Speech by

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INFLATION, INFLATION, INFLATION

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Introduction

Thank you for the invitation to speak this evening. I studied for my undergraduate degree in economics at what was then University College Cardiff in the mid 1980s. I had three wonderful years in Cardiff and it is a huge pleasure to come back tonight and to see so many familiar faces. Although I hope some of those familiar faces will be kinder to my speech tonight than they were with my essays back then.

The theme of my talk tonight is inflation.

I hope that you won't find that too disappointing. I fear that some of you were looking forward to a talk on more exciting topics like the financial crisis, the new responsibilities that have been granted to the Bank, the speculation concerning a double dip.

But I make no apology for focussing on inflation. One of the cornerstones of our economy's stable and consistent growth in the 15 years or so prior to the financial crisis was the period of low and stable inflation that was achieved then. And our future prosperity will depend on our maintaining an environment of low and stable inflation.

One of the most worrying comments I have heard in recent months came at a lunch of senior businessmen I attended. One of the diners suggested that the UK was returning to its old ways "of depreciating the exchange rate and inflating its way out of trouble." Soon after, a City circular asked "is the MPC turning a blind eye to inflation?"

This is dangerous talk. The evils of inflation are well known. The high and volatile rates of inflation of the 1970s and 80s stunted our economic performance. Companies and households were unable to budget and plan efficiently. Resources were misallocated. Long-term contracts were avoided. The value of hard-earned savings was eroded.

This dangerous talk has perhaps been partly fuelled by the behaviour of inflation in recent years. CPI inflation has averaged close to 3% over the past four years, significantly higher than the 2% target and for the most part higher than the MPC anticipated. CPI inflation has been above target for 41 out of the past 50 months. Lest we forget, this is a long, long way from the high and volatile inflation of the 1970s and 80s. Even so, it is perhaps understandable that some may have

started to question the commitment or competence of the Monetary Policy Committee. Has the MPC gone soft on inflation? Is this a conspiracy with the Government to deflate away some of its debt?

The answer to both these questions is emphatically "No". The MPC remains as committed as ever to meeting the inflation target. It is our job to achieve the target and we are accountable to Parliament for doing so. To borrow from a phrase of a previous Prime Minister, ask me my three main priorities for monetary policy and I will tell you: inflation, inflation, inflation. Maintaining low and stable inflation is the best contribution that monetary policy can make to the long-term health and prosperity of our economy.

But I recognise that reassuring words and good intentions are not enough. We need to understand better the factors causing inflation to be above target. And we need to learn from the upside surprises in inflation we have experienced recently. That is the topic of tonight's talk.

I will argue that it is not difficult to explain the past strength of inflation. In fact there is a surplus of explanations. But there are important lessons to learn from the recent behaviour of inflation. And I will explain to you why – despite inflation being above target and expected to remain so until the end of next year and monetary policy being at unprecedented loose levels – the MPC has not gone soft on inflation.

What determines inflation?

To help structure the discussion, I want to frame my comments in terms of a simple model of pricing behaviour, in which companies are assumed to set prices as a mark-up over marginal costs. The precise details of the model are not important for tonight. Many of the mechanisms and channels that I will discuss are embodied within standard pricing models.[1] More importantly, my experience of speaking to businesses since the financial crisis began suggests that this type of framework captures the key factors that have been important in determining their pricing decisions. In particular, this type of pricing model emphasises the role of four types of factors.

[1] The key intuition of this model is based on work such as that by Marshall (1920), Chamberlin (1933), Spence (1976) and Salop (1979), among many others who contributed to this now well established literature.

First, the marginal cost of producing an additional unit of output, which is likely to depend on the degree of spare capacity. Spare capacity within firms – since it tends to be cheaper for a company to increase output if some of its employees and capital are not fully utilised. And spare capacity in the wider economy – as slack in the labour market will tend to limit wage growth and thus the cost pressures faced by companies.

