

**Threats to the orderly resolution of global imbalances:
trade disputes, abrupt corrections of global asset market anomalies and
past, present and future monetary policy errors by the Fed ***

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Introduction: de-coupling the global and US business cycles

At first sight, all appears to be going surprisingly well with the correction of the main global macroeconomic imbalances – the 6.5% of GDP current account deficit of the USA and the matching current account surpluses in the high-saving emerging markets, especially the BRIC countries and in the oil and gas exporting nations. The US economy is slowing down, led by its housing sector, but a domestic demand-led slowdown in the US economy is part of any lasting solution. Global economic activity is holding up well despite the US slowdown. The IMF, in its most recent World Economic Outlook sees global real GDP growth for 2007 at 4.8%, barely down from its 2006 forecast of 5.1%. The Eurozone and the rest of the EU are growing at their fastest rates since the slowdown following the tech crash of 2000/01. Japan is emerging from the deflationary doldrums. China continues to roar along with a 10 percent annual growth rate of GDP, India is not far behind and most other emerging markets are showing few signs of slowing down.

Clearly, we are only at the beginning of the adjustment process. The reduction of the US current account deficit to more sustainable levels, say, no more than three percent of GDP will have to be supported by a depreciation of the real exchange rate of the US dollar. Estimates of the required change in the real exchange rate of the dollar required to support a 3.5 percent of GDP reduction in the current account deficit differ from zero by Ron McKinnon, to 30 or higher by Obstfeld, Rogoff, Roubini and others (ORRO). My own estimate is closer to McKinnon's than to ORRO's estimate. Given time, even a rather small real depreciation of the US dollar, that is, a rather small (say 10-15 percent) increase in the relative price of US traded goods to non-traded goods, would permit a

significant shift of US productive resources from the non-tradable sectors into import-competing production and into the production of exportable goods and services.

Regardless of whether the real dollar depreciation associated with a 3.5% of GDP reduction in the US current account deficit is 15% or 50%, we haven't yet begun to see any significant nominal or real depreciation of the effective (trade-weighted) exchange rate of the US dollar. The story is complicated by the fact that some of the main current account surplus countries (China and Japan in particular) have adopted exchange rate policies that exclude sharp appreciations of their nominal effective exchange rate. For both these countries, real appreciation at a given nominal exchange rate, through higher inflation than in the US would be a long-drawn out process at best. Indeed, sterilisation policies and administrative measures are employed in China to prevent inflation from rising.

If the real depreciation of the US dollar's effective exchange rate cannot occur through a an appreciation of the renminbi/yuan, the yen and the currencies of the other surplus countries that manage their exchange rates to prevent significant appreciations, the required real appreciation will occur in the currencies of those US trading partners that have market-determined, freely floating exchange rates. That means Europe. The European Commission and European finance and economy ministers may protest that global imbalances are not their problem because the EU's current account is roughly in balance (there is currently a very small deficit). These global imbalances will become the EU's problem if and when the effective exchange rate of the euro has to appreciate significantly to permit a large real depreciation in the effective exchange rate of the US dollar.

All this is common ground, I believe. I wish to focus on future threats to a soft landing for the global economy during and following the correction of the key current account imbalances. I see two different kind of threats. The first are the familiar deflationary shocks induced by contractionary national monetary or fiscal policies in one of more globally significant countries: national policy shocks with global effects. The national policy shock I shall focus on is a contractionary monetary policy shock in the US, necessitated by the belated recognition among the US monetary authorities that, because of past policy errors, they have lost the plot as regards keeping inflation under control. The second kind of threat are shocks that are global in *origin* as well as *impact*. I will consider this second kind of threat first.

1. Why future global crises/slowdowns could have global origins

In the past 50 years, global economic slowdowns have often had their origins in a policy-engineered slowdown in one of the large national/regional economies – often the USA. The times they are a-changing. Although the traditional national economic (policy) shocks remain an important part of the picture (*vide* Section 2 of this note)), because of globalisation the world now faces new kinds of risks and new sources of shocks.

Globalisation: the good the bad and the ugly

Globalisation is the continuing process of sustained decline in the importance of national boundaries and of geographical distance as constraints on mobility, communication, and human activity, including economic activity, in general. The process is long-standing and non-monotonic. Following the end of World War II a new phase of

this process began. People, goods and services, factors of production and their owners, financial capital, enterprises, technology, brand names, knowledge, ideas, culture, values and NGOs all move more easily across national frontiers than at any time since the beginning of World War I. Globalisation is driven, first, by technological advances reducing the cost of transportation, mobility and communication, and second, by deliberate political decisions to reduce or even to eliminate man-made barriers to international mobility.

The first of these two driving forces is irreversible, barring a catastrophe on the scale of the fall of the Roman empire that causes major technical regress. Setbacks to the processes reducing the cost of transportation, mobility and communication can occur, but they tend to be man-made. An example is the global increase in the cost of air travel and other costs of engaging in international trade resulting from the post 9/11 fear of terrorism; from an economic perspective this amounts to technical regress. We count the services provided by additional security guards, and all the other resources devoted to minimising the risk of terrorists attack as part GDP, but its true economic nature is that of intermediate public and private inputs diverted from the production of value added.

The political forces driving the lowering of man-made obstacles to international trade and mobility cannot be taken for granted. They have been reversed in the past, most recently during the period from 1914 till 1945. They could be reversed again. The growing support for protectionism in the US and in the EU, despite continued healthy growth and low (in the US) and declining (in the Eurozone) unemployment is a most worrying trend. The collapse of the Doha round is a worrying signal of the inability to use the existing institutions to achieve further trade liberalisation. The unwillingness of

the EU to recognise China as a functioning market economy exempt from many of the anti-dumping duties the EU routinely imposes on imports competing with EU producers in 'sensitive sectors' is another. The recent European Commission decision to impose anti-dumping duties on Chinese and Vietnamese shoe imports is as petty and pathetic as it is dangerous. In the US, a significant slowdown, let alone a recession, would increase the likelihood that those two notorious global village idiots, Senators Schumer and Graham, would at last find a majority in Congress for their periodic proposals for China-bashing import duties, following the designation by the US Treasury of China as a currency manipulator.

