

THE GREAT MODERATION: CAUSES & CONDITION

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Abstract

The period from 1984-2007 was marked by low and stable inflation, low output volatility, and growth above the prior historical trend across most of the developed world. This period has come to be known as the Great Moderation and has been the subject of much enquiry. Clearly, if it was the result of something we were ‘doing right’ it would be of interest to ensure we continued in the same vein. Equally, in 2011 the need to assess the causes of the Great Moderation, and its end with the Great Financial Crisis, remains. Macroeconomists have advanced a suite of potential causes of the Great Moderation, including: structural economic causes, the absence of external shocks that had been so prevalent in the 1970s, the effectiveness and competence of modern monetary policy, and (long) cyclical factors. To this point the enquiry has yielded only tentative and conflicting hypotheses about the ‘primary’ cause. This paper examines and analyses the competing hypotheses. The conclusions drawn from this analysis are that the Great Moderation was primarily the product of domestic and international financial liberalisation, with a supporting role for monetary policy. Further, the benign economic conditions of the Great Moderation concealed growing macroeconomic risks. Minsky’s view that stability creates instability, in combination with an analysis of the causes and conditions of the Great Moderation, provide the basis for the view that a long period of stability like the Great Moderation was inherently destabilising. This involved trading-off future stability and growth for current stability and growth. An implication of this hypothesis is that the longevity and magnitude of the Great Moderation are likely to entail a sustained period of below historical average growth.

The Great moderation: causes and cure

1.0 Introduction

The period from 1984-2007 was defined by low inflation and low output volatility with above historical-trend growth across most developed economies. This period became known to macroeconomists as the Great Moderation (GM). Numerous explanations have been offered for the benign conditions characterising the GM, a period in which the two longest recorded economic expansions were interrupted by only two (in the case of the US) brief; shallow recessions (Blanchard and Simon, 2001). Also in the US, GDP fluctuations from 1953 to 1983 were four times greater than the variance since 1984 (McConnell and Perez-Quiros, 2000). Bernanke (2004) surveys leading explanations, arguing that improved macroeconomic management, structural economic changes, and reduced external shocks all contributed to the GM. The importance of understanding the GM lies in the clear desirability of the economic conditions it entailed and the concern to establish or ensure the sustainability of those conditions. Equally, interest lies in an identification of the cause of the end of the GM and the onset of recession. This paper analyses the GM from a Minskian perspective, arguing that the GM was primarily a function of domestic and international financial liberalisation. Furthermore, rather than moving modern, developed economies beyond the business cycle, financial liberalisation merely deferred the business cycle, abetted by monetary policy. Perhaps more importantly, the period of abnormal stability and growth of the GM allowed the build-up of imbalances that led to the Great Financial Crisis (GFC) and is likely to ensure a sustained period of below average growth in the foreseeable future.

A number of explanations have been advanced for the GM. Amongst these are:

- Improved monetary policy (Bernanke, 2004; Nakov and Pescatori, 2007; Summers, 2005; Coibion and Gorodnichenko, 2009; Clarida, Gali, and Gertler, 2000).
- The absence of external shocks of previous magnitudes (Stock and Watson, 2003).
- Structural changes, including the greater stability of the service industry when compared with manufacturing, more flexible labour markets, and greater efficiencies due to technological developments' improvements of global supply chains (Rajan, 2006; Davis and Kahn, 2008).
- The 'smoothing' role of liberalized global financial markets, stabilizing aggregate demand (Cecchetti, Flore-Lagunes, and Krause, 2005).

No definitive analysis of the cause of the Great Moderation has been made to this point. Uncertainty surrounds the respective causal roles supporting doubts about the agency of systematic improvements, unless viewed as a result of largely fortuitous events. This paper outlines and assesses each of the identified explanations of the GM, concluding that financial liberalisation is the dominant cause and that it was unsustainable because it was fostered by and relied on progressively expanded credit.

2.1 Explanations for the GM

Each of what broadly constitute the foremost arguments for each of the suite of principal causes of the GM is assessed from a deductive basis to determine the relative merit of each explanation. Previous research in this area has typically considered only one or two possible causes. This narrowness is evident in the case of Taylor (2008) in which deviations from the Taylor Rule in Federal Reserve Board monetary policy in the period from 2002-2004 are held to be the cause of the end of the GM (and, therefore, the cause of GFC). In this context Taylor assesses and rejects the moderating effect of structural changes in the economy. Similarly, Nakov and Pescatori (2007) and Summers (2005) argue that the GM was primarily caused by monetary policy efficacy. They reject the role of reduced external shocks and do not consider alternative explanations. Paradigmatic pre-commitments determine researcher preferences so that researchers of a broadly market-efficient view tend to focus on reduced external shocks, whereas those researchers starting from the assumption that markets can be improved tend to look to monetary policy improvements as the driver of the GM. For this reason, deduction based on a comparative analysis of the leading explanations for the GM is indicated as an initial step in assessing the respective arguments for the GM (and its end).

2.2 Monetary policy factors, the Taylor Rule, and the Great Moderation

Bernanke (2004) argues that improved monetary policy led to the GM. Policy makers in the 1970s were convinced they could exploit a permanent trade-off between employment and inflation, allowing an accommodative policy stance to facilitate growth. Monetary policy under the Federal Open Market Committee's (FOMC) chairman Martin (1954-1970) targeted inflation containment. It also targeted a stable relationship between the supply of credit relative to productive resources (Fernandez-Villaverde, Guerron-Quintana, and Rubio-Ramirez, 2010). Subsequent to 1979, policy-makers argued that employment and inflation could not be traded

off, so monetary policy targeted inflation stability. Hence, the Taylor Rule was developed, which prescribes a short term interest rate response to increased inflation (50%) greater than the above-target inflation rise.¹ Bernanke (2004) believed the implementation of this Rule was responsible for the decline in inflation and output volatility. He makes the counterfactual case that price and wage shocks prior to 1979 would have been reduced had the post-1979 policy approach been adopted in the 1970s. Such an approach would have moderated the 1970s oil shocks. Further, Summers (2005) argues it is the credibility of central banks' commitments to controlling inflation that is central to constraining price volatility, by moderating expectations of inflation.

Successful monetary policy controls inflation and, by doing this, moderates inflation expectations (Bernanke and Gertler, 2001; Arestis and Mourtadis, 2007; Meltzer, Cukierman and Richard, 1991; Brunner and Meltzer, 1989; Bordo, 2006). This is achieved through changes in the Federal Funds Rate (FFR) and monetary authority open market operations; buying and selling bonds in the market to adjust monetary base. The objective of modern monetary policy is to maintain financial stability, primarily through price stability (Bordo, 2006). On this view the financial system is essentially self-regulating, reducing asymmetric information, aiding liquidity, and dispersing risk (Bordo, 2006).

Romer (1999) argues that controlling inflation would eliminate recessions. This view is supported by Taylor (2008), who explains the recent economic turmoil was due to above target inflation in 2002-2003 (at 3.2% against a 2% target) resulting from lax monetary policy. This explanation attributes the recent market collapse and economic recession to a 24-month delay in raising the FFR. US interest rates were increased 4.25% over 2004-2006 (Boivin and Giannoni, 2008). It also reifies 2% as an inflation target. Other inflation-targeting regimes such as that of Australia (that enjoyed similar success to that of the US) have chosen higher targets and more muted responses to above-target inflation. Bernanke's (2004) general argument is that the role of monetary policy has been obscured by its interaction with other variables. This is contrary to studies identifying a limited role for monetary policy. Taylor (2000) suggests (his) theory, monetary policy changes, and the coincidence of the GM support its chief candidacy as the cause of the 'long boom'.

Inflation targeting and central bank credibility (in this regard) have been attributed as contributing to the GM (Bernanke, 2004; Mojon, 2007; Debelle, 2009). Yet, tight monetary

¹ This is a reduced exposition of the Taylor Rule. For a more formal, complete view see Western (2004, p. 140).

policy was staggered. Many central banks adopted inflation targeting as the singular or primary objective of monetary policy only years after the identified start of the GM. In this sense, if we are to accept an important role for ‘improved’ monetary policy, we must accept that Paul Volcker’s vigorous anti-inflationary approach to monetary policy transcended national boundaries at an early point in global financial liberalisation as we find the GM was generally synchronous.² Ciccarelli and Mojon (2010) observe that in the 45 years to 2010 70% of inflation movements were synchronous across the OECD. This raises the question of whether common factors, such as commodity price movements, should be considered as potential causes of the wider inflationary environment.

