

Speech by

ANDREW SENTANCE
MEMBER OF THE MONETARY POLICY COMMITTEE
BANK OF ENGLAND

ENERGY AND ENVIRONMENTAL CHALLENGES
IN THE NEW GLOBAL ECONOMY

British Institute of Energy Economics Sustainable Energy Seminar
BIS Conference Centre, London

21 September 2009

I would like to thank Michael Hume, Abi Hughes and Neil Meads for research assistance and I am also grateful for helpful comments from other colleagues. The views expressed are my own and do not necessarily reflect those of the Bank of England or other members of the Monetary Policy Committee.

I am delighted to have the opportunity to give the keynote address at this seminar convened by the British Institute of Energy Economics. I am also very pleased to be able to give this speech against a much more positive economic backdrop than would have been the case this time last year. Not only have we had a respite from the major financial shocks which hit us last autumn and the year before. But the latest evidence suggests that the UK and other major economies are starting to recover from the deep recession triggered by the global financial crisis.

As growth resumes, attention is now shifting to what the recovery will be like and the challenges it will bring. There are clearly major challenges relating to the financial system and its ability to support a strong rebound in global growth. There are also issues surrounding the way in which global financial imbalances might evolve over the recovery.

But a resumption in global economic growth also poses important energy and environmental challenges. Before the recession, the period of global growth in the mid-2000s saw very strong upward pressure on energy prices and heightened energy price volatility. Indeed, energy price volatility has continued through the recession, with the oil price falling back from nearly \$150/barrel to around \$40/barrel earlier this year, before moving up to its current trading level of around \$70. Swings in energy prices have had significant impacts on business costs and consumer price inflation in the UK and many other economies. So one important issue is the impact that recovery will have on the level of energy prices and whether the heightened volatility we have seen in recent years will persist.

On the environmental front, a return to global economic growth will put upward pressure on the output of carbon dioxide and other greenhouse gasses as energy consumption increases. A resumption of global growth will therefore tend to raise emissions, moving them in the opposite direction to the big emissions cuts that will ultimately be necessary to stabilise the global climate. Over the course of the next decade, however, we will need to start to reverse this trend of rising emissions without jeopardising the growth of the global economy and the development aspirations of poorer nations around the world.

These challenges will need to be addressed in the context of the highly integrated global economy which has developed over the last two decades, embracing China, India and many other emerging market economies. The characteristics of this “new global economy” have shaped the recent recession and will have an important bearing on the energy and environmental challenges we are likely to face over the coming recovery.

The “new global economy”

Economists have been talking about the process of globalisation for many decades. Over the last fifty years, flows of international trade and investment have grown steadily in importance in relation to the size of national economies. For example, in the UK, total trade flows – exports plus imports – have risen from about a third of GDP in the mid-1960s to over 60% last year.¹ Over the same period, the growth of multinational businesses has led to increasing investment flows across borders.

But in the 1990s and 2000s, this process of globalisation has deepened and intensified in two critical respects. First, the last two decades have seen the integration into the global economy of many emerging market economies, including China, India, Russia and much of Eastern Europe. Second, the deregulation and liberalisation of financial markets in many countries from the 1980s onwards has created much more globally integrated capital and financial markets, with financial institutions – especially banks – operating on a much more international basis. This deepening of the process of globalisation has given an added boost to the growth of world trade and economic activity. It has also extended the globalisation of markets outside the sphere of trade and into the markets for labour and for capital and finance.²

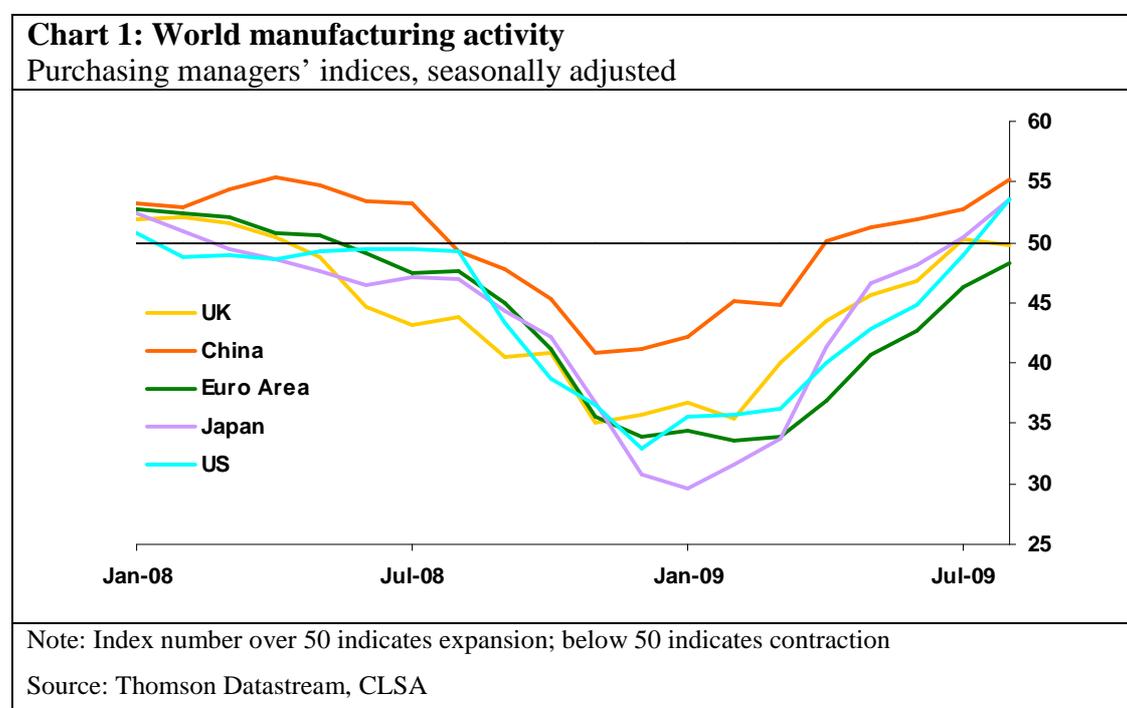
The recession and the period of growth which preceded it has shown this “new global economy” in action and two features of its behaviour have struck me particularly forcefully in my role as a member of the Monetary Policy Committee. The first is the

¹ In the years 1963-67, total UK exports plus imports averaged 33.2% of GDP at market prices. By 2008, this figure had risen to 60.9%. This trade ratio had risen to over 40% in the late 1970s and to around 50% by the mid-1990s.