Globalisation is a Janus with two aspects: one positive and one negative. It means the diminishing importance of national frontiers and geographical distance as obstacles to the mobility and movement of just about everything: good, bad, and ugly. Examples of the undoubted benefits from globalisation are well-known. They include increased specialisation and division of labour, enhanced scope for risk sharing and risk trading and for the linking together of those with surplus financial funds anywhere in the world with those in search of external finance anywhere else in the world. Examples of some unambiguously negative dimensions of globalisation, or *pathological globalisation* include the following:

- The much faster international spread of contagious diseases affecting humans that has accompanied the increased mobility of humans and animals. Historically, smallpox and measles have destroyed societies. Today, TB, HIV-AIDS, the Ebola virus, Nile virus and (avian) flu viruses can spread with alarming speed. So can BSE and foot and mouth disease.

- The threat of international contagion in financial markets. Manias and panics, irrational euphoria and despondency are but a phone call, news flash, blog posting, chat-room exchange or e-mail message away.
- Crime (the drugs trade, money laundering, trafficking in humans, tax evasion) has become a global industry.
- Terrorism has become a global threat perpetrated by loose global networks of terrorists and those who support them.
- Threats to national or regional cultures and identities are (perceived to be) posed by a global culture of consumerism that spreads rapidly through the mass media, including the internet, and through mass tourism.

While globalisation, like any form of technical progress or productivity growth increases the size of the global pie, the distribution of the additional pie can be highly uneven. Indeed some people, groups, regions or countries could be worse off than they were before globalisation struck. Whether the potential Pareto improvement permitted by globalisation is translated into an actual Pareto improvement depends in the willingness and the ability of the winners to compensate the losers. This is determined by politics and institutions, not by disinterested Platonic guardians.

With globalisation, the span of many key markets exceeds that of any national or regional economy, even the largest ones. Regulation and supervision of markets and institutions, including financial markets and financial institutions continues to be nation-based. International financial institutions like the IMF have become largely irrelevant to the operation of the global financial system as a whole, and only play a meaningful role in those few emerging markets and developing countries that do not have access to the

financial markets on commercial terms. The WTO, which has the key role of spreading a multilateral, most-favoured-nation-based trading system, has become bogged down in the swamp of apparently irresolvable, multi-cornered conflicts between the US, the EU, the BRIC countries, the Cairns Group, the BRICS and the poorest developing countries. Innovation in financial instruments and in the enterprise forms creating and trading these instruments has outstripped the capacity of the regulators and supervisors to understand and monitor them, let alone supervise or regulate them. Shocks to these markets and in these markets need not have their origin in national or regional policy actions or other events.

In speculative asset markets, market-originated shocks will often take the form of the emergence or resolution of market anomalies. The global tech boom and bust that crashed at the end of 2000 are one example. Extremely low long-term risk free real interest rates since 2001 are another. Abnormally low volatility and credit risk spreads and since 2002/3 are a third.

In markets for globally traded goods and services, the shocks can reflect such ‘supranational’ events as the collapse of the Doha round and the increased risk of more protectionist national economic policy orientations, or even of regional or global trade wars. The global oil market is an important source of shocks to national and regional economies; supply restrictions are, of course, most of the time due to national policy decisions. This is not true for another important kind of global supply shocks: *pandemics*. Avian flu is not as high on most people’s list of worries as it used to be, but its threat has not gone away and could materialise at any time anywhere in the world, and become a global pandemic at very short notice. A final global risk worth pointing out is

that of a major adverse supply shock in the form of an environmental calamity associated with global warming or rapid global climate change more generally.

The timing of *pandemics* and of *economically damaging global climate change* is very hard to predict with any degree of confidence, although the odds on these calamities materialising sometime during the next two or three decades are likely to be close to 100%. Leaving them aside (lack of expertise is a sufficient reason), I would like to look in some greater detail at two other likely sources of global shocks that could precipitate a serious global slowdown: shocks originating in the global capital/financial markets or in the global governance framework for trade in agricultural goods, manufactures and services.

The international financial markets as a source of instability and of shocks

The international financial markets are a natural place to start looking for possible sources of trouble because of the massive expansion of global financial intermediation. A bewildering array of new financial instruments, some simple and exchange-traded, some ‘designer’ OTC-traded contingent claims of such complexity that even their creators do not understand them and cannot price them properly. Many new financial institutions, from a wide range of macro hedge funds to specialised investment boutiques have sprung up. This development has greatly increased the scope for global risk trading.

When financial markets and institutions work properly, risk trading results in the non-diversifiable risk being borne by those most willing and able to bear that risk. When markets do not work properly, risk ends up being born by those willing but not

necessarily able to bear it. There may be many causes behind such misallocation of risk. People make honest mistakes, especially when dealing with financial instruments or contracts they don't fully understand. There is a non-negligible quantum of hubris found among the leading financial market players, frequently combined with a complete lack of knowledge of relevant historical episodes that could serve as green, amber or red lights. Long Term Capital Management is an example of what can go wrong when intellectual hubris causes Nobel prize winners to believe the hype of the hedge fund marketing machines and to forget the footnotes attached to the papers they wrote before they became gods. There is the possibility of dishonesty and fraud (Enron). Most important, there are key institutional features of private financial markets that encourage *fully informed* and privately rational but socially excessive risk taking.

One such institution is limited liability – a legal feature of corporate entities that has many advantages. One disadvantage it has is that it skewed the pay-off function of the agent towards greater risk taking than is optimal from the point of the principal. Asymmetric information provides many other channels through which excessive risk-taking by agents is encouraged. Explicit or implicit guarantees of a bail-out with public funds (Crédit Lyonnais) or with private funds and public facilitation, coordination or arm-twisting (LTCM) cause financial institutions that are too big or too well-connected to fail to engage in excessive risk taking create incentives for excessive risk taking.

Traders and investment managers often have short tenures with any given employer. If the expected holding period for a financial instrument is longer than a couple of years, the person responsible for putting the position on the books may well be gone by the time the chickens come home to roost. Contracts for traders and others

making investment decision do not contain many enforceable clauses permitting the success or failure of the former employee's past investment decisions to be visited on him/her after she has left. Reputation is a deterrent to excessive risk taking, as it sticks to the employee for as long as the market has a memory for such things, but it cannot fully neutralise the incentives for excessive risk taking inherent in the most common financial market principal-agent set ups..