Mojon (2007) attributes price stability over the GM to more stable monetary policy, dating the effect to Paul Volcker’s Chairmanship of the FOMC. Positive responses to inflation that were of greater than previous magnitude (the decline in unsystematic monetary policy), resulted in greater price stability (Mojon, 2007). Greenspan’s ‘lean against the wind’ strategy, lowering interest rates into recessions, contributed to increased household debt during the 1991 and 2001 US recessions. Mojon (2007) identifies declining output variance as a result of declining domestic private demand variance. In this sense monetary policy had a role in the GM. Monetary policy aided households’ ability to leverage by making debt cheaper than it otherwise would have been. Central bank credibility in inflation targeting supported the view that it would not become greatly more expensive, and financial market liberalisation ensured growing demand for debt would be met by supply.

From the start of Greenspan’s incumbency as Chairman of the Federal Reserve, the Taylor Rule was augmented by financial market stability as a variable in formulating central bank policy (Borio, 2006; Silica and Cruikshank, 2000). This was the augmented Taylor Rule which resulted in a succession of policy responses through the 1990s that saw interest rates moving independently of inflation concerns (Western, 2004). Further, despite the availability of sophisticated economic modelling, monetary authorities have tended to pursue *ad hoc* approaches to Taylor Rule augmentation (Bordo and Jeanne, 2002) questioning the practical applicability of such methodologies. In light of asset price declines in the late 1990s and again in 2001, Federal Reserve interest rate policy failed to support declining asset markets. This approach was arguably validated by systematic, if unsustainable, features of the global

² Canarella, Fang, Miller, and Pollard (2008) observe that the GM was not synchronous across affected countries, beginning almost a decade later in the UK than in the US. However, they argue that the end of the GM was synchronous.

economy that fostered a low inflation environment while allowing an accommodative monetary policy stance in relation to asset markets. This lends weight to Borio's (2006) observation that central banks do not respond systematically to financial imbalances. He describes the history of monetary policy as one of lessons learned and unlearned. For this reason it is reasonable to interpret the economic stabilisation as an elongated bubble, extended by a unique confluence of factors evolving in the era of globalization and financialisation, which would have occurred, although muted, despite macroeconomic policy.

The need for households and businesses to have money for transaction and portfolio purposes cedes the central bank power due to its control over the supply of reserves and through the FFR. However, Friedman (1999), Wray (1992), and Kindleberger (1992) argue that new technologies, such as credit cards, which fall outside of reserve requirements, reducing the power of central banks. Further, Rowbotham (1998) observes the progressive expansion of bank-sourced UK money supply, from 40% of total money supply in the eighteenth century to 97% in 1996. In addition, since 1965 the dollar deposit multiplier has progressively slipped outside the control of the Federal Reserve, as US banks began lending through overseas branches, which has enabled banks to move deposits on and off their balance sheets. Further reducing central bank control is the perverse effect observed in periods of tight monetary policy. In such periods financial innovation accelerates, money supply availability expands through credit channels (Kregel, 1992) and, thus, the effect of central bank intervention is reduced.

Intervention in markets by monetary authorities is also politically and institutionally constrained. This is reflected in the asymmetric monetary policy responses to booms and busts (Borio, et al, 2001; Tvede 1997). Spencer and Huston (2006) argue the Federal Reserve's concerns about debt deflation caused the relaxation of its anti-inflationary stance in the 2000s, and the more general asymmetry of its responses to booms and busts (Kindleberger, 1989). A raft of publications produced following the September 11 terrorist attacks on the US (Rogoff, Kumar, Ball, Reinhart, and Scoenholtz, 2003; Makin, 2001; Samuelson, 2001; Luskin, 2001; Rahn, 2001; Bartlett, 2001), warned of the risk of deflationary pressures and required monetary policy to address this issue. In this light, deviation from previously more focused applications of the Taylor Rule emerged (Taylor, 2008).

Another constraint on central bank control is the conflicted position central banks find themselves in as lender-of-last-resort. The central bank engenders moral hazard by effectively

guaranteeing the liquidity of the financial system (Kindleberger, 1989). This may lead financial institutions to subrogate liquidity considerations in response to competitive pressures for higher profits (Corsetti, Pesenti, and Roubini, 1999). Cooper (2008) describes the operation of this function on money market funds in which investors' funds are pooled, gaining exposure to longer term, higher yielding investments whilst maintaining minimal liquidity to meet imbalances in deposits and withdrawals. In this context the influence of the central bank in modern economies has, at least, ambiguous implications for economic stability.

In light of the preceding discussion the case (by Bernanke, Summers, Nakov and Pescatori, and others) that monetary policy has perceptibly stabilised the economy is doubtful. Certainly, monetary policy from the Volcker era helped to stabilise prices. And, (a-la Minsky) stability breeds increased appetites for risk that underwrote the 'great credit inflation' (Great Moderation) from 1984-2007. However, these developments came at a cost. This cost is one we are now paying.³ Also, a range of forces in the era of floating exchange rates and largely unencumbered capital flows, in addition to widespread deregulation of domestic financial markets, has significantly weakened the exogenous control of money supply. We can allow the improved competence of monetary authorities, however, it is difficult to sustain the case for the causal significance of monetary policy in the stability that characterised the GM unless we also accept that it contributed to a bubble. The development of modern views on monetary policy broadly coincide with the GM but they also coincide with broader shifts in exchange rate flexibility, increased global capital flows, and more general financial market deregulation. Instead, we might look to an interaction between monetary policy and domestic and international financial market liberalisation as the central cause of the GM. This period can also be viewed as one that would result in a period of instability.

2.2 The role of reduced external shocks in the Great Moderation

A market efficient perspective implicitly assumes the causes of the GM's stability are limited to declines in external shocks and less disruptive governmental or quasi-governmental interventions in the economy. Theoretically, from this perspective, markets find a stable equilibrium through flexible prices and therefore instability must necessarily be caused exogenously. Declining external shocks are indicated as the most plausible explanation for the GM from an orthodox perspective (Stock and Watson, 2003). Thus, allowing that government

³ As noted by Canarella, et al (2008) if the GM was caused by sound monetary policy the end of the GM must, presumably, have been caused by poor monetary policy. It is not clear why or whether central banks opted to pursue poor policy in preference to the previous good practice.

intervention can, at best, do no harm, it follows that the GM was no more than an accident; the result of a fortuitous confluence of circumstances. One key source of such shocks was sustained high oil prices and related supply disruptions during the 1970s. Particular emphasis is placed on supply disruptions, first due to OPEC's reduction of supply in 1973 and, in 1979, the Iranian revolution. In contrast, it has been argued that the demand-fuelled price rises of the 2000s have been accommodated by market responses (Summers, 2005).

Summers (2005) and Nakov and Pescatori (2007) explicitly reject the 'reduced shocks' explanation of the GM. Summers (2005) found that although the GM affected all of the G-7 countries and Australia, the impact occurred at different times and, so, cannot be linked to global supply shocks with reliability. This finding is supported by Nakov and Pescatori (2007), advancing a rejection of the importance of the 1970s oil shocks as these synchronous events affected all developed economies, while stagflation occurred at different times in different economies. The inferred relative importance of oil price spikes compared with price levels (the 'shock' factor), was accommodated in tests by Summers, who used rises over peak prices for the preceding three years to assess the magnitude of the shock. The shared conclusion of Summers and Nakov and Pescatori was that, notwithstanding the greater size of the 1973-1974 and 1979-1980 oil shocks relative to more recent shocks, the declining influence of shocks was not a key determinant of the GM. This conclusion, that a lack of external shocks has been overstated as causative of the GM, is supported by Zarnowitz (1992; 1999). He identifies the asymmetry of the post-positive and negative shock-reversion periods as a challenge to typical explanations predicated on efficient markets.

Summers (2005) and Nakov and Pescatori (2007) go further than this, however. They infer the relative importance of monetary policy as an implication of the relative unimportance of external shock factors. This is supported by an assertion (by Summers) that improved monetary policy was the most important common factor across the countries that experienced the GM. This speculation is qualified to the extent that Summers infers a probable correlation between monetary policy and other variables. An identification bias is implicit in Summers inference from monetary policy shifts as an explicit correlate of the GM against less explicitly defined financial liberalization over the same period. Notably, Summers infers the importance of financial liberalization. This inference is drawn on the basis of consumption smoothing, and of the importance of consumption in aggregate demand, at over 70% of developed economies. Yet this explanation has an awkward fit with observations. If lifetime income is smoothed, and this is facilitated by a deregulated financial sector, it remains unclear why debt expanded so

rapidly over a sustained period of developed country economic expansion, and why it increased in relation to income (Cynamon and Farazzi, 2008).