² See Spange and Young (2007) for a detailed discussion of the macroeconomic impacts of globalisation. Sentance (2009) also discusses the role of globalisation in shaping recent macroeconomic developments.

high degree of interdependence across economies around the globe, which reflects not only traditional trade and investment linkages but also a highly integrated global financial system. We have seen these global interdependencies operating in a dramatic way over the course of the recent recession. At the heart of the recession is a global financial crisis triggered by bad lending in the US mortgage market. But these financial problems have had a much more significant and widespread impact because they have been transmitted to banks around the world through a highly complex and integrated global financial system.³

Last autumn and earlier this year, we have seen another aspect of this high degree of international interdependence at work. The negative shock to business and consumer confidence associated with last autumn's financial turmoil has been transmitted around the world and across sectors by the highly integrated global supply chains which now exist in the production and distribution of manufactured goods, stretching from the US and Europe to Asia and back again. The initial downturn in demand also triggered a global stock cycle which has amplified the cutbacks in production in many key sectors of manufacturing, such as the motor industry.



³ See Hume and Sentance (2009) for a more detailed discussion of the global credit boom from the mid-90s to mid-2000s and its macroeconomic causes and consequences.

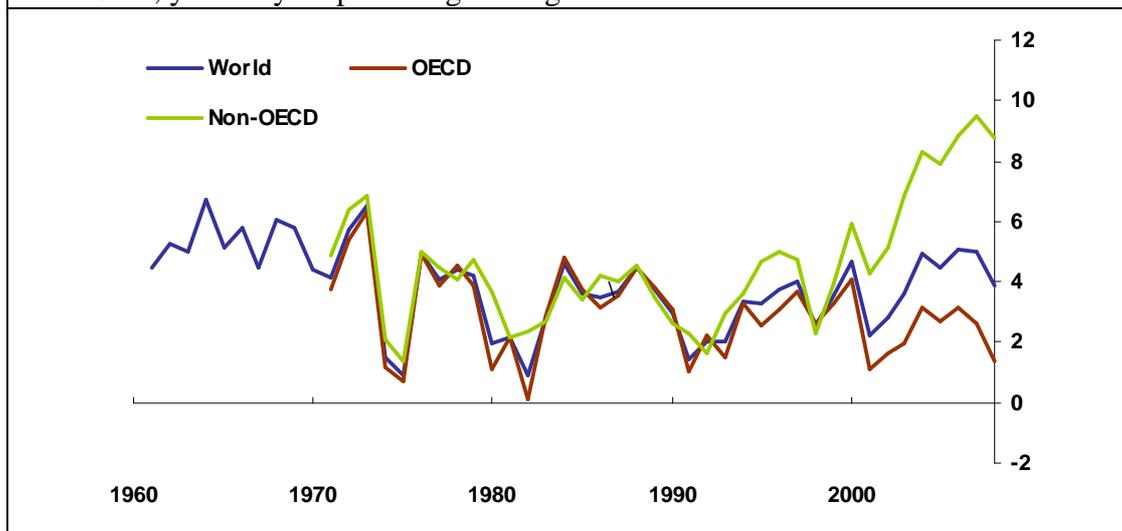
Chart 1 shows this very clearly. Indicators of manufacturing activity have moved very similarly across economies during the current recession, across all the major regions of the world economy. In all economies, the sharpest declines in output were seen around the turn of the year, since when the downturn has eased. The most recent surveys indicate either a stabilisation in output or a return to growth. But in the last quarter of 2008 and the first quarter of 2009 almost every major economy in the world experienced sharp falls in GDP driven by falling trade and manufacturing activity.⁴ This synchronisation in the economic cycle has been much more pronounced in this recession than in previous global downturns in the mid-1970s, early 1980s and early 1990s.

A second key feature of the new global economy, which flows from this high degree of interdependence, is how it has changed the way growth and inflation respond to relatively strong demand in national economies. In the 1990s and 2000s, the relatively plentiful supply of low-cost manufactured goods from China and other emerging markets dampened the inflationary response we might otherwise have seen from the strong growth of demand in the United States and some other economies. Economies experiencing buoyant demand conditions, supported by the global credit boom, were more likely to see this reflected in a deteriorating external balance rather than strong domestic growth accompanied by inflationary pressures.

⁴ China and Australia were notable exceptions, though both of these economies experienced sharp slowdowns. All the G7 economies experienced sharp falls in output in Q4 2008 and Q1 2009.