We therefore have a situation where contingent claims markets are often used not to hedge risk, but to actively seek and take on risk beyond what is socially efficient. Indeed, some contingent claims markets are equivalent to pure lotteries that do not trade any existing fundamental risk, but create additional 'quasi-fundamental' risk, just like a regular lottery or a game of chance or other form of gambling. When this inefficient risk trading and risk creation leads to default, further real costs are imposed on the system. Thus real-world risk-trading in financial markets can end up not just allocating a given quantum of non-diversifiable risk inefficiently, it may create additional non-diversifiable risk where no such risk would have existed but for these risk-trading activities. When such risk-seeking and risk-creating behaviour is combined with an almost complete lack of information by the monetary, regulatory, supervisory and fiscal authorities as to who owes what and to whom, a highly vulnerable financial superstructure has been created, whose fragilities risk being visited on the world at large.

What I have described here is of course not all that the new (or the old) contingent claims markets achieve. There is a lot of proper risk trading that enhances the efficiency of the global allocation of resources. It is my extremely subjective judgement, that the positive aspects of the explosion in risk trading of the past 15 years or so is welfare-

improving during normal times, including episodes of mild crisis. It does, however, increase the likelihood of the occurrence of abnormal times, that is, of severe crises, and may well deepen such severe crises when they occur.

Likely global financial market shocks

The most likely candidate for a global shock originating in the financial markets is, since the restoration of more reasonable valuations for equity following the bursting of the tech bubble in 2000/01, a restoration of long-term risk-free interest rates (nominal and especially real) and credit risk premia to more normal and appropriate levels. The jittery period for financial markets in May and June 2006 can be seen as a foretaste of what is to come. The normalisation, when it occurs, will be characterised by declining bond prices, weaker equity markets (with increased equity risk premia offsetting the impact on stocks of a lower risk-free rate) and increased credit spreads across the board. Since its impact is global, it has no obvious implications for the currencies of the major industrial countries

The driver of this financial market upheaval will be a reduction in risk appetite across the board. This could be triggered by a major credit event anywhere in the world, by a political crisis or indeed by an unexpected slowdown in one of the key regional economies: the USA, the Eurozone, Japan or China. The trigger need not be a sovereign debt crisis or default. The financial collapse of a private firm whose name has global resonance could provide the trigger. Even the failure of a prominent investment bank or hedge fund could provide the trigger.

If the next global slowdown is triggered by a normalisation of risk-premia and of long-term interest rate levels, it will have its most adverse effects on countries that have benefited most from the asset market anomalies of the past 5 years. That means, first, countries with a very large stock of public debt and/or very large public sector deficits (Italy, Greece, Hungary). Second, countries with a large stock of foreign-currency-denominated external debt, public or private and/or very large current account deficits (e.g. Iceland, New Zealand, Australia, Turkey). Third, emerging markets that are heavily engaged in the international financial markets – the main beneficiaries of the spread-tightening of the past five years; this includes Turkey, Brazil, South Africa and India, but not China.

Likely global trade shocks

Increased protectionism, which could escalate into open trade warfare is another key global risk. While it would hurt most countries, it would be especially costly for countries whose growth has been driven to a large extent by rapid export growth. Here China and Vietnam are clearly vulnerable.

Detailed and deep knowledge of the key national economies will remain an essential element in our understanding of national, regional and global economic performance and risks. It will, however, have to be complemented with the systematic study of global markets and other economically relevant global institutions and arrangements, lest we miss some of the more likely sources of global shocks and risk.

2. How the Fed lost the plot: causes and consequences

Just to underline the continued importance of country-specific knowledge of institutions, laws and policy makers, I now turn to my third likely cause of a future global recession: past, present and anticipated future policy errors by the Fed, causing a much sharper than currently anticipated slowdown, indeed a recession, in the USA. This recession then spills over into the global economy, both through the direct effect of high US interest rates on debt service burdens in emerging markets and through activity spillovers across the world.

Attributing a non-negligible probability to this scenario is quite consistent with the proposition that the most likely scenario for the global economy during the next two or three years is one of continued de-coupling of US and global economic activity. De-coupling does not mean that global activity is independent of US economic activity. Clearly, an unexpectedly severe slowdown in the US will dampen global economic activity relative to the counterfactual. It need not dampen global economic activity in a time-series, that is, before and after, sense.

De-coupling means average global economic activity (including that in the US) may hold up well even when the US slows down significantly. Statistically this means that other countries/regions expand faster at the same time that the US slows down. For this to be possible, all that is required is that the business cycles in the key global regions (US, EU, Japan, China and the other BRICS) are not perfectly synchronized. The US is just under a third of global economic activity at market exchange rates, about a quarter at PPP exchange rates. The rest of the world is therefore certainly large enough to make de-coupling a logical possibility. I also believe that de-coupling is a practical possibility and that such a development is now quite likely.

The Fed finds itself in the unenviable position of having to choose between losing its core credibility as a central bank, that is, its reputation for being serious about inflation - with long-term adverse consequences for the US economy - or retaining its anti-inflationary credibility by engineering a swift further increase in the Fed Funds rate, of between 50 and 100 bps, in order to bring inflation back under control.

In one brief sentence: the Fed has lost the plot. It has let inflation get away from it. I believe that the true inflation picture is much worse than the Fed's focus on core inflation permits them to see. Chart 1 shows the behaviour of headline inflation and core inflation (headline inflation stripped of its food and energy components) for the Personal Consumption Expenditure deflator. It shows headline inflation running at around 3.5% per annum for the past 12 months or so. Core inflation on the PCE deflator definition has been running at just over 2 % per annum for the past two years or so, edging up recently towards 2.5%.

Chart 1 here

Chart 2 shows the behaviour of headline inflation and core inflation for the CPI, a better proxy for the cost of living index than the PCE deflator in my view. Headline CPI inflation has averaged 4% for the past year. Core CPI inflation is creeping up towards 3%.