Other specific evidence against the role of external shocks is provided by Poole (1998). He makes the case that periods of elevated inflation, 1956-57, 1967-68, and 1978-79, followed by costly recessions and asset market declines, show growing inflationary pressures before the relevant external shocks occurred. Poole illustrates this point by reference to accelerating inflation in the US before OPEC oil supply restrictions, and prior to food price rises induced by poor harvests in 1972-3. It is reasonable to allow that external shocks aggravated conditions of pre-existent financial fragility but they were not the cause.

The lower incidence and magnitude of exogenous shocks cannot be strongly implicated in the cause of the GM unless we adopt the views of those economists (See, for example, Gali and Gambetti, 2009) who characterise shocks so liberally as to make them trivially causative. Where the external shock explanation is explicitly rejected, the role of improved monetary management is overdetermined. In simple terms, modern macroeconomic management is an operation within a much broader suite of financial market developments. The strength of correlation, and the importance of this inferred by Stock and Watson (2003), takes no account of lags, nor does it provide a basis for the view that the stability that began the GM would be sustained by it. Developed countries have been progressively influenced by floating exchange rates post-Bretton Woods, increasing international capital flows, and a pervasive reduction in financial market regulation. However, there is no clear reason to isolate monetary policy causation of recent macroeconomic stability. The GM has exhibited increased exchange and financial market volatility (Fergusson, 2003; Crockett, 2003; Issing, 2003). The 'capital flows paradox' has arisen and rapid increases in some countries' debt levels have resulted (Muusa, 2004). Identifying these factors and locating a plausible place for them in any explanation of the GM seems essential to a realistic theory. It is not adequate to identify such developments as paradoxes or anomalies; they must be evaluated as potential costs of macroeconomic moderation and threats to it.

2.3 Structural changes in the US and other developed economies and their influence on the Great Moderation

Another range of factors cited as potential causes for the GM are structural changes in the affected economies. These changes include:

- Supply chain improvements through the application of information technology to progressively globalized networks, including production and distribution (Rajan, 2006; Kahn, McConnell, Perez-Quinos, 2002).
- A change in the composition of developed economies, with the growth of services relative to a declining manufacturing sector (Bernanke, 2004; Zarnowitz, 1992).
- Declining volatility in government spending and fiscal policy more generally, as a development of greater automatic stabilizers (Blanchard and Simon, 2001).
- The casualisation of the US (and other developed country) workforces, increasing labour market flexibility (Willis, 2003).
- Financial service innovations, relaxing liquidity constraints and enabling households and businesses to smooth their consumption and investment patterns (Stock and Watson, 2003; Bernanke, 2004).

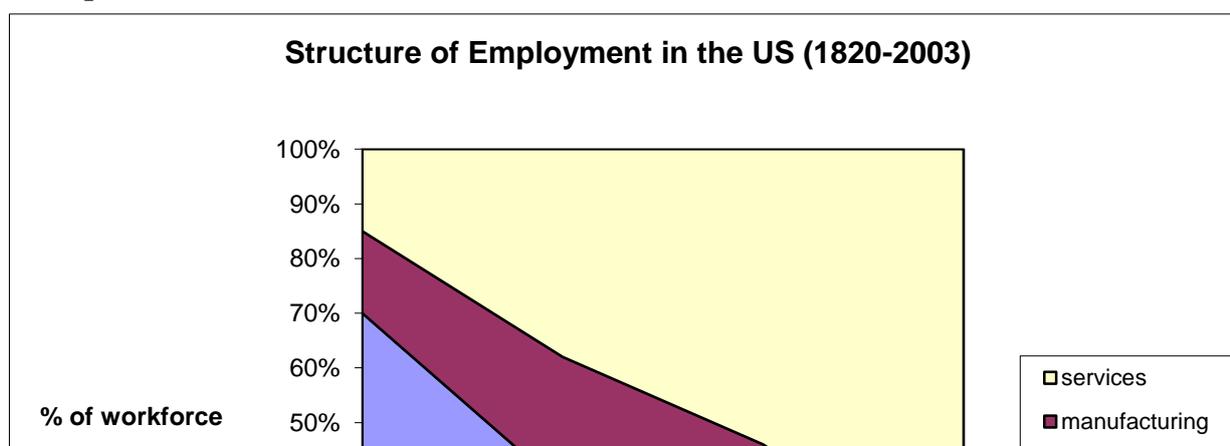
Rajan (2006) makes the case that a fundamental improvement in the global economic environment occurred through the GM. He notes rising levels of productivity due to structural improvements in global supply chains. This is, in large part, due to the development of information technology. He also notes the progressively improved relation between physical capital and labour in many emerging economies, as high levels of investment increase the level of capital per worker, along with the general incidence of trade surpluses from these countries. These improved supply-side developments exerted downward pressure on inflation (Borio and Lowe, 2001). Yet, Diebold and Yilmaz (2008) challenge this position, arguing that this factor accounted for no more than a 0.3% decline in inflation, off-set by rising commodity prices.

McConnell and Perez-Quiros (2000) posit the decreased volatility in the output of durables as an important driver of the GM. Kahn, McConnell, and Perez-Quiros (2002) and Davis and Kahn (2008) attribute improved inventory control to information technology developments. They explicitly reject the causal significance of a progressive shift to services, suggesting that the service sector does not demonstrate a systematic reduction in volatility. An issue acknowledged by Khan, et al (2002) is that they cannot separate better inventory management from more stable consumption. Logically, superior inventory management should arise in an environment of stable and growing (debt-supported) consumption. It is not clear that great impost need have been made on improved information processing and communication faculties where final demand was, otherwise, on a path of stable increase. This argument, then,

may describe little more than an indirect effect of a progressive increase in debt. Moreover, given the decline in developed economy manufacturing over the GM, it is unclear how manufacturing sector inventory improvement could have had so profound an impact on those developed economies. In the US, manufacturing represented just 12.2% of GDP in 2006 (Scott, 2008) and, by 2009, manufacturing jobs represented just 9.1% of the workforce (Testa, 2009). Durable goods production represented under half of manufacturing by value (US Census Bureau, 2011). In this light Davis and Kahn (2008) appear to attach excessive importance to this factor as the cause of the GM, primarily because the stability of durable goods inventories maps the stability of the GM more generally.

Bernanke (2002) and Zarnowitz (1992) attribute causal significance of the GM to the transition of developed economies from predominantly manufacturing-based economies to economies based primarily on services. This position holds that less volatility is exhibited by the service sector because it has few inventories and, therefore, little room for clogging its ‘production pipeline’. Khan, et al (2002) reject the reduced volatility attributed to the service sector *per se* but independent of this, there are reasons to doubt the importance of this development as a causal relation to the GM. Taylor (2000) observes that the trend to increasing services (from 46% of GDP in 1950, to 70% in 1970) preceded (rather than coincided with) a period of heightened macroeconomic volatility (See graph one). Further, the increase in levels of developed economies engaged in the provision of services between 1984 (the start of the GM) and 2000, has been minor relative to the earlier period increase. On this basis it is unlikely that the rising importance of the service sector to developed economies significantly reduced output volatility. Considering graph one, we observe a near-inverse relationship between services and agricultural employment. The greater relative stability of agriculture over manufacturing is no less than that of services over manufacturing (Stock and Watson, 2003). There is a risk then in attributing too much significance to developed economies’ transition to a preponderance of service industries.

Graph one.



Source: Maddison (1995, p. 39; 2007, p. 76)

Stock and Watson (2003) do not find strong evidence of an important role for structural change in the economy contributing to macroeconomic stability. They find only minor changes in pre- and post-1984 variances due to structural developments, except in Germany. Conversely Japan and Italy show significant increases in macroeconomic volatility due to their progressive industrialisation (Stock and Watson, 2003). There is also limited evidence for improvements in inventory management of finished goods. The only significant improvements were in work-in-progress. Thus, we might reject the supply chain improvement on these grounds but not the operation of the progressive shift to predominantly service industry-based economies. Of more significance to this issue is Stock and Watson's observation that these developments were progressive, contrasted with the precipitous decline in macroeconomic volatility in 1984.

