I would like to thank Alex Haberis, Richard Harrison, Amar Radia, Matt Trott and Tony Yates for their considerable help in preparing this speech. The views expressed are my own and do not necessarily reflect those of the other members of the Monetary Policy Committee.
Thank you so much for the invitation to speak to you today.

The first conference at which I ever presented a paper – as a young, nervous economist from the Bank – was at this very annual conference 20 years ago.

It’s a real pleasure to have the chance to speak to you again.

Setting monetary policy in the decade or so prior to the financial crisis must have been a pretty agreeable experience.

In the UK – as in most of the advanced world – this was the heyday of the Great Moderation. Growth was stable. Inflation low and close to target. And the strains on policy were pretty modest.

In the first 10 years of its existence, the Monetary Policy Committee did not change interest rates by more than 50bps at any of its meeting, and over that entire period the policy rate remained within a 4 percentage point range.

How times have changed!

The financial crisis has made far greater demands on monetary policy. Both in terms of the scale of the economic disruptions to which it is having to respond and to the extent to which its policy instruments are being stretched and new ones adopted.

Just as with an Englishman winning the Tour de France and sideburns becoming fashionable again, events and developments which seem farfetched just a few years ago have become commonplace.

Monetary policy has been pushed into situations and actions that were previously unimaginable.

These challenges – and the strains they have placed on monetary policy – provide the focus for my remarks today.

What role is it realistic to expect monetary policy to play – what role can it play - as we try to recover from the financial crisis?

What are the limits of monetary policy?

I want to consider two dimensions of these potential limits.
First, and most broadly, the role monetary policy can play in trying to support a recovery in aggregate demand.

The financial crisis and subsequent recession has increased the focus on using monetary policy to stabilise the economy. In part, this was driven by the well justified fears that the deep recession could lead to deflation. But over and above that, it was a response to the widespread presumption that monetary policy could – and indeed should – play an active stabilisation role. For better or worse, we have come to expect more of monetary policy than simply maintaining price stability.

But the greater the ambition of monetary policy, the greater is the required understanding of the economy: of the shocks driving it; and of the key relationships underpinning its behaviour. Surely one lesson we have learnt from the financial crisis – perhaps the most important lesson - is that economists and policymakers know far less about the economy and its behaviour than many might have liked to believe.¹

What are the practical limits to stabilisation policy when there is so much about the economy we do not, and cannot, know?

The second limitation I want to explore concerns the more specific issue of the potential costs and side effects of running extremely loose monetary policy for a sustained period.

Policy rates in the major advanced economies have been close to zero for over three years. Central bank balance sheets have expanded beyond recognition as policy committees have pumped increasing amounts of money into the economy. And, more recently, a number of central banks – including my own – have provided liquidity and funding support to the banking system on a scale and in a manner that would, in more normal times, have been pretty unpalatable.

Make no mistake, there are strong arguments for all of these actions. Although our economy remains weak, I have no doubt that, had these actions not been taken, it would be in a far worse state today. But prolonged and aggressive monetary accommodation comes with potential costs and risks: to the long-run health and functioning of the economy; and potentially to the role and credibility of central banks.

How much further can monetary policy be pushed until the potential costs and risks outweigh the benefits?

¹ Recognition of this uncertainty has long been a key feature of the Bank’s approach to monetary policy. For example, with the use of fan charts in our Inflation Reports which explicitly depict the considerable uncertainty surrounding economic forecasts.
Limits to stabilising the economy using monetary policy

Let me start with the broader issue of the potential limits to using monetary policy to stabilise the economy when our knowledge of how it works is clouded by uncertainty and ignorance.

An awareness of the limits to our understanding of monetary policy has long been recognised, dating back at least 60 years or so to Milton Friedman (1948).

Taken to its extreme, this viewpoint argues that there is little or no scope for monetary policy to smooth economic cycles. Sticky wages and prices may very well imply the existence of short-run trade-offs between output and inflation. But the complexity of the economy means it is beyond the wit of policymakers to exploit those trade-offs successfully. Trying to do so is prone to amplify business cycle fluctuations rather than smooth them. Friedman’s ‘long and variable lags’ pose a constraint on what policymakers should aspire to achieve.

Under this view, the best that monetary policy can do is to maintain the nominal standard. In modern parlance: decide on your inflation target and dedicate monetary policy to achieving it – on average – over long sweeps of time. Hence Friedman’s k% rule for money growth.

Compared with modern perceptions of the active role monetary policy should play, sentiments such as those underpinning the k% rule seem rather antiquated. Central bankers today are at pains to stress that they don’t focus simply on inflation.