Chart 2 here

I believe that (a) the Fed will see that its focus on core inflation is indefensible when there is a large change in the long-run relative price of core and non-core goods and services, and that (b) the Fed will consequently realize that *medium term (CPI or PCE) headline inflation* – the measure in terms of which it should define its operational

inflation target - is much above core inflation. It then faces a choice. In option (1), it says 'aw shucks', and raises rates very little (by 25 or 50 bps) and faces up to living with inflation well above its comfort zone for a long time – possibly for as long as 3 years: once embedded in expectations, inflation in the US tends to be very sticky. Inflationary psychology gets re-embedded in the national mindset, with all the unpleasant consequences this entails. Option (2) has it correcting past errors by cracking down on inflation. Rates would have to rise well above the level of the neutral zone, probably at least to 6.25% for a year or so, if headline inflation is to be brought down to a sustainable level of no more than 2% or just below it within a two-year horizon.

The only way inflation can be brought back into the comfort zone without a significant increase in short-term nominal interest rates in the US would be for the US economy, even without the assistance of the Fed, to tank much more severely than is currently anticipated. The notion that an unwinding of commodity prices, especially oil, will do the job of getting inflation back under control without the need for additional action by the Fed is wishful thinking: possible but not likely.

I believe that, when the Fed realizes the error of its ways, it will bite the anti-inflationary bullet and choose option (2). So wait for the day that Ben Bernanke wakes up in a cold sweat in the middle of the night, because he has just been visited by the Avenging Angel of Erroneous Rationalisation (the Astral Image of Charlie Bean). Having been shown Charts 1 and/or 2, the distraught Chairman shouts: "XXXX, the underlying inflation rate is over 4% pa!" Pass me the Federal Funds Rate!

How did the Fed get into this sorry state? It is, I believe, more than ordinary human error. The roots of the problem lie in some long-standing, structural deficiencies

in the design of the institution and in the way it formulates and implements monetary policy. The Fed has become one of the worst designed and worst-performing central banks among the set of advanced country central banks. There is some competition for this title: the Bank of Japan has only just managed to escape the monetary mismanagement doghouse with the departure of Governor Hayashi. The ECB has a great many flaws and deficiencies, but its job is so much more complex and complicated than that of any other leading central bank, that one has to cut it some slack. The Fed, however, has already been cut all the slack it deserves.

So how did the Fed come to represent the nadir of contemporaneous central banking among the advanced industrial countries?

The Fed's bizarre triad of co-equal fundamental objectives

First, there is the problem of the ultimate objectives of the Fed. I take it as part of the intellectual 'Acquis' that a central bank should have a single overriding or primary objective. This primary objective should be a nominal one. I will take it to be price stability. There can be other fundamental objectives, but the ordering of the price stability objective and all other objectives (employment, growth, the exchange rate, happiness) is lexicographic or hierarchical. The other objectives are to be pursued only *subject to* or *without prejudice to* the primary price stability objective. There are no trade-offs of objectives, even with unequal weights.

From this benchmark, consider the fundamental objectives of the Fed. There are three (primary) fundamental objectives – two objectives too many - and two of the three are incomprehensible. This is a stronger indictment than asserting that two of its

objectives are non-operational. The natural rate of unemployment and the neutral rate of interest are non-operational concepts, but they are useful. The three fundamental objectives are, from the Federal Reserve Act, ‘maximum employment’, ‘stable prices’, and ‘moderate long-term interest rates’. These objectives are not ranked lexicographically or hierarchically. They can therefore be traded off for each other, although the terms of the trade offs are not given in the legislation.

The meaning of ‘maximum employment’ is unclear. The economist’s immediate reaction is: maximum subject to what constraint(s)? It surely does not mean that every man, woman and child in the US should be at work 24/7/365. Price stability is conceptually clear. The inclusion of ‘Moderate long term interest rates’ – an asset market objective - among the fundamental objectives of the Fed is without parallel in any of the other leading central banks. Are we talking nominal rates or real rates? And what is a moderate rate?

Central banks have a sufficiently hard time pursuing a single primary nominal objective. Overloading it with a nominal objective, a real objective and an asset market objective shows a profound misunderstanding of what monetary policy can and cannot deliver. Right from the start, therefore, the Fed and the markets are thrown a curve ball by the legislation establishing it.

The Greenspan ‘put’: giving policy content to the Fed’s asset price mandate?,

One of the most damaging features of Fed monetary policy making under Greenspan has been the ‘Greenspan put’ (see Miller, Weller and Zheng (2002)). There is a widely held view, which I share, that the Fed under Greenspan responded not just

asymmetrically to asset booms and asset busts – there are good reasons for that -, but asymmetrically to a degree that cannot be justified. As regards asset bubbles, the Greenspan Fed argued as follows. (1) They are difficult to identify. (2) Even if you can identify one, it is not desirable to use a fundamental (the Federal Funds rate) to try and puncture or even dampen the bubble. It would take very large increases in rates to have any appreciable impact on asset prices, and such increases would cause significant collateral damage outside the markets where a bubble was in progress. (3) Monetary policy can be used to clean up the mess after the bubble bursts (by cutting rates aggressively).

Against that, I would argue that while it is often difficult to identify a bubble, there have been circumstances where it has not been all that difficult. In 1996 Greenspan used the words ‘irrational exuberance’ to characterize the behaviour of the stock market (Greenspan 2003).¹ He promptly took fright at his own daring and spent the rest of the tech bubble feeding the bubble through speeches and public testimony in which he sang the praises of the new economy and its potential for unprecedented growth of productivity and earnings. Instead of using *open mouth operations* to try and dampen the tech bubble, Greenspan became a leading cheerleader for the tech bubble. Other instruments to address irrational stock market exuberance, like margin requirements, were not even tried. Once the bubble burst, the Fed cut rates aggressively and by 5.50 basis points, from 6.50% in May 2000 to 1.00% in June 2003 (see Chart 3).

¹ Greenspan’s ‘irrational exuberance statement was weak at best. Far from asserting that US stock prices in 1996 were driven by ‘irrational exuberance’, it raised the general, rather academic question of how to identify such episodes and how monetary policy should respond to them. The relevant quote is; “*But how do we know when irrational exuberance has unduly escalated asset values, which then become subject to unexpected and prolonged contractions as they have in Japan over the past decade? And how do we factor that assessment into monetary policy?*”, Greenspan (1996).