Lower volatility in fiscal policy has been suggested as a potential source of greater macroeconomic stability by Blanchard and Simon (2001), who observe the decline in the volatility of government spending from very high levels during the Korean War. Since the late 1960s fiscal volatility has remained at subdued levels. This corresponds with the period of greater use of automatic stabilizers. Blanchard and Simon (2001) also observe a decline in consumption volatility. They attribute importance to this factor in the reduction of macroeconomic volatility and suggest the reduced macroeconomic volatility was achieved by improvements in the efficiency of financial markets. Against this view, across many developed economies from the 1980s, government expenditure declined on the back of the emergence of widespread adoption of economic rationalisation. Further, if the Korean War was the most

significant source of fiscal instability, and this caused macroeconomic instability, we would expect to have seen a trend decline in the volatility of inflation and output in the post-1950s period, rather than a precipitous decline in macroeconomic volatility in the mid-1980s.

2.4 Other structural explanations: The labour/capital power balance, its income distribution implications, and the destabilising effects of these over long booms.

Willis (2003) notes the decline in inflation and the persistence of low, stable inflation over the past twenty years (the period of the GM), relative to the 1970s. The comparison is made starker by the elevated inflation of the 1970s compared with the 1960s. Willis (2003) attributes reduced inflation volatility to the rapid rise in the casualisation of the labour force in the US, with the widespread use of temporary workers. The hiring behaviour of firms has changed. Businesses appear to prefer lower wages for casual workers believing they are less discouraging for those workers than are differential wages for permanent workers (Willis, 2003).

The high levels of US employment achieved from the 1990s, when compared with the higher, more persistent levels of unemployment in the less flexible European economies, are argued to be a result of more flexible US labour markets (Maffeo, 2001). They have also been implicated in price stability (Willis, 2003). A notable correlate of US labour market flexibility has been the decline in real wages since 1973 (Baker, 2007; Keister and Moller, 2000). Growing inequality in income has attended economic growth. Russell and Dufour (2007) note that a similar trend in declining real wage incomes has been experienced in Canada, and Azmat, et al (2007) extend this observation across the OECD and to affected nations' non-tradable sectors.

There are a number of indications supporting Willis's view that labour market casualisation and consequent declines in real wages contributed to the GM. Effective transfers from labour to capital (reflected in rising income inequality) have subdued cost pressures as real wages lag productivity increases (Finfacts Team, 2006; Dymski, 2002; Papadimitriou and Wray, 2001; Minsky and Whalen, 1996-97). Immigration to the US through the 1990s rose substantially, averaging 1.3 million annually against 0.3 million in the 1970s (Baker, 2007). This influx subdued wages further through the increased supply and due to the cultural heterogeneity of labour. Further, the export of manufacturing jobs has eliminated many traditionally higher paid 'blue collar' jobs (Dymski, 2002). Unionisation, typically higher in manufacturing, also declined, from 40% of manufacturing workers in 1973 to 12% in 2007.

This decline in US unionization, combined with a decline in US manufacturing, resulted in declining wages for lower paid workers. Globalization increased the reliance on cheap labour (Baker, 2007).

Separate from Minsky's role of financing in capitalism's instability, capitalism has a default requirement of economic growth (ref?). Where standard neo-classical assumptions conclude that increased production in general, and productivity growth in particular, support rising living standards, its foundation for this proposition does not disaggregate the incidence of national income growth by distribution (Robinson, 1938). Productivity growth, without sustained economic growth, is implicated in a shift away from full employment. Profits (whether realised or expected) fuel investment, and investment is sustained over booms by rising profit shares which, in turn, capitalise and rationalise further investment (Minsky, 1992; Keynes, 1936). This is accompanied by a growth in money wages but the relation of labour incomes to capital incomes altered in capital's favour due to the differential speed of income increases.

With more than 70% of aggregate demand in the US generated by consumption, a steady increase in household debt-to-GDP (Cynamon and Farazzi, 2008), and steady increases in pre-existing household financial obligations as a percentage of income (Dyran, et al, 2004), led to unsustainable consumption levels (Akerlof, 2008). This demand can be related to lifetime income smoothing conceptions; however, Cynamon and Farazzi (2008) propose socially normalised spending patterns. Advertising targeted high-disposable income households, setting elevated consumption norms. In light of the bifurcation of the labour market along skilled and commodity labour lines, in combination with financial innovation increasing household access to credit cards, and home equity finance due to financial market liberalisation, consumption was held above sustainable levels. These developments explain the US consumption-driven boom to 2007. This, in turn, explains the relative stability of US (and other developed country) growth over the GM.

Against the view that household consumption volatility declined (Mojon, 2007), Davis and Kahn (2008) find no decline in private domestic consumption expectations in the post-1984 period. The acknowledged limitations of Davis and Kahn's (2008) consumption forecast data is consistent with the progressive rise over the GM of household debt, and, further, may be inferred of the observed decline in household savings over this period. At the national level this increased reliance on debt-funding for consumption was matched by the large and

persistent US external imbalance (current account deficit) since 1984 (Fogli and Perri, 2006). Declining savings and rising debt support that view that the decline in non-technology shocks (Gali and Gambetti, 2009) was the debt-fuelled decline in private domestic sector demand shocks. The cause then is credit availability (financial liberalisation) and credit price (financial liberalisation and monetary policy).

2.5 Financial liberalization and the Great Moderation

This paper advances the view that the GM was substantially due to the era of financial liberalization (see: Cecchetti, Flores-Lagunes, and Krause, 2005; Dynan, Elmendorf, and Sichel, 2005; BIS Annual Report, 2001; Kaminsky and Reinhart, 1999). In the post-Bretton Woods era, beginning in the 1970s, floating exchange rates interacted with domestic financial market liberalization to fuel a rapid loosening of credit availability and rising financial market instability (Ferri and Minsky, 1991; Lewis, 1993). The availability of credit greatly increased in this period, with mortgages in many developed countries constituting between 60% and 70% of broad money supply by 1998 (Rowbotham, 1998). Over the GM deregulation led to a decline in traditional bank shares of the US loans market (Friedman, 1999). This *inter alia* has reduced central banks' power, as an increasing share of this market fell outside of the reserve system (Thoma, 2009). Along with the declining control of monetary authorities, the rising debt levels of microeconomic units in many developed countries have further limited central banks' options, heightening risks to financial stability. Similarly, evidence of rising systematic risks emerged, due to the growing reliance on debt-fuelled consumption as the key stimulus to aggregate demand (Cynamon and Farazzi, 2008).

Post-Bretton Woods, the progressive shift to floating exchange rates of the 1970s and 1980s established the preconditions for the subsequent rapid rise in international capital flows (Lewis, 1993; Bibow, 2008; Kose, Otrok and Prasad, 2008). Floating exchange rates reduced national constraints on investment. Parallel to this rise in international capital flows was the growing volatility of exchange rates, providing what has been argued as a trade-off of financial market stability against increased domestic macroeconomic stability (Crockett, 2003). For this reason floating exchange rates were the first phase of financial deregulation contributing to the GM.

Securitization accelerated global capital flows, along with floating currencies, allowing opportunistic foreign investors to move between asset markets, increasing the volatility of those markets (Kaufman, 2009). This trend expanded internationally from the US, increasing

financial market liquidity, allowing the investor easy exit from security holdings. This was further compounded by the credibility of progressively tightened securities regulations, matched by the loosening of banking regulations. Amongst tightened regulations were those controlling insider trading and disclosure. Typically, managed funds have hundreds of sub-ten percent holdings, to avoid falling within the provisions of insider trading regulations and to comply with portfolio theory. These developments encouraged a shortening of average company stock holding periods to less than a year, supporting the position that exit was the best strategy if a company failed to perform. Effectively, this led to lowered monitoring costs and increased volatility as free-riding came to dominate equity markets, reducing the due diligence that previously undertaken (Bhide, 2009).

2.5.1 Domestic financial deregulation

Domestically (in the US and other developed countries), the liberalization of exchange rates was followed by deregulation of financial markets and the banking industry (Kregel, 2007). This occurred through the 1970s and the early 1980s. Until the 1970s the US banking industry was heavily regulated. Restrictions had been applied to banks' geographical spread, interest rates they could pay, and investment activities they could undertake (Strahan, 2003). Progressively, deregulation relaxed constraints on banking to allow state-wide and later interstate branching (Stiroh and Strahan, 2003). A succession of legislation supported financial deregulation, including: *The Depository Institutions Deregulation and Monetary Reforms Act* (1980), *the Garn-St. Germain Act* (1982), and the Repeal of the *Glass-Steagall Act* (1933), with the *Gramm-Leach-Bliley Act* (1999) (Wray, 2007; Tregenna, 2009). Deregulation reduced reserve requirements, increased competition in financial services provision, facilitated consolidation in the financial sector, loosened constraints on banks' investing activities and increased Federal guarantees of bank-held deposits, while increasing access to the Federal Reserve discount window for overnight borrowing (Kregel, 2007). Deregulation expanded banks' and financial institutions' ability to generate credit and reduced the absolute risk of doing so through access to the discount window and Federal Deposit Insurance Corporation underwriting, respectively mitigating liquidity and credit risk and, jointly, increased moral hazard.