Chart 2: World Economic Growth, 1960-2008

Real GDP, year on year percentage change

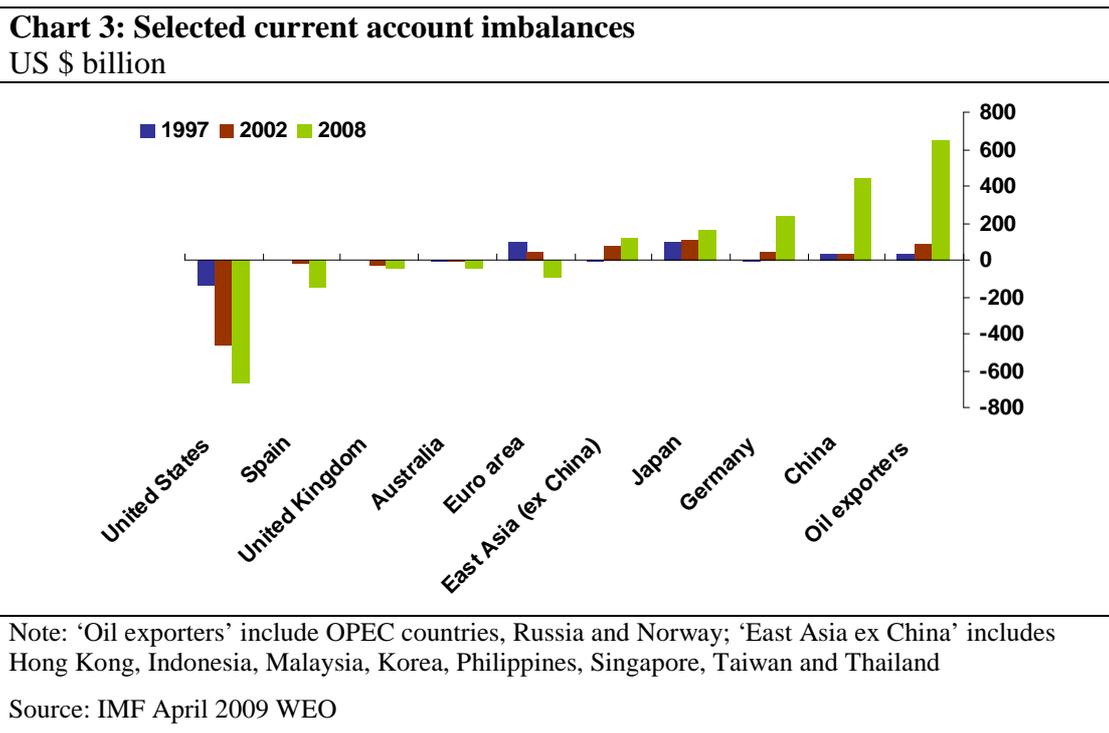


Note: GDP measured at market exchange rates

Source: IMF, OECD, Bank calculations

This changing response of the pattern of global growth to rising demand can be seen clearly in Chart 2. The financial excesses in the United States and some other countries were not reflected in particularly strong GDP growth in the US or other advanced economies. Rather, strong growth was experienced in the emerging and developing economies. As the chart shows, this created a divergence in growth between the advanced economies and the non-OECD world which was unprecedented in post-war economic history. This strong growth in developing countries and emerging markets did not simply reflect the dynamism of Asia, but a strong performance from economies in the Middle East, Africa, Latin America and Eastern Europe as well.⁵ Upward pressure on the price of energy and commodities in the mid-2000s created a positive feedback loop from strong global growth which benefited countries and regions which were major producers of these primary products.

⁵ See Sentance (2008) for a more detailed discussion

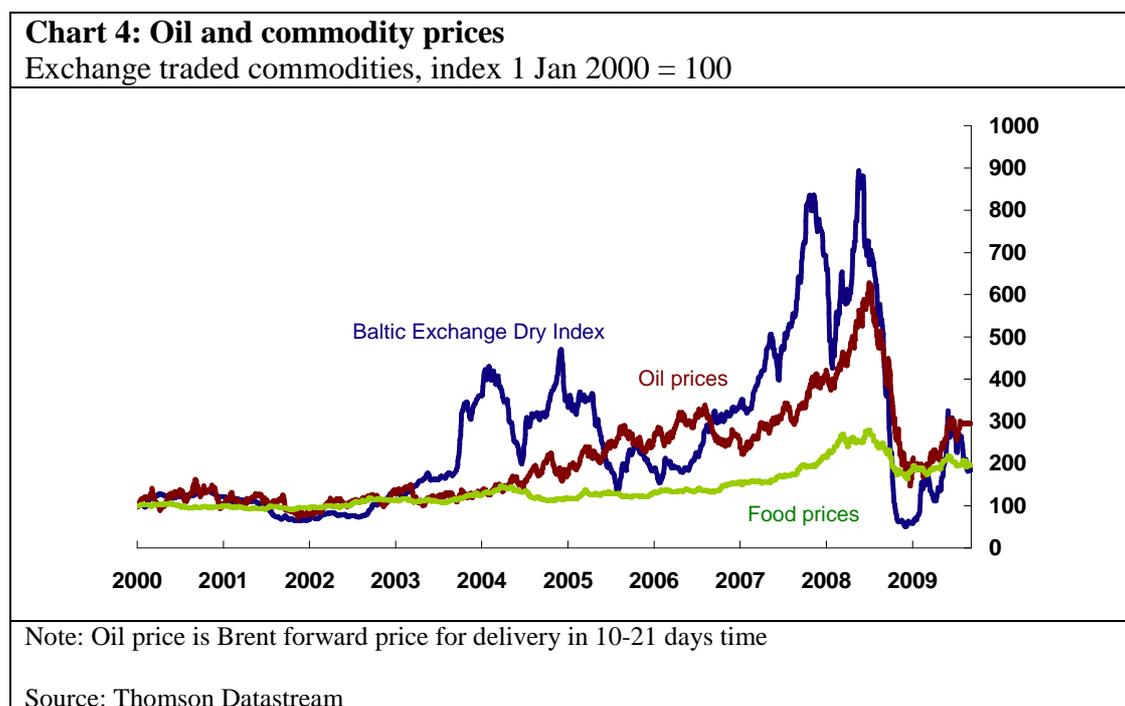


One consequence of this pattern of growth was the emergence of global imbalances. As Chart 3 shows, the United States in particular experienced a significant deterioration in its current account position – reflecting its position at the epicentre of the global credit boom. To a much lesser extent, there was a shift into deficit in other advanced economies. The counterpart of these deficits was the emergence of large surpluses in China and for oil producers.⁶

Another consequence of these growth spillovers in the “new global economy” of the 1990s and 2000s was to dampen the response of monetary policy to the growth of credit and domestic demand. Strong demand in the United States and some other economies over this period generated strong output growth overseas rather than at home. The normal channels through which demand generates inflationary pressure – as a result of higher activity putting pressure on capacity and labour costs – were not operating in the way in which they might have done in the past. Instead of boosting growth and inflation domestically, these demand pressures spilled over into stronger global growth by boosting output in emerging markets and developing economies.

⁶ See Astley, Giese, Hume and Kubelec (2009) for a recent discussion of the evolution of global imbalances and their relationship to the current financial crisis

It might be argued that the non-OECD economies which were benefiting from strong global demand conditions might have compensated by tightening their policies. But many of these countries had other macroeconomic objectives – including boosting growth and maintaining exchange rate stability. So it is not perhaps surprising that such a response was not forthcoming.