Chart 3 here

This reckless cut was way out of proportion to the scale of the problems created by the stock market crash for the real economy. It brought nominal interest rates unnecessarily close to the zero floor at which conventional monetary policy impotence sets in. All this supports the interpretation that the Fed under Greenspan was concerned about the stock market *per se* rather than about its effect on the real economy, on financial stability or on the inflation performance of the US economy. It will be interesting to see whether this propensity of the Greenspan Fed to bail out owners of ‘outside assets’, such as equity, by putting a floor under these asset prices will survive into the Bernanke era. We may get the test soon, if there is a significant drop in housing prices. As the Greenspan put (an informal public commitment to provide a ‘stop loss’) creates moral hazard which has made the US more prone to asset market bubbles, I hope and expect that Greenspan’s stock market put will not be echoed by a Bernanke housing market put.

There is the intriguing possibility that Greenspan’s keenness to put a floor under stock market prices is an operational expression of the asset market mandate of the Fed - its duty to pursue ‘moderate long term interest rates’.

The absence of any quantitative operational objective(s) for monetary policy

Few things assist the private sector (both the financial market operators and those engaged in the labour markets and the markets for real goods and services) more in informing their expectations about the future path of interest rates and prices than a clear, numerical operationalisation of the concept of price stability, and a credible commitment

by the central bank to pursue this numerical inflation target as its primary policy responsibility. The Fed has no operational numerical inflation target, or anything like it. Instead there is the Fed's 'comfort zone', which is allegedly somewhere between 1 and 2 percent inflation on the core PCE deflator measure. This is not helpful in guiding private sector expectations about future Fed behaviour. We know more about the location of the Fed's comfort station than about the location of its comfort zone for inflation. A key input is missing from among those required to create a mapping from past, present and/or anticipated/predicted future inflation rates relative to the Fed's comfort zone into Fed interest rate decisions.

The Fed's dysfunctional version of decision-making by committee

Unlike the Bank of England, the Fed appears to operate under a self-imposed qualified consensus or limited public dissent rule. Votes are taken, and unanimity is not required, but no more than 2 FOMC members at any one time are supposed to vote against the Chairman. While this is better than the ECB's practice of either not voting at all or of voting but not putting the votes into the public domain and then pretending that consensus rules the roost, it limits the information markets receive about differences of opinion within the FOMC - information that might be helpful in predicting future Fed behaviour. The Bank of England is, as far as I know, the only leading central bank where the Governor could be outvoted on a rate decision without this undermining his authority, let alone cause him to contemplate resigning. Individual MPC members voting for their preferred policy and putting these individual votes in the public domain maximises

procedural transparency and provides useful information to the markets about future MPC behaviour.

The Governor of the Bank of England is, in the rate setting meeting, the *primus inter pares* with his own vote and, in case of a tied vote, the casting vote. His position is that of the Chairman of a collegial Board. The Chairman of the Fed (at any rate up to and including Greenspan – the jury is still out on Bernanke) is a near-absolute autocrat whose power and influence over monetary policy (not least through his monopoly control of access to the Board staff and other research-relevant resources) are an order of magnitude greater than that of any other member, including the Vice-Chairman. Effectively the Chairman of the Fed makes US monetary policy with the assistance of the rest of the FOMC.

The ECB is a strange convex combination of the Fed and Bank of England models of authority. The current President thinks he is the apex of a rather steep pyramid, with room for only one at the top. Mr. Trichet's references to himself as 'Mr. Euro' are emblematic of this. While the President of the ECB sees himself as a monetary autocrat in the tradition of Volcker and Greenspan, the rest of the Governing Council of the ECB, both the other five Executive Board members and the 12 National Central Bank Governors, view him as no more than the Chairman of a collegial board. This lack of agreement about where the real power in the ECB lies, and the extent, if any, to which the President can pre-commit in public to monetary policy actions that have not been agreed to in advance by his colleagues on the Governing Council, is one reason for the common communication kerfuffles of the ECB.

The Fed's comparative lack of independence

While within the rate setting committee, the Chairman of the Fed is more powerful than any other governor of a central bank where monetary policy is formally made by a committee, the Fed as an institution is probably the least operationally independent of the leading central banks. The ECB's operational independence is enshrined in the Treaty and Protocol, which have quasi-constitutional status and can only be amended by unanimous decision of all EU heads of state or government (followed by further national parliamentary/referendum-based endorsements). The Bank of England is only an Act of Parliament away from oblivion, but with the Executive always firmly in charge of Parliament, the *de facto* operational independence of the Bank of England, while less than that of the ECB, is considerable.

The Fed is a creature of Congress. Congress is not controlled by the Executive. Past Fed Chairmen seem to have been sufficiently aware of the threat to the Fed's operational independence caused by the presence of neo-populist members of Congress of both parties, that they treat the views of Congress (and even those of its off-the-wall members) on monetary policy with much more respect and deference than they often deserve. There appears to be an unspoken fear that a sufficiently provoked Congress could, in a moment of folly motivated by pique, amend the Federal Reserve Act in ways that would undermine the capacity of the Fed to pursue macroeconomic and financial stability as it sees fit. Sensitivity about interest rate increases in the periods leading up to a mid-term, let alone a Presidential election appears at times to have resulted in rate increases being brought forward or postponed. An operationally independent central bank should, of course, not pay the slightest bit of attention to these electoral considerations.

The relative fragility and weakness of the Fed's independence makes it even harder for it to signal long-term commitment to a verifiable objective, and increases its problems of communicating with the markets.

Fed communication policy: giving guidance about future interest rate levels

The weirdness of the Fed's ultimate objectives, the absence of an operational, numerical inflation target and the very limited information revealed by the Fed's voting record mean that the Fed can really only inform the markets by making public guesses about its actual future interest rate decision. The practice, developed under Greenspan, emulated by the ECB under Trichet's Presidency, but fortunately apparently on the way out under Bernanke's Chairmanship of the Fed, was to give hints, nudges and winks about future interest rates: 'bias to raise'; 'further firming may be appropriate'; withdrawing monetary accommodation.