Canarella, et al (2010) observe that the GM was not synchronous across affected countries but, in the case of the UK, occurred ten years later than it did in the US. Similarly, Davis and Kahn (2008) contend that economic time series' volatility declines in the US were

more progressive than is implied by the 1984 GM start date commonly identified. These facts can find explanation in the progressive introduction of financial market liberalisation and, in the case of the UK, the relatively later introduction of financial market liberalisation. This was begun with the so-called ‘Big Bang’ in 1986.

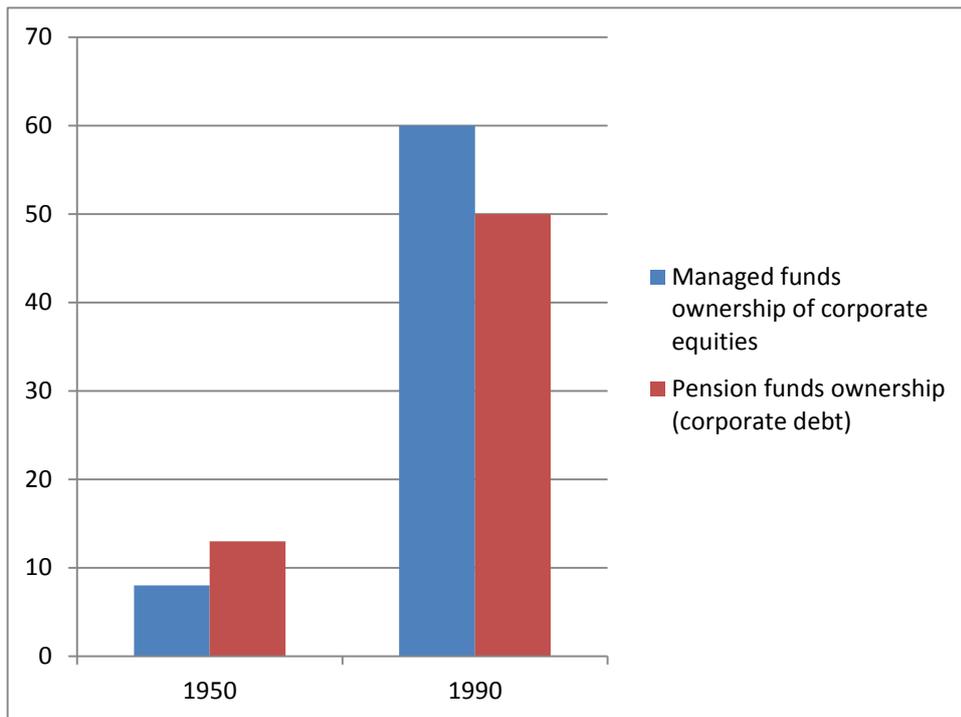
Relationship banking, in which banks assess borrower creditworthiness and hold loans to maturity, demands due diligence and monitoring compared with modelled risk assessment, pooling, and diversification as risk management tools (Acharya and Richardson, 2009). This greater cost structure spurred banks to develop the securitization market, replacing interest income with fee income. Securitizations involve an ‘initiate and distribute’ approach to meeting lenders’ demands for finance: a system which introduced systemic risks as non-performance risks were passed on to investors in the securitizations. Where \$11 billion (US) worth of subprime securities were originated in 1994, \$432 billion were established in 2007 (Demyanyk and Hasan, 2009). Minsky’s (1986) position that banks are effective in circumventing regulation designed to constrain money supply was validated and compounded by competitive pressures imposed on banks by deregulation, including margin erosion and mispricing of risks by marginal banks (Mullineux, 1990). Minsky (1992) observed the origins of the securitization market in the 1980s, identifying it as a new, significant source of risk to economic stability (Wray, 2007; Whalen, 1999).

Money market funds, banks, and pension funds exist in a competitive returns’ market. Therefore, they face pressure to arbitrage deposit and debt maturities to a progressively greater extent. This was reflected by banks’ increased reliance on the overnight repo (repurchase agreement) market to finance their balance sheets (Brunnermeier, 2008). Bank financing, using overnight repos, increased from 12.5% (2000) to 25% (2007) (Brunnermeier, 2008). This development was forced by low short term interest rates. The flood of funds to longer term debt, in turn, pushed down long term interest rates (Samuelson, 2005), heightening both liquidity and credit risks. The importance of ‘money manager’ equity and debt ownership can be seen in graph two, depicting the growth in the percentage of institutional ownership between 1950 and 1990.

Perversely, securitization fundamentally altered banks’ and credit-rating agencies’ risk-assessment calculus due to the development of a secondary market which systematically reduced risk assessments by introducing tradability (Borio, et al, 2001). Borio, et al (2001) identify banks’ increasing focus on default risks under one year. Underlying this development

was an assumption of the continuing liquidity of secondary debt markets. Borio, et al (2001) argued that risk-assessments subordinated growth in actual risk to realized risk. Securitization led to a decline in lending standards, allowing almost anyone to become a mortgage broker (Brunnermeier, 2008). Special Purpose Vehicles (SPVs) held the securitized mortgages secured AAA ratings to economize on regulatory capital requirements (Gorton 2009). This condition was exacerbated by higher fees paid to rating agencies for structured products compared with corporate bonds' rating fees (Wray, 2007). Higher fees also applied to 'marginal' AAA ratings. Compounding this, many investors' risk models did not factor in broad-based real estate market declines. Many of these models were based on lower default rates in previous markets when significantly tighter credit existed. Monoline insurers were sufficiently capitalised against individual defaults in a rising housing market but with widespread defaults, the thin capitalisation of these companies confronted illiquid real estate markets.

Graph two: Changes in the percentage of 'money-manager' ownership of financial assets (1950-1990)



Source: Blankenbury and Palma (2009)

Prior to the sub-prime meltdown, the progressive innovation of the financial sector led to banks increasingly extending mortgages and credit to less creditworthy borrowers (Lansing, 2008; Shiller, 2008). The short term affordability of loans to borrowers was achieved by interest-only repayments or payments lower than the interest cost, no-equity loans and adjustable rate mortgages with “teaser” rates (Shiller, 2008). The prevalence of such financial innovations was positively associated with regions in which house prices rose faster than the market in general (Tal, 2006). These conditions were inherently unstable and, inevitably, destined to reverse as mortgages were reset higher to meet changing market rates. This defines the essence of a Minskian asset bubble; asset price-stability depending on continuing asset price rises, after a period of steep ascent.

Loan collateral requirements steadily declined over the GM, as did interest rate spreads (Dyan and Kohn, 2007). Until 2007, risk premia steadily contracted on rapidly expanding debt levels. In this environment banks were effectively forced to take *de facto* equity positions in the property market due to competitive pressures. Subprime mortgages, in effect, operated as ‘long’ positions taken by banks in property; securitization then shifted this ‘property play’ off balance sheet. For as long as property prices continued to rise, banks had nothing to fear from individual loan non-performance risk. Their exposure was limited due to the rising value of loan collateral.

The forces operating on liquidity conditions during the GM, if not new, were possibly unique in terms of mutual reinforcement. The failure of interest rates to rise during a dual investment and consumption boom, in Minskian terms, required functionally elastic credit creation to increase banks' incomes (Mullineux, 1990). This dictated a flood of financial innovation by banks and other financial intermediaries, the free supply of reserves by the Central Bank or Treasury, or the combination of these factors. In the case of the US in the period of the GM, both of these forces operated to expand the supply of finance. This was due to financial industry deregulation, facilitating *inter alia* securitization, and the persistence of government deficits over a period of economic expansion, maintaining that supply of base money on which the multiplier could operate (Mullineux, 1990).

Laissez faire ideologues have raised the case that financing innovations which gravitated the financial system towards collapse were brought about largely by the Community Reinvestment Act (CRA) (1977) (Wallison, 2009). This legislation required banks to 'democratise' debt, extending homeownership to disadvantaged minorities. This was initially vaguely specified but was reinforced by the 1990s affordable housing mission adopted by Congress. The difficulties and expense of enforcing loan contracts even where States allowed lenders to seek security of greater value than the mortgaged property effectively allowed mortgagees to walk away from 'underwater' mortgages. Basel 1 further stimulated property overinvestment by defining adequate capitalisation as 8% of the risk-adjusted loan. For AAA-rated mortgage-backed securities (MBS) the 8% reserve requirement related to 20% of the security's value, or just 1.6% of the total. Collectively, these factors form the basis for Wallison's (2009) view that government interference caused the sub-prime crisis. He tells us that favourable terms offered to CRA borrowers had to be extended to 'conforming' borrowers, heightening financial risk.