But many companies face other cost pressures that are not related to their own capacity constraints or the ease with which they can hire staff. These "other" costs are the second factor. Some of these costs relate to inputs that are imported, such as energy and other commodities, and so depend on movements in world prices and in the sterling exchange rate. Others stem from domestic factors, including – importantly in the current context – changes in indirect taxes.

The third factor emphasised by this type of pricing model is the mark-up over costs included in the final selling price which governs the return firms make on capital. As I will discuss later, there is some evidence to suggest that movements in this mark-up have been different in this recession than in previous ones.

The final set of factors determining pricing decisions are expectations of future costs and prices. Most companies change prices infrequently and as such their pricing decisions today are based on expectations about how their costs and their competitors' prices are likely to vary in the future. Similarly, pay awards are likely to be affected by firms' and employees' expectations of future inflation.

I will use this broad framework to consider why inflation has been above the 2% target for much of the past four years and why inflation was higher than expected for much of this period.

Price level shocks

It is not difficult to find factors that have pushed up inflation over the past few years. The economy has been hit by a series of large price level shocks – to oil and other commodity prices, to VAT and to the sterling exchange rate – which have raised companies' costs and put upward pressure on prices. Together these factors can more than account for the strength of inflation.

The impact of the rise in oil prices and the changes to VAT have been discussed quite extensively elsewhere and so I will not expand on them further this evening.[2] However, it is perhaps worth spending a few minutes considering the effects that the substantial depreciation of sterling has had on companies' costs and prices.

Sterling has depreciated by close to 25% since mid-2007. To get a sense of the potential impact this depreciation may have had on inflation, it is worth recalling that imported goods and services account for around a quarter of the consumer price basket. So a simple thought experiment in which import costs increased in line with the fall in the value of sterling and these increased costs were fully passed-through into retail prices would imply an increase in the price level of around 6 percentage points. Now there are many reasons why this simple thought experiment is likely to be misleading. But it does serve to emphasise the potential size of the effect associated with sterling's depreciation and how different judgments concerning its impact could have very different implications for inflation.

It was difficult to judge in advance the extent to which sterling's depreciation was likely to feed through into consumer prices. In part, that was because this was the first example of a large exchange rate depreciation since the UK had started inflation targeting. This matters because the size and nature of pass-through is likely to depend on the monetary policy regime. Moreover, pass-through from changes in the exchange rate to import prices, and then to consumer prices, has varied considerably over time. As my fellow MPC member Adam Posen pointed out recently, a range of studies suggest that exchange rate pass-through declined during the period of Great Stability (Posen 2010).

[2] For example, see Section 4 and the box on pages 48-49 of the August 2010 *Inflation Report*, Fisher (2010) and Sentance (2009).

Even *ex post*, the impact of the depreciation on consumer prices is hard to assess. The peak impact of the exchange rate depreciation on CPI inflation was probably somewhere in the range of 2 to 3 percentage points. While the scale of the total pass-through to retail price inflation appears broadly similar to past experience, companies seem to have passed through increases in import cost more quickly than in the recent past.[3] That quicker pass-through is likely to help explain why inflation over the past year or so has been higher than the MPC had anticipated.

What evidence is this based on? The production of goods (excluding energy) tends to be more import-intensive than that of services, so the relative trends in goods and services price inflation can help to assess the impact of the depreciation on consumer prices. Between 1997 and 2008, annual non-energy industrial goods price inflation averaged around 6 percentage points lower than services price inflation. But that wedge closed during 2009, as non-energy industrial goods price inflation soared and services price inflation fell to below its historical average (Chart 1). Moreover, the relatively close co-movement between finished manufactured goods import prices and consumer goods prices (excluding energy and food) over the past two years is suggestive of relatively high and rapid pass-through (Chart 2).

The faster adjustment of prices relative to that implied by the evidence from the Great Stability may partly reflect the fact that much of that evidence for the UK is based on the behaviour of prices following sterling's appreciation in 1996. It is quite possible that those businesses whose margins were squeezed following the recent exchange rate depreciation responded more quickly than they did to the increase in margins associated with the mid-1990s appreciation.