The Fed's 'gruelling gradualism'

Gradualism should not be a property of a policy that is imposed, *a priori*, as a desirable feature of the central bank's interest rate path. Gradualism may or may not characterise the optimal interest rate path, depending on the nature of the shocks hitting the economy, the monetary policy makers' view of the transmission mechanism and the objectives that are pursued. Other things being equal convex constraints on monetary policy, including convex adjustment costs make for gradualism; lumpy adjustment costs make for bang-bang solutions.

For some reason, when you scratch a central banker, you almost always find a gradualist of the wrong kind – when in doubt, smooth it out. Even a near certain knowledge that the interest rate will have to rise by at least 100bps will, unless there is an extreme emergency, be translated into a sequence of 4 step increases of 25bps each. If big moves are, *cet. par.* frowned upon, reversals (an increase followed immediately or shortly afterwards by a cut, or vice versa) are a complete no-no. That makes it look as though the central bank doesn't know its own mind or doesn't know what it is doing.

The most dramatic, and inappropriate example of excessive gradualism for its own sake, was the sequence of 17 successive 25bps increases in the target Federal Funds rate from 1.00 percent in June 2004 to 5.25 percent in June 2006 (see Chart 3). Such gruelling gradualism implies a significant risk that, if you start behind the curve, you will remain behind the curve for a very long time. That certainly applies to the Fed in the past 2 to 3 years.

The degree of gradualism characterising the Greenspan Fed appears to have been increasing over Greenspan's 18 year tenure as Chairman. In November 1994 there even

was a 75pbs increase in the Federal Funds rate target. The only times since then that the Fed under Greenspan has responded aggressively as regards both the speed and magnitude of interest rate changes has been when asset market collapses were happening or threatening.

Core inflation vs headline inflation

Core inflation is a great measure of inflation if you don't eat and drive, as William Safire put it. I take it as axiomatic that what the authorities are interested in (or ought to be interested in) is headline inflation over the medium term, or the underlying rate of headline inflation going forward. Clearly, to target expected or predicted headline inflation over a medium-term horizon, you have to filter out the volatile and transitory components of the headline inflation process. Volatility and transience/persistence are quite distinct properties of a time series process, but I will not go into the technicalities here.

When will the 'trend' future behaviour of the headline inflation index be best captured by dropping from the index a bundle of commodities (non-core commodities like food and energy) whose prices are historically highly volatile and whose inflation rates may, historically, show little persistence? I will not elaborate the point that the volatility of headline inflation, as measured by the variance of the headline inflation index, is the variance of core inflation (multiplied by the square of the share of core goods in the headline index), plus the variance of non-core inflation (multiplied by the square of the share of non-core goods in the headline index), plus the covariance between core inflation and non-core inflation, multiplied by twice the product of the shares of core goods and non-core goods. Even if non-core inflation is a lot more volatile than core

inflation, the headline inflation could be less volatile than core inflation, if core and non-core inflation are negative correlated. I also will not belabor the implications of the statistical finding that in the US, core inflation does not ‘help predict’ future headline inflation once the information contained in past headline inflation has been used fully. Core inflation, that is, does not *Granger-cause* headline inflation: it has no incremental predictive content as regards headline inflation.

More important for understanding the nature of the Fed’s core inflation whopper is that fact that you don’t try to predict medium term headline inflation from core inflation alone, even when core inflation is historically more persistent and less volatile than both headline and non-core inflation, if there is information (beyond what is contained in past price behaviour), which suggests that there is a persistent and long-lasting relative price change under way between the non-core goods and the core goods and services.

And such a relative price change is exactly what globalisation has been bringing us since the end of the last century, and especially during the global boom that started in 2002/3. The entry of China and other BRICS countries into the world economy lowered the relative price of core goods. The rate of inflation of manufactured goods fell way below the headline rate of inflation as several hundred million newcomers to the global labour market moved from agriculture into manufacturing. The counterpart of this (relative) disinflation of the goods the BRIC countries are producing, is the high inflation of the goods they are importing: energy and commodities, including commodities that have food as one of their alternative uses.

Globalisation therefore brought us high global inflation of commodities and energy (non-core goods) and low inflation, even deflation for a while, for core goods. The Fed's focus on core inflation led it to miss half of what globalisation was doing to global inflationary pressures. By looking at the past and current behaviour of core inflation, the Fed is looking in a distorted rear-view mirror to try and predict the behaviour of headline inflation in the medium term, the horizon over which current interest rate decisions will have a significant effect on headline inflation. The mistake is as serious as it is incomprehensible, especially its persistence in the Bernanke Fed, which is groaning under the weight of some very highly qualified empirical monetary economists.

Conclusion

There are a number of risks surrounding the overwhelming favorable central projection for the global economy in the next two to three years. A global pandemic can occur at any time. The economic consequences of accelerating global warming and climate change are bound to hit us, possibly sooner rather than later, but probably not yet during the current global business cycle. To these two supply shocks can be added the risk of proliferating global trade disputes and the normalization of two key global asset market anomalies – secularly and excessively low long-term nominal and real interest rates and incomprehensible low asset price volatility and credit risk spreads.

To these global origin shocks can be added the risk of the Fed recognizing it has lost the plot as regards the control of inflation and responding to that realisation by raising rates higher than currently anticipated.

The past policy errors of the Fed are partly due to legal and institutional features of monetary policy making in the US. The monetary policy framework of the US is today by far the worst among those found in the leading industrial nations. On top of these institutional, structural problems of US monetary policy, there are a number of key monetary policy mistakes made during the Greenspan years.

Alan Blinder and Ricardo Reis, at the Jackson Hole meeting celebrating Alan Greenspan's 18 years as Fed Chairman, said about Greenspan that "... *he has a legitimate claim to being the greatest central banker who ever lived.*" (Blinder and Reis (2005)).² I consider that statement to be way over the top. Without wishing to go to the opposite extreme and characterising Alan Greenspan as possibly the worst central banker that ever lived, if only because it is hard to trump Victor Geraschenko, who during his first tenure as Governor of the Central Bank of Russia, 1992-94, when hyper-inflation raged, was called by Jeffrey Sachs "the world's worst Central Banker. I would, however, characterise Greenspan as, at best, a mediocre central banker, albeit a lucky one. Perhaps it is better to be lucky than right and wise, although it is hardly a policy.