Against Wallison's position Stiglitz (2009) views banks as the primary 'villains'. This blame is qualified by the argument made earlier in this paper (and also by Stiglitz), that a competitive financial sector compelled banks to leverage highly in search of returns in order to support their share prices. Stiglitz (2009) notes that the default rate on CRA mortgages was below that of conforming loans. Fannie Mae and Freddie Mac were principally suppliers of conforming loans which were substantially responsible for the scale of losses at both companies. Moreover, if Wallison's priority was to isolate the causes of the sub-prime crisis, rather than pursuing an ideological aversion to regulation, it is unclear why he neglects to

mention the Taxpayer Relief Act (TRA) (1999), which excluded houses under \$500,000 from capital gains tax (Gerstad and Smith, 2009) and would likely lead to?.

Independent support is available for Stiglitz's (2009) position in Acharya and Richardson's (2009) identification of banks' actively 'gaming' financial market liberalization. The development of off balance sheet entities in which to house guarantees to investors in MBS supports the view that banks' priority was to defeat capital adequacy regulations. Banks were describing the guarantees they provided on the MBS they initiated as 'liquidity enhancements' which, under Basel 1, were required to be of less than one year in duration. Yet they renewed these guarantees for further periods of less than one year. Essentially risks became concentrated in banks, a position banks needed to continue to support to sustain the securitization (or 'initiate and distribute') market. Further, the mortgages were designed to reset after a period, leaving the bank 'long' property in the event the market failed to continue to rise. This scenario is archetypical of a Minskian ponzi debt-dominated economy. In this light the sustenance of the economy depended on the continuing appreciation of the housing market (Acharya and Richardson, 2009).

The changes had a significant impact on the structure of the US financial system. Active secondary markets developed for home loans and, increasingly, for 'junk bonds', student loan portfolios, and motor vehicle loans. This process of securitization notionally reduced risk through the pooling of loans, thereby reducing the consequences of individual loan defaults. Over this period household debt grew from 43% of GDP in 1982 to 56% in 1990 (Dynan, et al, 2005). The impact on aggregate demand has been the relative stabilization of consumption compared to income. The key to the sustainability of this development is that consumption has been smoothed in relation to income. Given the steady increase in household debt this assumption appears doubtful.

Household debt levels rose in the US from 1984 in absolute terms and as a percentage of income (Debelle, 2004; BIS Annual Report, 2001; Tregenna, 2009). From 1984 to 2004 the household debt to income ratio rose from 0.6 times to 1.18 times, an historical high (Dynan and Kohn, 2007; Lansing, 2005). Household debt increased, outstripping the increase in household wealth, rising from 4 times to 4.7 times income over the same period. The financial obligations ratio (FOR) to income has risen from 11% of income in 1980 to 18% in 2003 (Dynan, Johnson, and Pence, 2003). The FOR remained relatively stable due to subdued interest rates (and, thus, lowering repayment obligations) but it remained near historical highs

(Dynan and Kohn, 2007). Given historically low interest rates in the 2000s, debt sustainability issues were growing during this period.

The wealth effect of rising house prices, along with higher levels of mortgage debt assumed under mortgages due to rising house prices, was reflected in the faster growth of debt levels than house prices. Greenspan and Kennedy (2007) infer the high relative marginal propensity to consume housing wealth (0.6), relative to the financial asset wealth effect (0.2), from Federal Reserve Board data. Their estimates adjust for instalment debt for the repayment of consumer bridging finance, suggesting a rise in consumption expenditure drawn from home equity. This factor assumes importance when considered against a rise in house prices of \$3.25 trillion from 1995-2003 (Faulkner-MacDonagh and Muhleisen, 2004). Arguably, the significance of these developments is related to the ‘democratization of debt’, directing the household wealth effect towards households with a higher marginal propensity to consume, especially in the context of reduced real wages for this group.

A companion trend has been the decline in the personal savings rate since the 1980s (BIS Annual Report, 2001). The household savings rate, which averaged 9% over the 1980s, has fallen to an average of 1.9%, from 2000-2005 (Lansing, 2005). Lansing observes negative monthly savings from June through September of 2005. Faulkner-MacDonagh and Muhleisen (2004) attribute the declining savings rate to the wealth effect. This trend further supports the inference to systemic instability when considering the increase in *de facto* debt due to the rise in vehicle leasing (in lieu of purchase) by households from 1992 (2.5%) to 2001 (5.75%).

Various arguments from market efficiency suggest that consumption smoothing and greater capital allocation efficiency stem from reduced constraints on domestic and international capital flows, which rose rapidly from the 1990s (Bean, 2003; Finfacts Team, 2006; Bibow, 2008). On this view the significant deregulation of financial markets facilitated the flow of capital to its best and highest use (Bibow, 2008). The ‘new classical consensus’ framework implied in Summers’ (2005) argument isolates monetary policy improvements as the key driver of the GM. This explanation tacitly discounts the Minskian view that stability creates instability. Consumption smoothing is supported by Summers’ explanation of the transmission of financial liberalization causing the GM. This view, along with that of Nakov and Pescatori (2007), implicitly rejects the growth in factors (outlined above) threatening economic stability over the Great Moderation. *Prima facie* the success of monetary policy and

the absence of destabilization during the recent period of macroeconomic stability are called into question by recent economic and financial market instability.

Stock and Watson (2003) admit difficulty in quantifying the impact of easier credit on consumption, although they infer its importance and that any change in, or threat to, the stability of consumption would logically entail an impact on aggregate demand. Further, reduced volatility in the housing construction sector arose due, at least in part, to adjustable interest rate mortgages, the ‘democratization of debt’, and progressive rises in the level of household debt (Fernandez, et al, 2008; Stock and Watson, 2003). Market-efficient views suggest that these factors point to the operation of consumption ‘smoothing’, facilitated by increased access to debt and, presumably, predicated on sustained, above-trend rises in future income (allowing that financial obligations ratios have been steadily rising since the early 1980s). Clearly, the recent period of debt-deflation serves as a challenge to income ‘smoothing’ conceptions. Instead, the view that debt-engorgement, reflecting a widespread, systematic mispricing of risk, domestically and internationally, is indicated.

2.5.2 Derivatization

Derivatization has historically been unregulated due to the efficient markets’ view that complete markets for all future dates are necessary for comprehensive risk hedging (Kregel, 2007). Mainstream views held that the depth, breadth and completeness of financial markets allows the spread of contractual non-performance risk to those best able to bear it. In this sense total risk was limited to the cost of entering a new hedge contract (Hentschel and Smith, 1995; Kregel, 2007). The general consensus was that derivatization had reduced risks and aided capital formation (Khalik, 1994; Hentschel and Smith, 1995; Culp and MacKay, 1994; Horowitz and MacKay, 1995; IDSA, 2007; Kohn, 2007). Indeed, Hentschel and Smith (1995) argued that no new risks are introduced by derivatives. Credit risk is mitigated through diversification and, where derivatives are used principally as hedges, through ‘netting’ (IDSA, 2007). Trichet (2007) acknowledges the view that risk is transferred to investors with longer time horizons, thereby reducing total risk. However, he argues that risk reduction by this means presupposes sufficient heterogeneity of investor behaviours and risk appetites, the correct valuation of risk, and stable relations in these variables. At this point evidence for the existence of these necessary conditions does not exist (Trichet, 2007).

The heterodox view is that where derivatization may have reduced certain instances of short term volatility it is less clear that it has entailed a systematic reduction of total risk. Buffett (Chairman's Report, 2002) stated:

“We view them as time bombs for both the parties that deal in them and the economic system...[I]n our view...derivatives are financial weapons of mass destruction, carrying dangers that, while now latent, are potentially lethal.”

Buffett notes that large amounts of risk are concentrated in the hands of derivatives traders, a view that echoes concerns raised by the Government Accounting Office (GAO) (1994). Buffett (2002) argued that the financial strength of derivatives' counterparties poses a significant risk to the financial system. Where derivatives are concentrated in a few hands, and used as speculative tools, their potential risk-spreading function is obviated. Further, collateralization may not offset counter-party credit risks where counterparties hold large net positions in illiquid assets as was the case with the Long Term Capital Management (LTCM) crisis in 1998 (Greenspan, 2005).