Such sentiments also appear defeatist. Surely we know enough to do better than simply achieve a target for trend inflation?

That may well be right. But you don’t have to look back very far to see what can happen when monetary policy fails to achieve even this seemingly modest objective. In the UK, we saw firsthand in the high and variable inflation rates of the 1970s and 80s, the cost of monetary policy taking its eye off the ball.

The belief that we do know more – that we can do better than simply behaving as inflation nutters – is embodied in modern-day flexible inflation targeting. This gives primacy to monetary policy maintaining low and stable inflation, but posits that policymakers also know enough to have some scope to smooth short-run fluctuations in output.

This seems eminently reasonable and entirely consistent with the broad consensus within the economics profession.
But remember, we don’t fully understand the structure of the economy or the behaviour of households and companies within it. Not even close. And we don’t know the nature of the shocks affecting the economy, even long after they have occurred.

Is there a danger that we might do more harm than good?

I fear that this may sound too cautious, even wimpy. Surely it can’t be that difficult?

Or can it?

One way to illustrate the practical difficulty of making the judgements required to set monetary policy to conform to this modern day consensus is to consider the policy prescriptions implied by a simple feedback rule, in this case the most basic form of Taylor rule:2

\[ i_t = R + \pi^* + 1.5(\pi_{t-1} - \pi_{t-1}^*) + 0.5(y_{t-1} - \bar{y}_{t-1}) \]

The green line in Chart 1 shows the interest rate implied by a simple “plain vanilla” Taylor rule applied to the UK economy. This suggests that – were it not for the zero lower bound – Bank Rate should have been set close to -2% or so in the first quarter of 2012.

**Chart 1: Paths for Bank Rate implied by a simple Taylor rule evaluated under different assumptions (2005 Q2 – 2012 Q1)**

But this policy prescription depends critically on the judgements that are fed into this calibration.

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2 The full definition of the rule, and the various versions of the rule shown in Chart 1, is given in the Appendix.
For example, the basic Taylor Rule implies that policy should respond to the current level of inflation. But over much of the past five years, the UK has been hit by a series of price level shocks, which should affect inflation only temporarily and which the MPC has chosen to look through.\(^3\) That might suggest that policy should feedback from a forecast of medium-term inflation, once such price level effects have dropped out of the inflation calculation. If instead we allowed policy to feed back from the MPC’s forecast for inflation two-years ahead, this would move the implied policy path even lower, to the yellow line.

As you well know, the policy path implied by the Taylor rule also depends critically on the assumed size of the output gap.

The output gap used in the plain vanilla rule has been calculated – as in Taylor’s original paper – by taking deviations of output from its historical trend. Output in the UK is around 15% or so below where it would have been had the economy continued to grow in line with its pre-crisis trend. Hence, the prescription for extremely loose policy.

But a striking feature of the financial crisis and ensuing recession is that it appears to have affected the growth of the supply capacity of our economy as well as demand. Despite the apparent deficiency of demand, business surveys suggest that spare capacity within companies is relatively limited. Unemployment has risen, but by far less than might have been feared given the severity of the recession. The counterpart is that private sector productivity fell sharply and has essentially flat lined over the past couple of years.\(^4\)

If we use an alternative measure of the output gap, constructed by combining a simple measure of labour market disequilibrium with a measure of capacity utilisation within companies, the implied policy path shifts dramatically upwards to the blue line.\(^5\)

The Taylor rule also requires a judgement about the equilibrium level of real interest rates. This embodies all the uncertainty about what is happening on the supply side of economy. It also requires us to make a judgement about the extent to which the crisis has affected the functioning of financial markets. As an illustration, if we used the increase in financial spreads as a proxy for the extent to which policy has had to ease to offset the tightening in credit conditions, we get the brown line.

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\(^3\) For further discussion of these price level shocks and the response of the MPC, see King (2011) and Bean (2011).

\(^4\) For more details on the UK productivity puzzle and the issues it poses for monetary policy, see Dale (2011), Weale (2011) and Miles (2012).

\(^5\) This is just another example of the difficulty of calculating output gaps in real time and the problems this can pose for monetary policy (see e.g. Orphanides (2003)).
By way of comparison, Chart 2 compares the range of policy paths implied by these different versions of the Taylor rule with a very crude estimate of the shadow policy rate set by the MPC, in which I have used a rough rule-of-thumb to convert the estimated impact of the MPC’s asset purchases into an equivalent cut in Bank Rate.6

**Chart 2: Shadow path of Bank Rate and a range of paths implied by a Taylor rule (2005 Q2 – 2012 Q1)**

The estimate of the path of the shadow Bank Rate has been within the range of policy rules for much of the recent period. But that is hardly saying very much given how wide that range has been in recent years. And that is precisely the point! Even trying to calibrate the simplest Taylor rule can lead to vastly different policy recommendations depending on the judgements that are made.