The hard work, politically and technically, of squeezing inflation out of the system was done by Greenspan's predecessor, Paul Volcker – a true central banking giant. During Greenspan's 18 years in office, the US economy went through only two recessions, on the NBER's quasi-official but wholly arbitrary definition of a recession as two consecutive quarters of negative growth of real GDP (see Chart 4).

Chart 4 here

² Alan Greenspan was Chairman of the Board of Governors of the Federal Reserve System from August 11, 1987 until 31 January 2006.

Greenspan is credited by many for his ‘active learning policy’ concerning the natural rate of unemployment or the path of potential output. He kept monetary policy on an expansionary trajectory even when the unemployment rate fell to levels that by the historical standards of the 1970s and 1980s appeared to be below the natural rate. This ‘probing’ of the natural rate or of the output gap worked for a while. I believe the Fed persisted too long, however, and that we are now paying the price in terms of excessive inflation for a monetary policy that was too relaxed for too long. Also, the amplitude of fluctuations in the real economy remained large, even if the number of formal NBER recessions was low. US Inflation was more volatile and higher on average than that of the other major industrial countries (this remains true if we start the clock with the birth of the ECB in 1999). Greenspan’s policies promoted and prolonged damaging asset bubbles, most recently in the stock market and in the housing market. His willingness to provide, through the Fed of New York, the ‘good offices’ of the Federal Reserve System in the moral hazard-rich and potential conflict of interest-ridden private sector-funded bail out of LTCM, is a financial stability and regulatory black mark. He left his successor a poisoned chalice of an excessive rate of inflation, a bursting housing market bubble, an overvalued US dollar and an unsustainable current account deficit. There is plenty of blame to share for many of these unfortunate legacies, among the Fed, the Executive, the Congress and the American consumer, but the contribution of the Fed was a significantly negative one. I believe that the US economy, and to a lesser extent also the rest of the global economy, will have to pay the price for the Greenspan era for quite some years to come.

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Chart 1
US CPI Headline and Core Inflation