In light of the GFC and ensuing recession, the case that derivatives dispersed risk is doubtful. Competitive pressures for returns led market participants during the 'euphoric phase' of the economic expansion to concentrate risk to increase returns in what was a low interest rate environment. The speculative use of derivatives facilitated leveraged exposure and, thereby, obviated the risk-spreading ability of the hedge-use of derivatives.

2.5.3 International financial liberalization, foreign investment flows, and the GM

Securitization also increased the globalization of finance, freeing assets from national boundaries (Wray, 2009). This led to a number of global imbalances. These included sustained periods of current account deficit in which deficit countries could sustain high and rising national currencies relative to net saver countries. This was true of the US as the issuer of the global medium of exchange (D'Arista, 2009). The US dollar status as the global reserve currency fostered ballooning deficits in the net borrower countries because they had been unable to trade their way out of deficit through expanding exports stimulated by lower exchange rates. The excess foreign-held US dollar reserves the US current account deficits created needed to be recycled into US financial instruments for investors to receive a return. This depressed US interest rates, encouraging (often) consumption borrowing and, thereby, aggravated the US current account deficit further (D'Arista, 2009).

What emerges from the mainstream interpretation is a commitment to the premises of market efficiency. The assumption that individuals will act to smooth their consumption over their lifetimes as a function of their incomes appears to confront contrary evidence at micro and macroeconomic levels (Cynamon and Farazzi, 2008). This scheme also failed to distinguish between individuals acting rationally and adverse consequences for national economies. Within this theoretical scheme it is difficult to explain rising levels of household debt in the US or to explain developed country current account deficits. Deficits have been persistent for the US since 1983 (with the exception of a slight surplus related to the recession of the early 1990s) (Bibow, 2008). The aggregate level of household and national debts has grown through a long period of economic expansion. Where this may be explicable in a developing country, it is less clearly consistent with long term stability in a developed economy. Kindleberger (1989) identifies the Duesenberry effect, an asymmetric consumption response to changing income levels. This manifests as a lesser proportional decrease in consumption with declining income, relative to consumption increases on increasing income. Elsewhere this is described as lifetime income smoothing. Further, the Dusenburry effect confounds the assumption that liberalized capital flows would, when primarily directed by market forces, gravitate to their best and highest uses. This would appear to entail capital gravitation towards less capital-sufficient countries.

It is plausible to extend lifetime income ‘smoothing’ to nations, inferred from Friedman’s (1957) notion of permanent income as it relates to individuals. Thus, developed economies with aging populations approximate retirement or some point near to it. On this basis the current increase in US debt (which, against other developed countries has a relatively youthful demographic profile), and the differential risk profile of US foreign asset holdings (higher risk), against broadly lower risk foreign investment in the US (typically Treasuries), is inconsistent with income smoothing. Moreover, elevated US consumption, on the basis of increased debt levels deviates from the income smoothing conclusion that savings should increase up to ‘retirement’. Notwithstanding limits to the analogy, sustained debt increases are inexplicable in terms of developed countries, only so long as a general condition of lesser developed countries exists. Of note is the reversal of US foreign investment. From 1960 to 1985 US foreign investment overseas has declined from twice that of foreign investment in the US, to a quarter (Barron, Ewing, and Lynch, 2006). Logically, structural adjustments in the value of the US dollar and in the US standard of living are indicated.

Income smoothing implies *inter alia* developed country current account surpluses and a declining reliance on debt over periods of economic expansion (Jappelli, 2005). In terms of nations, development definitionally implies capital account deficits. Allowing that development is inherently linked to capital sufficiency, returns to increased net debt-financed capital will diminish in developed countries. Technology shocks will not change this situation relative to lesser developed countries due to the incremental advantage these countries have in extracting rents from capital due to their relative non-capital factorial excess. Thus there is no logical means by which we can proceed from lifetime income smoothing to rising developed country current account deficits and rising household debt in developed countries. These circumstances support inference to recent developed country growth based on the temporary, unsustainable consumption of future income, akin to increased gearing of lifetime ‘balance sheets’.

Collectively, the risks described above were compounded by the credibility of Central Banks’ commitments to low inflation. Short term interest rate responses to signs of elevated inflation helped ensure the containment of inflation and also reduce the risk of rising future interest rates. Previously, the case was made that changes in the labour market, and labour/capital power relations, aided the containment of inflation. This effect was reinforced by foreign investor perceptions of a credible US central bank commitment to low inflation. Low interest rates were reinforced by the acceptance of overseas investors who essentially used the US dollar as a hedge against the volatility demonstrated in their own (Asian) currencies in the 1997 Asian crisis and 1998 Russian crisis. Asian countries have historically used the US dollar peg to constrain inflation, essentially free-riding on US price stabilization monetary policy (McKinnon and Schnabl, 2004). Independent of their trade position *vis a vis* the US, inter-regional trade competitiveness concerns prevented individual currency appreciations against the US dollar. Beyond a relative decline in their trade position, significant losses would arise from large US dollar asset holdings (McKinnon and Schnabl, 2004).

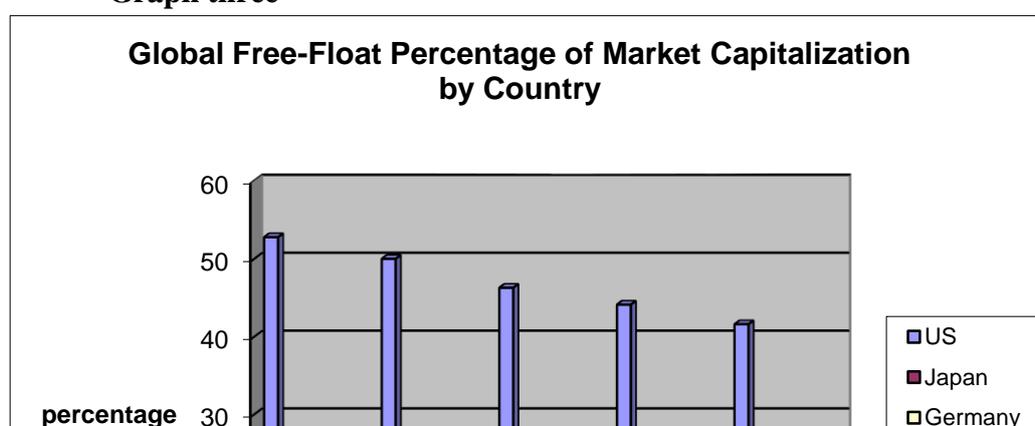
Further support for the US dollar and, following 2000, the consumption-led boom in the US, was the US dollar’s role as the *de facto* global reserve currency. In recent times virtually every country trading with the US maintained a trading surplus with it (Rajan, 2005; McKinnon and Schnabl, 2004). This essentially led to a global glut of US dollars.⁴ Consistent with the

⁴ This is not the frequently referred to savings glut (Bernanke, 2005). In absolute terms global savings are lower than they were in preceding decades (Taylor, 2008). The important point turns on the composition of savings,

empirical evidence of Bracke and Fidora (2008), is the identification of a general excess of US dollar denominated liquidity. Western (2004) isolates the role of the financial accelerator in the ‘escalation gap’ between the doubling of US productivity through the 1990s and the six-fold increase in stock indices. The ‘investment drought’ or preference shock (‘savings glut’) are rejected. US trading partners recycled their US dollar reserves back into the US through (typically) Treasuries. Notably, this also occurred in the 1980s with Japanese trade surpluses recycled into US and UK financial markets, in part to assuage political concerns from the US associated with Japan’s persistent trade surplus (Toporowski, 1993). Towards the end of the GM, foreign funds became more sensitive to returns, in part, fuelled by the decline in the US dollar since 2002, against most other currencies (Bibow, 2008). This development was noticeably absent for a long time due to the US dollar ‘hedge’ effect and because developing nations were content to fund the US consumption boom to create demand for their exports. At least temporarily, US export deficiencies could be balanced by overseas debt-funding.

Cabarello, Farhi, and Gourinchas (2006) argue that the US had an absolute advantage in creating comparatively low-risk financial assets. The depth, liquidity, and maturity of US markets relative to those of developing countries and continental Europe, suggest that this view is correct. US financial markets are larger and more sophisticated than those in any other country. Added to the credibility of the Federal Reserve, and qualified by the relative safety inhering in US financial markets, this provides an independent motivation for recycling US currency back into the US economy. In contrast to the US, many developing countries have limited investor protection, weak regulation, under-developed financial markets and limited free floats (see graphs three and four). These considerations add to the case for US financial asset investment, supporting US interest rate containment, and supporting aggregate demand (Cabarello, et al, 2006). Combined with progressive international portfolio diversification imperatives, Dooley, Folkerts-Landau, and Garber (2004a; 2004b), argue that a long period of US current account deficits is sustainable, without a significant decline in the dollar. Against this, Muusa (2004) contends terminal limits to accumulated external liabilities must exist, probably at levels significantly less than 100% of GDP.