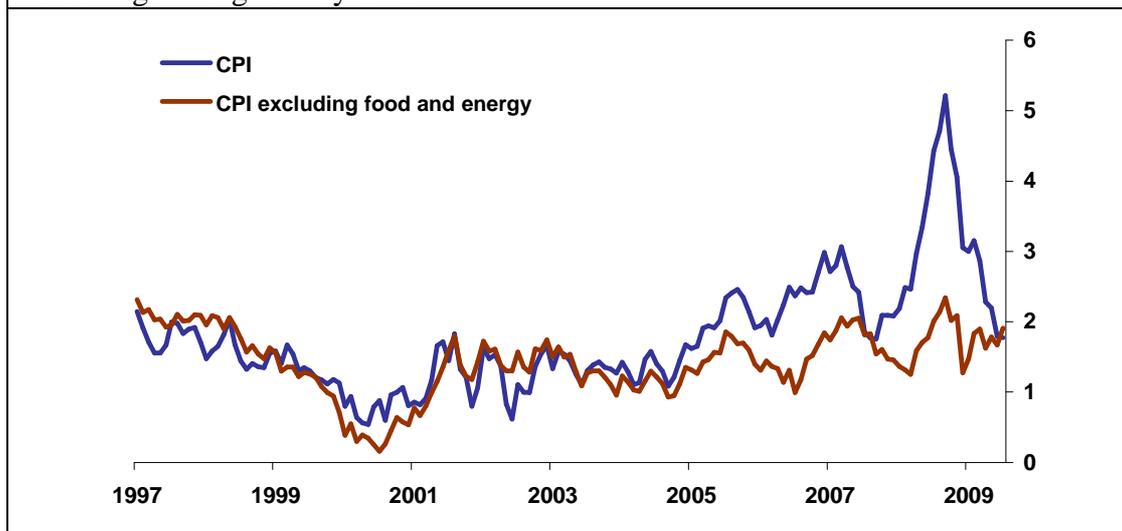


What we did see, however, in the mid-2000s was strong upward pressure on oil, other energy prices and commodities more generally, as Chart 4 shows.⁷ Not only was the general direction of these prices upwards – until the second half of last year – but there was also exceptional price volatility. The upward price pressure has abated significantly since the middle of last year, when the oil price reached a peak of nearly \$150/barrel. But energy and commodity markets have remained relatively volatile.

⁷ The Baltic Exchange Dry Index shown in Chart 4 is a measure of bulk shipping costs which has closely reflected pressures in commodity markets in recent years.

Chart 5: UK consumer price inflation, 1997-2009

Percentage change on a year earlier



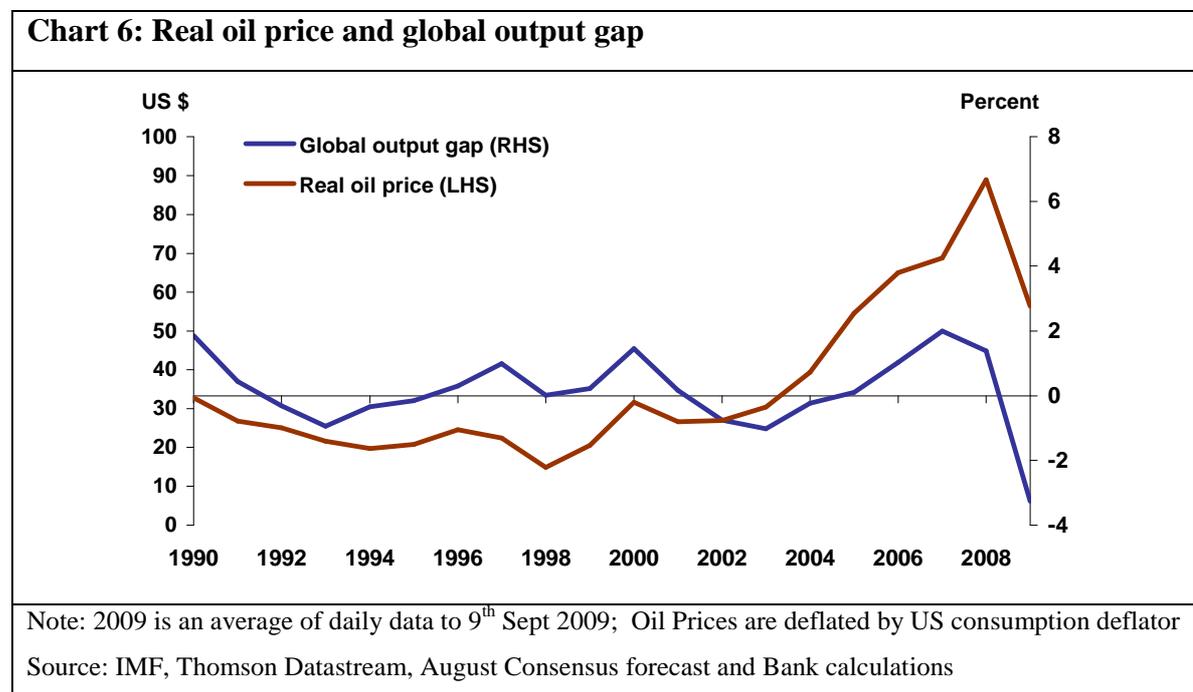
Source: Office for National Statistics

This global price volatility led to fluctuations in inflation in the UK and other major economies. As Chart 5 shows, without the impact of food and energy prices, which are heavily influenced by global price developments, UK CPI inflation would have stayed very close to the two percent target in the last few years. But the result of food and energy price movements has been to send UK inflation on a giant rollercoaster – up to over 5 per cent about a year ago, and back down below the target more recently as petrol and domestic energy prices have dropped back from their peaks last year.

To sum up, therefore, the task of managing inflation has become more challenging for national monetary authorities in the new global economy of the 21st century. The close correspondence which used to link domestic demand conditions, national economic growth and inflation has been weakened through the increased propensity of demand to spill-over and support growth elsewhere in the global economy. At the same time, we have seen heightened volatility in both growth and inflation at the national level driven by global developments. Later on, I want to come back to the question of whether this is the new normality. But, first, I would like to discuss some energy and environmental challenges posed by the new global economy we now inhabit.