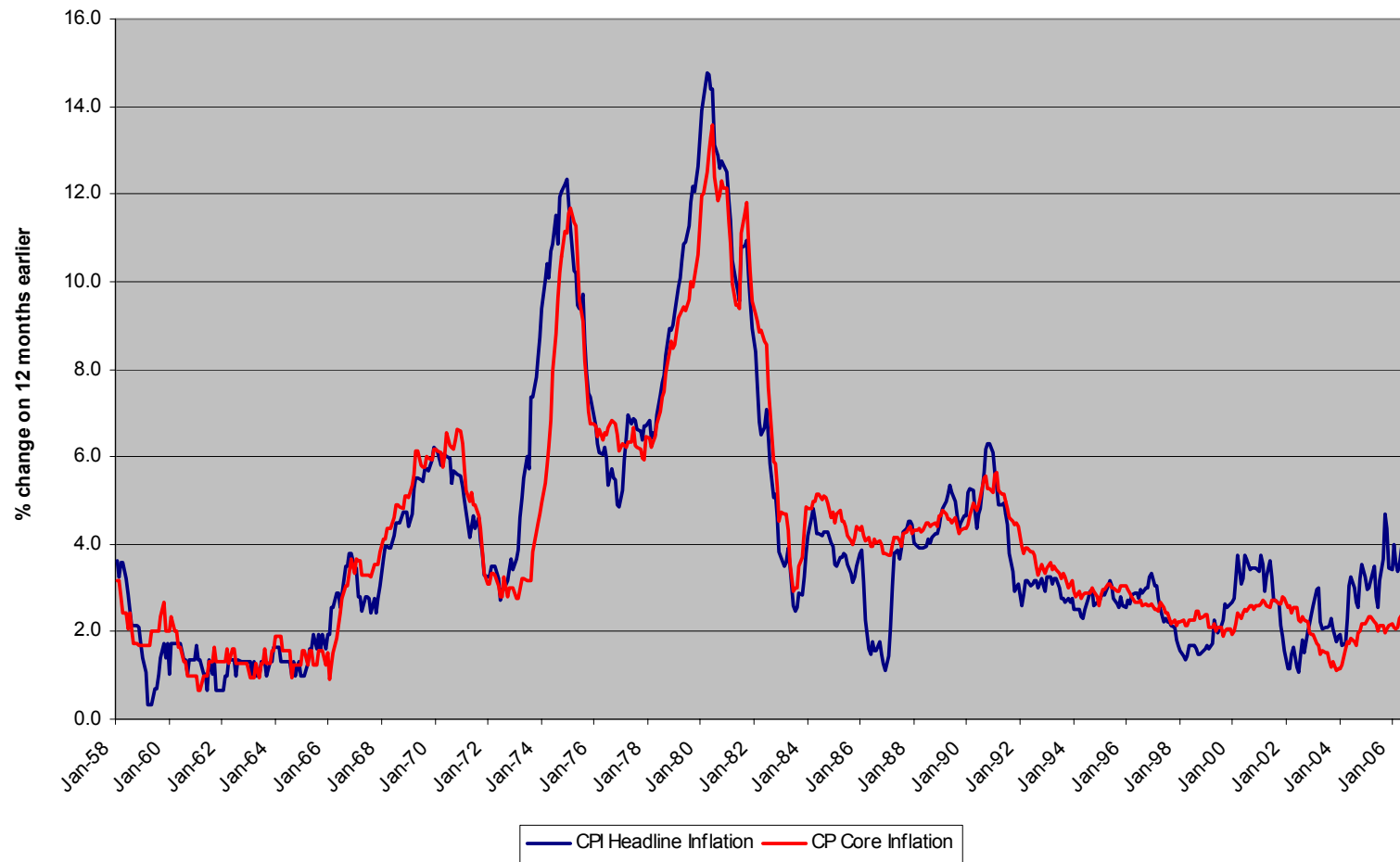


Chart 2
US PCE Headline and Core Inflation

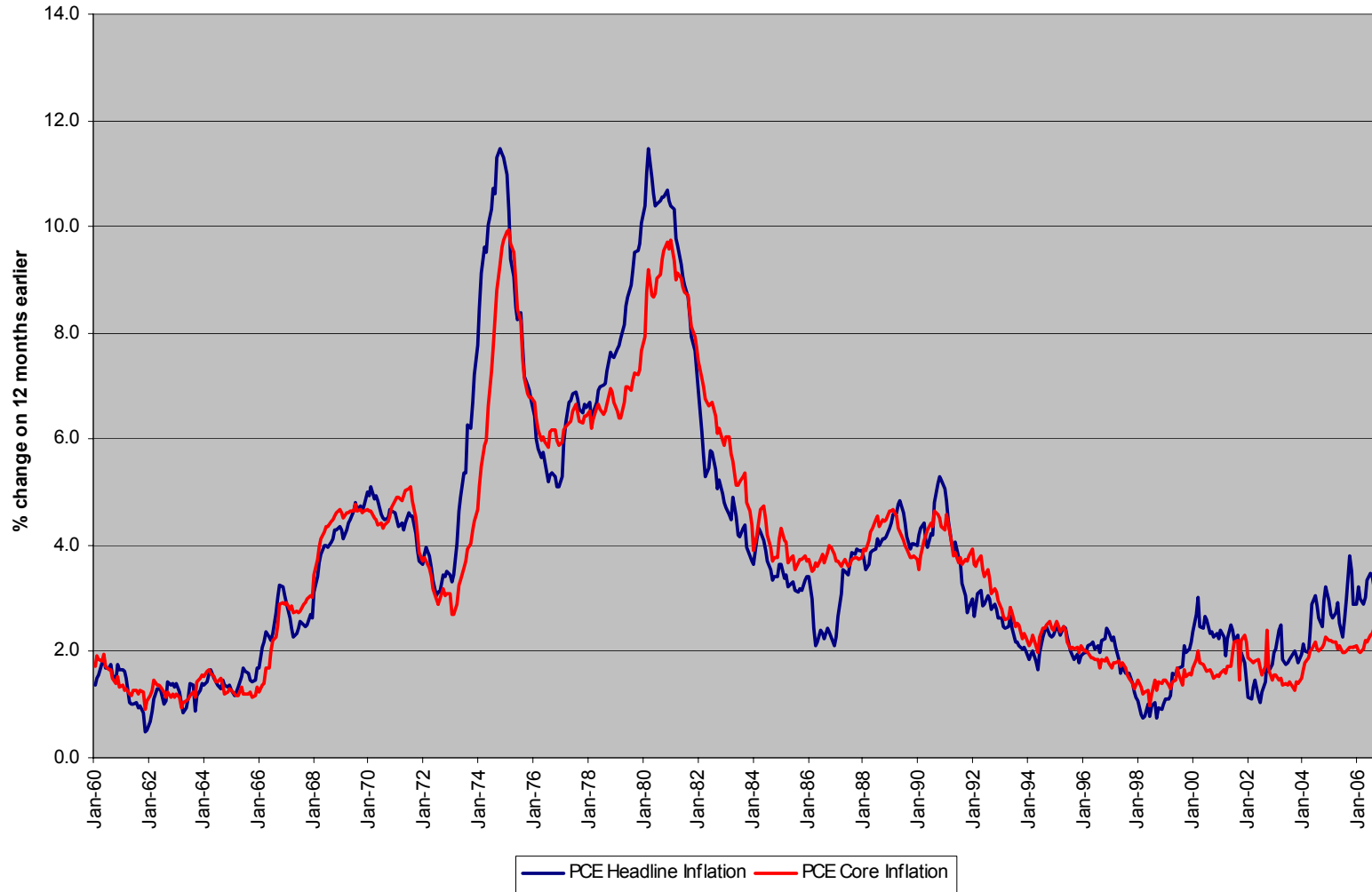


Chart 3
Fed Funds Target Rate, 1984-2006

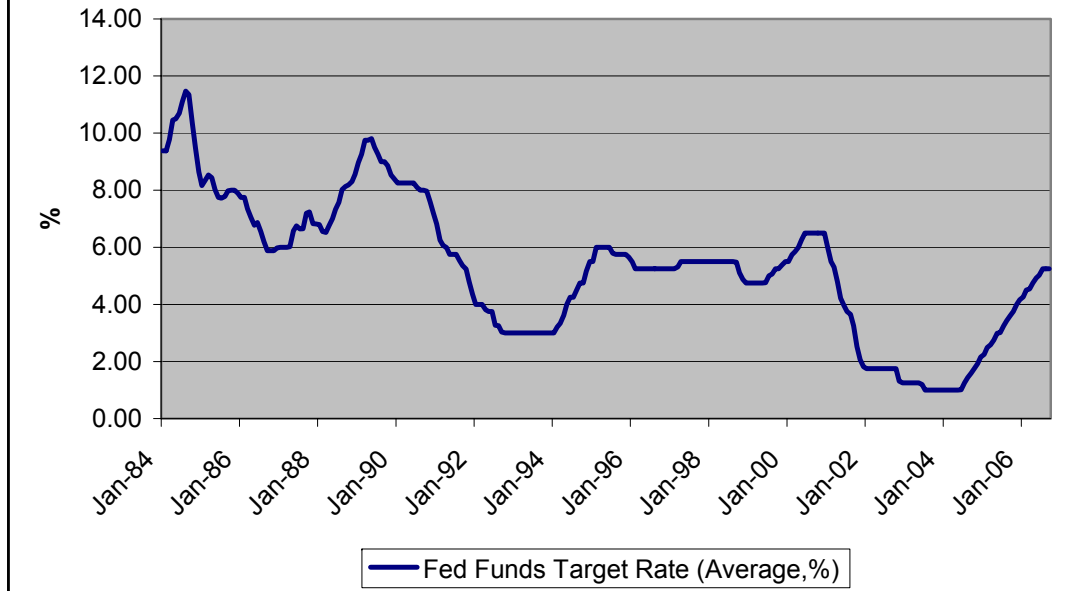


Chart 4
Quarterly Real GDP Growth Rates, SA, Annualised

