Malkiel summarises much of the research into technical analysis in his most recent update of his book “A Random Walk Down Wall Street” and concludes that market timing using technical analysis does not add value. He casts doubt on filter rules, Dow Theory, Relative Strength, Price and Volume and chart patterns.

Hulbert's financial digest^{44,45} tracks the success of technical based market timing newsletters. According to Hulbert's digest 80% of newsletters fail to add value and this is supported by Graham and Harvey⁴⁶ (1994) into newsletter results.

Other academics like Jeremy Siegel state that there are some simple market timing techniques (for example those based on the 200 day moving averages) that could be used to provide a superior risk adjusted returns, although even here he notes the ability to successfully time the market may be limited by the realities of the market place.

⁴⁴ <http://query.nytimes.com/gst/fullpage.html?res=9F0CE3DF153AF93AA25750C0A9669C8B63>

⁴⁵ <http://query.nytimes.com/gst/fullpage.html?res=9800EED71238F937A35753C1A96E958260&sec=&spon=&pagewanted=1>

⁴⁶ http://papers.ssrn.com/sol3/papers.cfm?abstract_id=6006#PaperDownload

A summary of research into market timing studies “What Do We Know About the Profitability of Technical Analysis?” found “Among a total of 95 modern studies, 56 studies find positive results regarding technical trading strategies, 20 studies obtain negative results, and 19 studies indicate mixed results. **Despite the positive evidence on the profitability of technical trading strategies, most empirical studies are subject to various problems in their testing procedures, e.g. data snooping, ex post selection of trading rules or search technologies, and difficulties in estimation of risk and transaction costs**”.

1. Mark Hulbert, Hulbert Financial Digest, The Moving Average Runs Into a Wall
<http://query.nytimes.com/gst/fullpage.html?res=9F0CE3DF153AF93AA25750C0A9669C8B63>
2. Mark Hulbert, Hulbert Financial Digest, IS the Time Right For Market Timing
<http://query.nytimes.com/gst/fullpage.html?res=9800EED71238F937A35753C1A96E958260&sec=&son=&pagewanted=1>
3. The Equity Risk Premium: Essays and Explorations – Goetzman, Ibbotson, Ibbett
http://books.google.ca/books?id=VWXNvQCn0EsC&pg=PA407&lpg=PA407&dq=ibbotson+market+timing&source=web&ots=c_GVtUEZef&sig=rJmE-ybYOKqFpOc22YfxScb5L8&hl=en#PPA408,M1
4. OUTPERFORMANCE WITH TECHNICAL ANALYSIS? – AN INTRADAY STUDY ON THE SWISS STOCK MARKET
[http://www.sbf.unisg.ch/org/sbf/web.nsf/SysWebRessources/AmmannRekatevonWyss04/\\$FILE/TechAnalysis.pdf](http://www.sbf.unisg.ch/org/sbf/web.nsf/SysWebRessources/AmmannRekatevonWyss04/$FILE/TechAnalysis.pdf)
5. Market Timing Ability and Volatility Implied in Investment Newsletters' Asset Allocation Recommendations - http://papers.ssrn.com/sol3/papers.cfm?abstract_id=6006#PaperDownload
6. Market timing using strategists' and analysts' forecasts of S&P 500 earnings per share - http://www.pfp.gsu.edu/FSR/abstracts/Vol_09/Volume%209%20Number%202/V9-2%20A1.pdf
7. Market Timing Strategies that worked - <http://www.kc.frb.org/Publicat/Reswkpap/pdf/rwp02-01.pdf>
8. Bernard Malkiel A Random Walk down Wall Street
<http://books.google.ca/books?id=fAsZGQfmXG8C&pg=PA190&lpg=PA190&dq=malkiel+market+timing+technical+analysis&source=web&ots=pVEFviu0wN&sig=gAfMHvoLcHzn0D5RXVNhluNq7Bs&hl=en#PPA209,M1>
9. What Do We Know About the Profitability of Technical Analysis?
http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1006275
10. The Profitability of Technical Analysis: A review –
http://papers.ssrn.com/sol3/papers.cfm?abstract_id=603481
11. Market timing - http://www.businessweek.com/magazine/content/03_39/b3851123_mz025.htm
12. <http://perso.fundp.ac.be/~mpetijea/files/beyrtrading2.pdf>
13. Strategic Asset Allocation and Market Timing: A Reinforcement Learning Approach
http://papers.ssrn.com/sol3/papers.cfm?abstract_id=883595#PaperDownload
14. Market Timing Does Work: Evidence from the NYSE -
<http://www2.warwick.ac.uk/fac/soc/wbs/research/wfri/wpaperseries/wf05-236.pdf47>
15. International Diversification and Return Predictability: Optimal Dynamic Asset Allocation
<http://www2.warwick.ac.uk/fac/soc/wbs/research/wfri/wpaperseries/wf06-247.pdf>

⁴⁷ Note here the return was due to the 1970 to 1975 period. Difficult to believe in conclusions otherwise.

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16. Time Varying Sharp Ratios and Market Timing -
<http://pages.stern.nyu.edu/~rwhitela/papers/sharpe2.pdf>
17. "Market timing Strategies that worked"- Federal Reserve Bank of Kansas -
<http://www.kansascityfed.org/Publicat/Reswkpap/PDF/RWP02-01.pdf>
18. Black Swans and Market Timing: How Not to Generate Alpha -
http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1032962
19. Capital Flow Analysis - <http://www.capital-flow-analysis.com/investment-tutorial/picture.html>
20. Market timing – Peter Bernstein 2003, <http://www.weedenco.com/welling/archive/all/v05i04lilogo.asp>

Other

1. Demand: The neglected participant in the long run U.S. productivity record -
http://findarticles.com/p/articles/mi_qa5461/is_199910/ai_n21447984/pg_1?tag=artBody;col1
2. Mckinsey: US Productivity Growth, 1995 to 2000 -
<http://www.mckinsey.com/mgi/publications/us/index.asp>
3. Federal Reserve Bank of New York - http://www.ny.frb.org/research/current_issues/ci13-8.pdf
4. Morgan Stanley: A Hypothesis on Currency Hedging and the Carry Trade -
<http://www.morganstanley.com/views/gef/archive/2007/20070907-Fri.html>