Energy prices

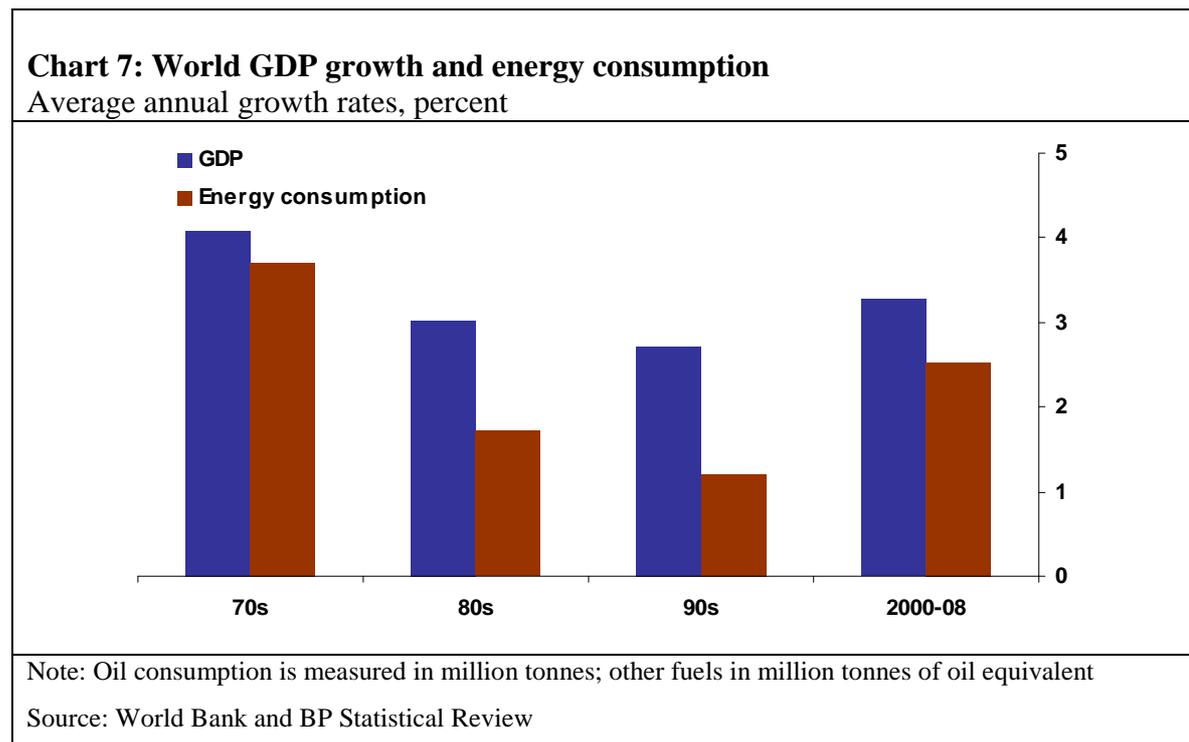
On the energy front, a key issue is what might happen to both the level and the volatility of energy prices once the recovery gets into its stride. Chart 6 shows the level of the real oil price over the last two decades alongside the IMF’s measure of the “global output gap” – the level of global GDP relative to underlying capacity. This measure suggests that in 2007 and 2008, world output was significantly above capacity but that position has been rapidly reversed as the global economy moved into recession in the second half of last year.



In the 1990s and very early years of this decade, fluctuations in global capacity appeared to be associated with a real oil price in the range of \$15-30/barrel, once we adjust for inflation. But that relationship appears to shift as we move into the mid-2000s. It is very striking that even with the high degree of spare capacity in the global economy at present, the oil price is trading at around \$70/barrel. Other energy prices – including gas, coal and electricity prices – are also remarkably firm given the state of the global economic cycle.

What might account for this upward shift in the real oil price and real energy prices more generally? When oil prices surged in the first half of last year, there was much

discussion about the role of speculative activity in driving the oil market and other commodity prices. Financial markets can certainly play a part in driving short-term price developments. But the upward movement in the relationship between the oil price and global spare capacity shown in Chart 6 looks to have persisted since the mid-2000s and is more likely to reflect market fundamentals – ie the balance between supply and demand.⁸