Monetary policymakers face substantial uncertainty. That is not defeatist or wimpy; it is a fact of life. And it needs to be borne in mind when deciding how ambitious we should be in our monetary policy objectives.

Let me bring this closer to home and consider some of the issues currently facing the MPC when assessing the scope for monetary policy to stabilise output.

In days gone by, if one of my predecessors had observed a slowdown in output growth, a natural response might have been to assume that this was likely to increase economic slack and so lower future inflation. The obvious policy response to such a development would have been to loosen monetary policy in order to smooth output growth and keep inflation close to target.

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6 Details of the rough rule-of-thumb are given in the Appendix.
Indeed, UK monetary policy during the Great Moderation can be mimicked quite well by a policy rule defined in terms of keeping output growth close to its historical trend rate.\footnote{This is not meant to suggest that monetary policy was aimed at stabilising real output growth in the Great Moderation. Rather, the nature of the shocks (ie predominantly demand shocks) affecting the UK economy meant that monetary policy for much of this period could achieve its inflation target behaving as if it were trying to stabilise output growth.}

But, as we’ve seen, a defining feature of the UK economy since the financial crisis is that the persistent weakness in output has been accompanied by a long-lasting period of very weak productivity growth, suggesting that the supply capacity of the economy may also have been impaired. This makes judging the appropriate policy response to a slowdown in output growth far more complicated.

Loosening policy further in response to weaker output might well be the right thing to do.

That would be the case, for example, if we judged that growth in supply capacity is not as weak as the available data might suggest. Rather, spare capacity may be exerting only a limited drag on inflation and there is some other explanation for the flat lining in productivity.

It might also be the right thing to do if we judged that the growth in supply capacity had indeed been muted, but that this was largely due to the lack of demand. For example, when demand is weak, many companies are likely to have to devote more resources to finding new customers and pitching for orders to generate the same amount of business. In this case, stimulating additional demand would bring with it stronger productivity growth, and would allow the economy to grow without generating higher inflation.

But injecting additional monetary stimulus when we observe weak output might not be the right thing to do. In particular, if we thought weakness in both demand and supply were being driven by some other factor, perhaps related to our impaired financial system and the sustained period of tight credit conditions. In this case, further demand stimulus may run up against supply capacity relatively quickly and so largely result in higher inflation.

If the handbrake on your car is stuck, putting your foot further and further down on the accelerator won’t get you very far before the car starts to overheat.

A significant element of this thinking is reflected in the forecasts for growth and inflation that the Monetary Policy Committee published last month in its August \textit{Inflation Report}. Even though GDP was expected to grow by far less than its historical trend rate over the next three years, the risks around the inflation target by the end of the forecast period were thought to be broadly balanced. This despite the Committee judging that there is currently a sizeable degree of spare capacity in the economy.
These are difficult judgements and ones that the MPC is having to confront in real time at its policy meetings. There are no simple answers. But the Pavlovian-like response of some commentators to call for more monetary stimulus each time they observe weak growth is not sensible. The extent to which policy should be eased further depends crucially on the reasons why output is weak.

Using monetary policy to stabilise the economy is challenging even in the best of times. The constraints posed by our uncertainty and ignorance should not be underestimated, particularly so when, as now, the performance of the supply side of the economy is highly uncertain. Moreover, there may be little that monetary policy can do to stimulate productivity growth. We need to be conscious of our limitations when setting policy.

Our economy remains weak. Unemployment has edged down in recent months but it remains too high. The onus on monetary policy is to continue to stimulate the economy. But ultimately, our job is to hit an inflation target not a growth target.

**Limits to persistently loose monetary policy**

Let me turn now to the more specific question of the limits to running extremely loose monetary policy for a sustained period of time. How much further can we push monetary policy before the potential costs risk outweighing the benefits?8

It is clear that the financial crisis has taken monetary policy into uncharted waters.

In the UK, as in almost every other advanced economy, the size of the fallout from the financial crisis meant that we quickly exhausted our conventional policy tools. Bank Rate was cut from 5% to 0.5% in the space of 6 months.

We turned next to large scale asset purchases – QE – which we conducted on a massive scale. To date, the MPC’s planned asset purchases amount to 25% of nominal GDP.