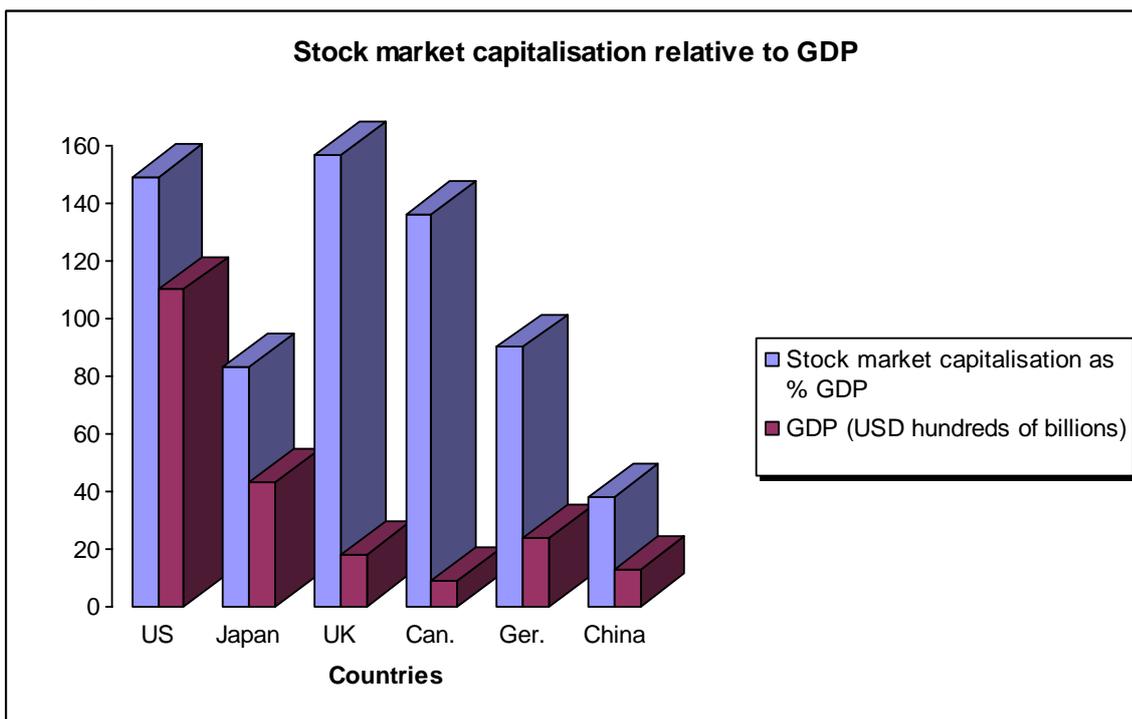
Graph three



find evidence of the US.

Source: Shaw (2008)

Graph four



Source: Pilbeam (2005)

Where Cabarelo, et al (2006) argue that the imbalances in capital flows into the US are responsive to US markets' advantage in the creation of financial assets, and thus, do not imply imbalance, the US advantage is comparative and the comparator may be considered nascent as a result of the speed of development in a number of countries. Cooper's (2008) position is that

equity supply constraints result in an overdependence on price intermediation, whilst maintaining relatively fixed supply. Simply, on this view, rapid growth in emerging economies has led savings to outstrip financial market development in those economies. The result has manifested in the global asset boom of recent years, with pervasive low yields, including interest rates. This, in turn, has established sufficient conditions for a consumption-fuelled boom, led by the US. A perverse feature of this environment is that rising equity prices actually contract equity supply, and the more strongly they rise, the stronger the supply contraction (Cooper, 2008). This is supported by a progressive increase in debt as prices rise, and the real economy grows. This lends support to Minskian analysis that preferences turn to debt over booms as lender and borrower margins contract.

The ‘Twin Deficits’ of the US, the government deficit and the current account deficit, have arisen over the GM as a significant threat to economic stability (Edwards, 2005). To this, the previously described rise in household debt can be added (Cynamon and Farazzi, 2008). Since the late 1990s in the US, the previous rapid increase in private investment of the early to late 1990s was substantially substituted by a rise in US government deficit spending and, subsequent to 2000, a debt-fuelled consumption boom (Edwards, 2005). Rising debt levels pose the risks described by Minsky (1986) to economic stability. Progressively, over the GM, asset markets have risen to become highly vulnerable to any threat of endogenous price volatility, including shifts in sentiment. Interest rate resets to higher levels on subprime mortgages, following initial teaser rates, resulting in increased loan defaults, may have been sufficient to destabilise asset markets (Cynamon and Farazzi, 2008). However, despite the particular confluence of causal factors, the dependency of asset prices on asset price rises emerged in the manner anticipated by Minsky (1986; 1992). In general terms, the nature of the unfolding economic crisis supports inference to the destabilizing effect of rising debt levels, supporting inference to the role of domestic and international financial liberalization as a key driver of the GM and of its demise.

Financial liberalization is further implicated in the current period of instability in the global economy and financial markets. The impact of the US subprime market collapse on European banks has provided indications of increased contagion risk. Cross border ownership, facilitated by exchange rate deregulation, has meant financial crises can spread further and more rapidly than in the past (Shiller, 2008). Furthermore, the growth in international trade that is a tandem development with increased international capital flows, allows economic crisis to spread. The US, in particular, has been the key driver of net global aggregate demand in recent

times (Samuelson, 2005). At certain points up to two-thirds of all current account surpluses have been accounted for by the US (deficit). Importantly, the three largest economies after the US, Japan, China, and Germany, have all maintained large current account surpluses (Perelstein, 2009). In this context, the vitality of the US economy has been substantially implicated in the sufficiency of world aggregate demand. Reasons arise to doubt the sustainability of increasing developed country deficit spending.

3.0 Conclusion

The recently stable macroeconomic environment, combined with rising asset prices, resulted in declining risk aversion and increased asset debt inflation. This environment was supported by subdued interest rates. Factors likely to have contributed to the GM include: predictable, credible monetary policy, the expectations this created in anchored inflation, concomitant low (by historical standards) interest rates, labour market flexibility and attendant wage suppression, and financial market liberalisation. These conditions have fuelled consumption in developed countries, growing debt levels unsustainably as increasing debt has exceeded rising incomes. It is these factors arising due to the progressive financial liberalisation from the 1970s that serve as the central explanation of the GM. Floating currencies have facilitated the rapid expansion of international investment. They have allowed systemic imbalances to grow unfettered by national boundaries, creating net debtor and net creditor countries. Domestic financial liberalisation has enabled the ‘democratisation’ of debt. Persistent US current account deficits, along with developing countries’ need to maintain currency exchange rate stability between each other, and with the US both as consumer of first resort and as the necessary destination of much of foreign-held US dollar reserves, has, over the GM, ensured the excess US dollar-denominated liquidity was recycled back into US financial assets, supporting the US dollar.

Each factor identified ties back into the singular or primary causation of the GM which is financial liberalisation. Countries beyond the US have been able to rely on the relative stability of the US dollar, especially in times of financial crisis (e.g. the 1997 Asian crisis). Central to this stability was the credibility of the US Federal Reserve commitment to inflation targeting. Developing countries with insufficiently developed domestic consumption have been effectively forced into holding US dollar assets. US dollar demand has almost certainly been assisted by rising commodity prices. These factors have combined to suppress interest rates. Developed country wage suppression, low interest rates, expected ongoing stability in inflation

and interest rates, housing ‘democratisation’, the wealth and balance sheet effects, have all aided the leveraging of households. The financial deregulation of the GM period has, however, led to growing threats to economic stability. Principal amongst these risks are the facilitation of the systemic mispricing of risk, occurring in a long period of abnormal stability. Structural changes in developed economies and macroeconomic policy developments have played no more than a supporting role in the GM. Or, in the case of monetary policy, a substantial role but one with the seeds of the GM’s destruction in it. Arguably, the GM was a state that, by its causes, was inevitably temporary. Moreover, the macroeconomic calm and prosperity of the GM is likely to have important implications for the medium term future, those implications include a sustained period of below historical-trend growth.

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