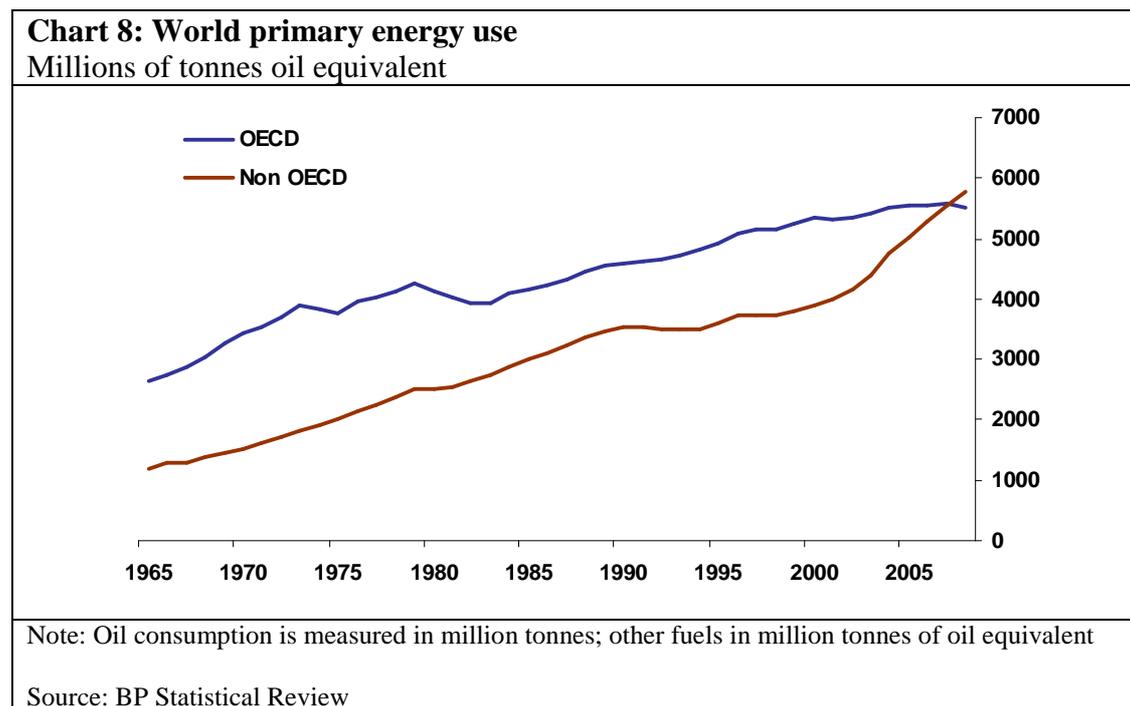


Strong demand has clearly played a part. If we look back at the growth of energy consumption over the course of this decade so far, we have seen the strongest growth in energy consumption since the 1970s, as Chart 7 shows. Growth in energy consumption has also been strong relative to world GDP growth – at least when measured at market exchange rates as shown on this chart. In other words, the energy intensity of economic growth has increased relative to previous decades.⁹

⁸ Saporta, Trott and Tudela (2009) analyse recent oil price movements in detail and conclude that supply and demand factors have been the main driving force, though an asset price bubble cannot be ruled out as a driver of price movements in 2008.

⁹ This shift would appear less pronounced if world GDP was measured at PPP exchange rates (which is the measure shown in Chart 2), as a PPP-weighted measure gives more weight to the strong growth in the non-OECD economies. However, even on a PPP weighted basis, the pick up in energy consumption growth relative to the 1980s and 1990s is much stronger than the acceleration in GDP growth.

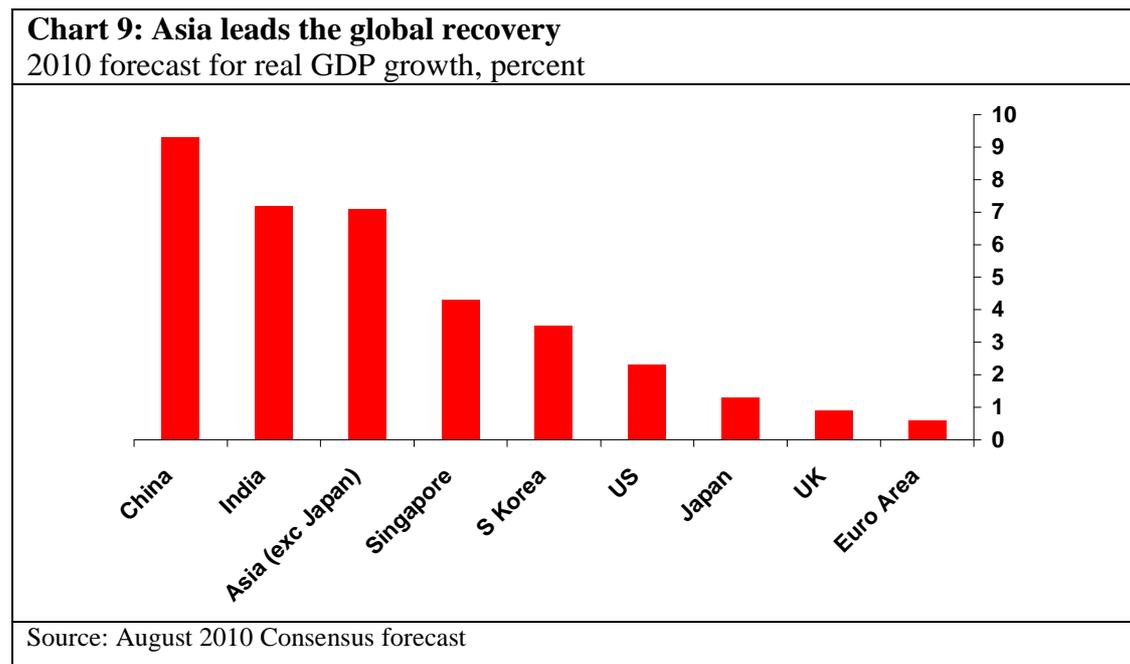
This has happened despite significant rises in the cost of energy since the very early years of this decade. But we should recognise that prices will affect energy demand with a significant lag, as the fuel efficiency of production and consumption is heavily dependent on investment in new equipment. Indeed, Chart 7 suggests that the energy price hikes in the 1970s dampened energy consumption relative to economic growth in the following two decades. So we may see more impact of the current regime of high energy prices on demand in the 2010s and 2020s.



One factor which has been contributing to this rapid growth of energy consumption has been the growth of energy demand in developing and emerging market economies. As Chart 8 shows, the arrival of the “new global economy” which I have described earlier in this speech has been accompanied by a very substantial uplift in energy consumption outside the OECD economies. Energy consumption outside the OECD rose by nearly 50% in the eight years 2000 to 2008. As a result, emerging market and developing economy consumption of energy now exceeds consumption in the advanced OECD economies. This is a sign of the shifting balance of economic power across the global economy.

This shift towards stronger energy demand from the non-OECD economies seems unlikely to be reversed. Indeed, it is likely to be reinforced by the pattern of recovery

that appears to be emerging in the global economy. As Chart 9 shows, forecasts for growth next year show Asia leading the way in terms of global recovery prospects. This view has been reinforced by evidence that Asian economies and some other emerging market economies – such as Brazil – have turned around more quickly than the economies of Europe and North America which have been more directly affected by the financial crisis.



There is clearly a question whether this turnaround in Asian growth can be self-sustaining. In the short-term, policy stimulus from monetary and fiscal measures has played an important part in supporting demand in key Asian economies such as China and India. However, growth should also be supported in Asia by the fact that financial systems, personal and corporate balance sheets and public finances have all been much less significantly affected by the crisis than in North America and Europe. Coupled with strong supply-side fundamentals, that makes me optimistic that growth in Asia can be sustained and become a major engine for world recovery in the years ahead.