There are obviously uncertainties in judging just how effective those actions have been. Some commentators have pointed to the weakness of growth over the past couple of years as evidence that their impact has been relatively limited. But this seems a silly argument. The scale of the headwinds affecting our economy over this period – in terms of the squeeze in households’ real incomes stemming from the rise in commodity and other import prices, the fiscal consolidation, the tightening in credit conditions, and the fallout from the euro zone crisis – has been huge. These headwinds have to be taken into account when assessing the effectiveness of the policy actions taken to offset them. There is a legitimate debate as to exactly how

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8 For a discussion of similar issues, see BIS (2012).

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effective our policy actions to date have been. But I have little doubt that without them our economy would be in a far worse state today.

Most recently, the Bank, together with the Government, has launched the Funding for Lending Scheme (FLS), which provides banks with an alternative cheaper source of funding tied to the extent to which they expand lending to the UK real economy.

I can understand why to some households and companies who have been unable to borrow in recent years this may just sound like yet another in a long line of schemes to get the banks lending.

But the Funding for Lending Scheme is different. It is bigger and bolder than any scheme tried so far to get the banks lending. In terms of the cost at which funding is being made available, the maturity of that funding and, most importantly, the strong price incentives it provides to banks to expand their lending.

By helping to improve the availability of bank lending to companies and households who previously have been effectively starved of credit, it could have a significant effect on demand. Moreover, if some of the recent poor supply side performance of our economy does stem from the constraints on the flow of credit, it may also help to ease that friction.

Of course, the FLS is not a magic wand likely to resolve all impediments to lending growth. Despite the incentives provided by the scheme, some banks may remain focussed on reducing the size of their balance sheet. And even if loan rates do fall, some households and companies may be wary of increasing their levels of borrowing in the current economic climate. But the FLS takes off the table the constraint posed by high bank funding costs. And in my view stands a good chance of making a material difference.

But prolonged and aggressive monetary accommodation, combined with increasingly unconventional policy tools, also comes with potential costs and risks. We need to be alert to those pitfalls when assessing the strain that should be placed on monetary policy.

These costs and risks may manifest themselves in at least three different ways: unwelcome side effects; exit risks; and the impact on our credibility. Let me consider each of these in turn.

Monetary policy, by reducing short term interest rates and improving the availability of credit, encourages households and companies to bring forward their spending. To borrow more and save less. That is exactly what is needed in a period of deficient demand. But there are potential unwelcome side effects associated with a sustained period of loose monetary policy.
For example, a recent literature has highlighted the possibility of a so-called ‘risk taking channel’ of monetary policy.\(^9\) As policy rates are reduced and the yield on short-term safe assets fall, investors may shift their portfolios towards increasingly risky assets. This is perhaps particularly likely to be the case if some institutional investors have to target nominal rates of return in order to match those on their liabilities. This might well be a good thing if risk premia are too high and there is insufficient risk taking. But it could also store up problems for the future. Rajan (2006), for example, argues that this search for yield was a key factor driving the increase in risk taking in the run-up to the crisis.

In a similar vein, QE works by encouraging institutional investors to hold an increasingly risky portfolio of assets. This helps to increase the demand for debt and equity issued by UK companies. But it comes at the expense of increasing the risks borne by key parts of our financial sector.

More generally, the prolonged period of low interest rates and enhanced support may delay some of the rebalancing and restructuring that our economy needs to undertake. Underlying balance sheet problems can be masked, tempering the incentives to address them. Inefficient firms may remain in business for longer and so slow the reallocation of capital and labour to more productive uses. Low interest rates and the associated forbearance might even explain part of the puzzling weakness in productivity.

Monetary policy can and should provide short-term support in times of need, but it must avoid becoming a long-term crutch obstructing the required rebalancing of our economy.

Consider next the possible risks as we begin to exit from this prolonged period of very loose monetary policy.

At first blush moving to a more normal stance of policy as conditions improve appears relatively straightforward. The structure of UK money markets means that we can raise Bank Rate at any point; there is no need for us to first drain the excess reserves held by the banking system.\(^10\) We will be selling the gilts we hold back into one of the deepest and most liquid sovereign debt markets in the world. And we have worked closely with the Debt Management Office to consider how this might be best achieved.

But we should also recognise that we need to sell a huge amount of gilts back to private sector investors: around 40% of the total stock of conventional gilts. That will require a corresponding reduction in the other types of assets held by private sector investors. Achieving this portfolio rebalancing without unsettling the government bond market and, equally important, causing a substantial crowding out of private sector debt will be a delicate task.

Finally, consider the potential threats to the MPC’s credibility.