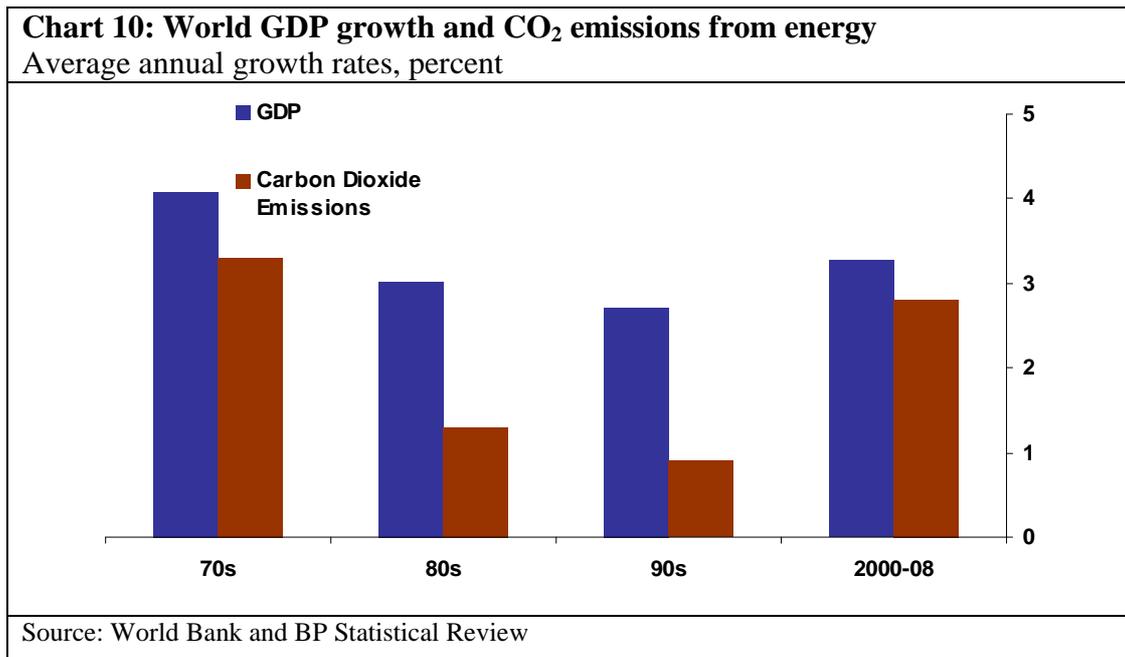
This implies that energy demand – particularly from the non-OECD area – is likely to pick up again as the world moves into a recovery phase. The implication for global energy prices would then hinge on two other factors. First, will global energy supply respond strongly enough to dampen price pressure? And, second, will global

environmental concerns create a strong enough countervailing influence on energy demand?

On the supply side, I am sure there will be a number of positive responses to a prolonged period of high energy prices. More marginal oil fields and other higher cost sources of energy will be developed, including renewable energy. But the investment cycle will take a while to come on stream. And, as recent statements from oil industry sources have suggested, there are many political obstacles and risks associated with the development of new energy sources. The last time we saw a shift towards higher energy prices in the mid-1970s, the higher price regime persisted for about a decade while the supply and demand responses were taking place. A similar timescale would point to a period of high energy prices lasting at least until the middle of the next decade.

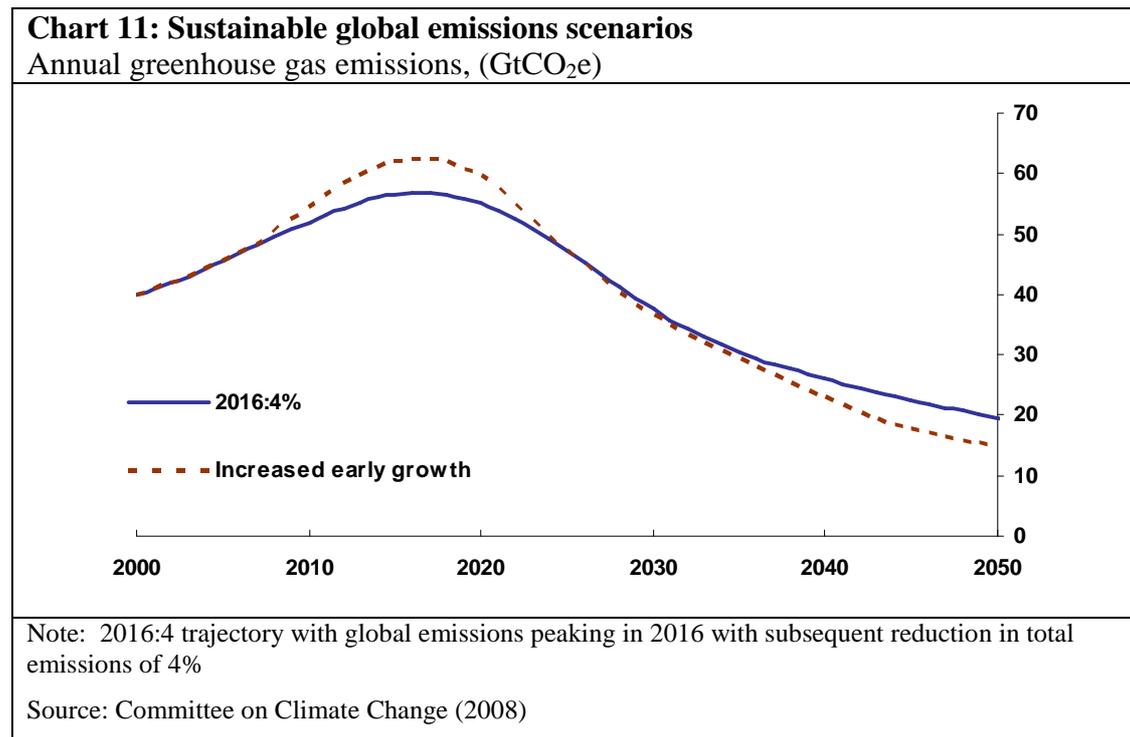
Global environmental challenges

Could moves to tackle global climate change have a limiting impact on the upward energy price pressure from global economic growth? Chart 10 shows the strong growth of energy consumption across the world economy over this decade has also been associated with strong growth of emissions. Indeed, emissions from energy sources have risen faster than energy consumption itself, reflecting a shift to higher carbon fuels such as coal which are used widely in emerging market economies including China.