\(^9\) See, for example, Borio and Zhu (2008). Tucker (2012) discusses the risk taking channel in the context of UK monetary policy.

\(^10\) For more details about how the Bank’s plans to modify the structure of its money market operations as it begins to raise Bank Rate see Clews et al (2010).
The most obvious stems from the inevitable blurring between fiscal and monetary policy when interest rates are close to zero. The purchase of vast quantities of government debt provides an efficient and effective way of injecting into our economy the substantial amounts of liquidity judged necessary to hit the inflation target in the medium term. That is the reason – and the only reason – why QE is being undertaken. But to some observers, QE may look uncomfortably close to monetary financing. The difference will become apparent when we sell the gilts back to the private sector as the economy begins to normalise. But that may well be some way off. And in the meantime, it may look to some a little too convenient that we are choosing to hold vast quantities of government debt at a time when the fiscal deficit remains around post-war highs. However unfounded, those perceptions need to be taken seriously.

More generally, I worry that unless the limits of monetary policy are well understood, a widening gap may develop between what is expected of central banks and what they can realistically deliver. Central banks need to be clear about the limits of monetary policy in order to protect our long-term trust and legitimacy.

Conclusions

So where does all that leave us?

To repeat, the policy actions undertaken by the MPC have played a critical role in stabilising our economy. Those actions may bring with them potential risks and costs, but the risks of monetary inaction at a time when our economy was teetering at the edge of a great depression were far greater.

And there is scope for monetary policy to do more. If the economic outlook deteriorates further, policy can respond. We have not yet run out of road.

But there are limits to how much we should ask of monetary policy.

We need to remember how little we know about the economy and how it works. Beware confident economists.

If output growth remains weak, we will need to assess carefully developments in potential supply as well as demand before deciding how to respond. The rates of growth enjoyed prior to the crisis may not be the correct benchmark for the next few years.

And we need to consider the potential costs as well as benefits of further policy easing. We are in unchartered – and potentially dangerous - waters

Above all, we need to remain firmly focussed on hitting our inflation target.
References


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Annex

The Taylor rule takes the general functional form:

\[ i = R' + \pi + 1.5(\pi - \pi^t) + 0.5(y - \bar{y}), \]

where \( i \) represents the short-term interest rate, \( R' \) is the long-run real rate, \( \pi \) is the annual rate of inflation, \( \pi^t \) is the targeted rate of inflation, \( y \) is the level of GDP and \( \bar{y} \) is the natural level of output.

As in Taylor’s original paper (Taylor 1993), in the ‘Plain Vanilla’ version of the rule (shown as the green line in Chart 1): the long-run real interest rate is assumed to be 2%, and the output gap is calculated by assuming that potential supply grew in line with the average rate of GDP growth over the recent past (here from 1997-2007).

This ‘Plain Vanilla’ rule is then adjusted in a number of different ways to get to the alternative rules shown in Chart 1:

i. By replacing the latest outturn for inflation with the MPC’s 2-year ahead forecast for inflation, conditional on interest rates remaining unchanged (as published in the MPC’s Inflation Reports), to move to the beige line.

ii. Estimating potential supply, and therefore the output gap, by using labour market data and business surveys, to move to the blue line. Spare capacity within the labour market is calculated as the sum of short, medium and long-term unemployment (weighted by quarterly transition rates of each group into employment derived from the LFS), plus part-time workers (with 50% weight) who cannot find a full time job (and are hence classed as underemployed) as a proportion of the 16+ labour force. Spare capacity within companies is estimated by using survey estimates from the Confederation of British Industry (CBI). The estimates for slack within the labour market and slack within firms are then combined, adjusting the former for the labour share, in order to provide an estimate of aggregate spare capacity.

iii. Adjusting for the impact of changes in credit spreads that affect the interest rates facing households and companies, to move to the brown line. Credit spreads are proxied by CDS premia on Major UK Banks 5 year senior unsecured debt (weighted by market share) and the spread between LIBOR and Bank Rate.

The interest rate paths prescribed by Taylor rules are often compared to a policy interest rate: Bank Rate in the case of the UK. But, since March 2009, the MPC has used asset purchases as an additional instrument of monetary policy. While the transmission from asset purchases is likely to be different from a change in Bank Rate, Joyce, Tong and Woods (2011) provide a range of estimates for the movements in Bank Rate that may provide an equivalent stimulus to the economy as the assets purchased to that point. The red line in Chart 2 takes an estimate from near the middle of this range (updated for the MPC’s latest round of asset purchases) and adds it to the level of Bank Rate to provide an indicative ‘shadow interest rate path’, which offers a stylised guide to the overall stance of monetary policy.