From an environmental standpoint, Chart 10 is very worrying. Rather than breaking the link between world economic growth and greenhouse gas emissions, at the global level they appear to be becoming more closely correlated. This reflects the absence of a strong political framework to drive the changes which will be necessary to set the major economies of the world on a reduced emissions path. This partly reflects the inadequate coverage of the Kyoto protocol. As we have seen, the rapid energy consumption over the last decade has come from the developing and emerging market economies which did not make substantial commitments at Kyoto. It also reflects the slow progress in developing the policy instruments and policies which will drive the shift to the “low carbon economy” – including carbon pricing, emissions trading and technology policies. Addressing both of these issues is critical to the success of any future international agreement on climate change, and the policies which will flow from it.

For the benefit of our children, their children and future generations, it is to be hoped that genuine progress will be made at the Copenhagen summit at the end of this year. But, allowing for the inevitable lags in agreeing and implementing policies, and the time period it takes to affect investment and technological development in the energy and transport industries which are responsible for the bulk of global emissions, this is unlikely to affect energy demand over the early phases of the global recovery which is now emerging.



The projections made by the UK Committee on Climate Change show this very clearly. As Chart 11 shows, the Committee’s scenarios envisage a peak in global emissions around 2016, followed by significant reductions thereafter. The main variant which the Committee considered in its 2008 report was one in which emissions (and hence energy demand) grew more strongly, not less so, in the period to 2016.

Over time, I believe that the world community will address the global environmental challenges facing it, and the political moves in the last year or two have been consistent with that direction of travel. But the impact of these policies on energy demand and supply will probably not be felt until at least the second half of the next decade.

Conclusions and policy implications

What are the key conclusions and policy implications which flow from this analysis? First of all, let me summarise the picture I have painted in this speech. The “new global economy” – which has come into being in the closing years of the 20th century

and the opening years of this century – poses some key challenges for national economic policymakers. First, global interdependencies mean we are more vulnerable to global shocks of various kinds. We have witnessed this in a very dramatic way in the recent recession. Second, global spillovers have changed the growth and inflation dynamics of national economies. The links between domestic demand, growth and inflation at the national level have weakened and the potential for global volatility to influence the inflation path of economies has increased.

On the energy front, I can see substantial upside risks to prices over the coming recovery as demand picks up across the global economy and Asia plays a leading role in the growth of the world economy. Against the background of supply constraints, this creates the potential for continuing price volatility. I do not see supply developments and environmental policy moves changing the energy price environment which became established in the mid-2000s until much later in the next decade.

In conclusion, I would like to make four broad policy-related comments. First, though I have described a many ways in which the globalisation of the world economy has increased volatility and made national economies more difficult to manage, the solution is not to row back on globalisation. There are clearly aspects of the global economy which need to be better regulated, including the financial sector. But the experience of the dynamic Asian economies has taught us that participation in an open world trading economy offers poorer countries their best chance to raise living standards, improve health and life expectancy, and achieve a better quality of life. As the major economies discovered in the 1930s, a retreat into protectionism is not the right response to increasing global interdependence. And in general it seems to me that policy-makers have resisted the pressure to resort to overt protectionism as a response to the current financial crisis and global recession.

By contrast, in an increasingly integrated world economy, there is an increased need for effective international policy co-ordination across a range of policy areas – including energy and environmental issues – which is the second policy observation I would make. However, achieving policy co-ordination and making it effective is extraordinarily difficult. One factor that can help is to have effective institutions, and

on the economic front there is clearly an important agenda of reform of institutions which were put in place to respond to a post-war economic situation and need to adapt to the requirements of the 21st century economy. It is also to be hoped that the international agreement on global environmental issues which is due to be concluded later this year will have a strong programme of institutional development to underpin it. As we have seen recently, international policy co-ordination can be achieved on an “ad hoc” basis in a crisis situation when interests are well aligned. But over the longer haul it needs a stronger institutional underpinning .

Third, at the national level, we need to recognise that the global economy is an important source of volatility for economic growth and inflation going forward. Indeed, that has been the experience of the MPC which has sought to operate UK monetary policy against the backdrop of the “new global economy” I have described in this speech. For me, recent events have provided a cautionary warning about what monetary policy can and cannot achieve. We cannot isolate the UK economy from major global economic shocks or from global price volatility affecting energy and other commodity prices. What we can do is to ensure that policy interventions are in a stabilising direction and are consistent with the medium term objective of economic growth underpinned by low inflation, which is what I have sought to do as a member of the MPC.

Finally, we should be careful about expecting a return to the apparent “great stability” which characterised the period of the mid-90s to the mid-2000s. This period was shaped by the circumstances of the global economy over that period, as well as by a significant improvement in policy frameworks in many countries in the UK. Recent experience has reminded us that the new global economy of the 21st century is also a potentially volatile place. If stability does return, as I hope it does in the coming recovery, we need to be looking very carefully to see where the next big global shock might be coming from. And the energy market is one of the prime candidates we need to keep an eye on.

References

Astley, M, Giese, J, Hume, M and Kubelec, C (2009), “Global imbalances and the financial crisis” *Bank of England Quarterly Bulletin*, Vol 49, No 3, pp 178-190

Committee on Climate Change (2008), “Building a low-carbon economy – the UK’s contribution to tackling climate change”, December 2008.

Hume, M and Sentance, A (2009), “The global credit boom: challenges for macroeconomics and policy”, *Bank of England Monetary Policy Unit Discussion Paper no. 27*, June 2009

Saporta, V, Trott, ., and Tuedela, M (2009), “What can be said about the rise and fall in oil prices” *Bank of England Quarterly Bulletin*, Vol 49, No 3, pp 215-225

Sentance, A. (2008), “Global inflation: how big a threat?” *Bank of England Quarterly Bulletin*, Vol 48, no 3, pp 339-346

Sentance, A. (2009) “Monetary Policy in Turbulent Times” Speech at the Agricultural Engineers’ Association Annual Conference, London 21 April 2009

Spange, M and Young, C. (2007), “The macroeconomic impact of globalisation, theory and evidence” *Bank of England Quarterly Bulletin*, Vol 47, No 1, pp 40-47