My central view is that the peak impact of the past depreciation on inflation has probably passed – monthly goods price inflation has slowed in recent quarters and the total adjustment in relative prices is similar to previous exchange rate changes. But there is considerable uncertainty surrounding this judgment and it is quite possible that there may be further significant upward pressure on prices to come.

[3] Much of the recent analysis of exchange rate pass-through is based on evidence taken from the Great Stability period (see for example Campa and Goldberg (2006) and Ihrig, Marazzi and Rothenberg (2006)). The results from these studies pick up the average lag structure of the past, and are sensitive to the window in which exchange rate effects are identified. It may be that the lag structure following sterling's depreciation was quicker. To the extent that businesses adjusted more quickly, pass-through in the current period might appear larger than suggested by the econometric techniques used in previous studies, when in fact the adjustment was only faster.

The increase in prices associated with the combination of the rise in oil prices, the changes to VAT, and the past depreciation of sterling is more than sufficient to explain the strength of inflation relative to target. Moreover, the fact that some of these factors were not predictable in advance and that their implications for inflation – particularly so in the case of the exchange rate – appear to have been greater than initially anticipated, can also help to account for the upside surprises in inflation. But the exact contribution from these price-level shocks is uncertain and it is possible that the other factors identified by the pricing framework also contributed to the surprising strength of inflation.

The impact of spare capacity on costs and prices

Consider first the impact of spare capacity on costs and prices.

There are good reasons to believe that a substantial margin of spare capacity opened up during the recession and remains today. Output fell precipitously through the second half of 2008 and into 2009 and, despite the recovery in recent quarters, the level of output remains around 10% below that implied by a continuation of its pre-recession trend.

The precise degree of spare capacity is difficult to judge since it depends on the extent to which the recession damaged the supply potential of our economy.[4] Some of the channels through which recessions in the past have impeded supply growth appear, thus far at least, to have been less damaging than we initially feared. Despite a larger fall in output, the fall in employment, although substantial, has been less than in past recessions. Likewise, the pickup in company liquidations has been relatively muted. It is likely that the financial crisis and the reduced availability of credit have affected supply in other ways, such as making it harder for smaller or more entrepreneurial companies to raise funds for investment or expansion. But even so, demand has probably weakened by substantially more than potential supply, implying a large degree of slack both in the labour market and within companies.

Consider each in turn.

Slack in the labour market has contributed to the muted growth in earnings seen over the past 18 months or so. Annual private sector earnings growth has averaged a little below 1 1/2 % since the

[4] See Benito *et al* (2010) for a discussion of the impact of the financial crisis on supply.

start of the recession, around a third of its rate in the five preceding years. But the impact of this weak pay on companies' costs has been offset by businesses appearing to hold onto more staff than warranted by the lower level of output. The corollary of the resilience in employment has been a sharp drop in labour productivity. As a result, growth in labour costs per unit of output has remained relatively firm, although it has fallen back as productivity has begun to recover.

Companies that have spare capacity within their business should be able to use these under-utilised resources to increase output relatively cheaply. As such, spare capacity within companies should, at the margin, push down costs and prices. But reports from our network of Agents suggest that some companies responded to the sharp fall in output by temporarily decommissioning some of their capacity in order to reduce their cost base.[5] Companies mothballed production lines; cut back on capital leases; reduced the number of shifts and so on.

Although it is perhaps most natural to think of this mothballing behaviour in the context of manufacturing, it was also apparent within the services sector. It was relatively commonplace for professional services companies to encourage staff to take sabbaticals at much reduced pay. Aircraft were taken out of service. Shops were left empty.

This type of adjustment has helped UK industry to withstand the effect of the recession. It reduces companies' average costs and so protects their profitability during the period of weak demand. A by-product of this adjustment, however, is that the marginal cost of producing additional output is higher. Although the mothballed capacity can be reinstated, it is likely to be more costly to do so, especially in the short-run, than if the resources were simply standing idle. Assembly lines need to be serviced before being restarted; staff need to be brought back from sabbaticals. As a result, the downward pressure on costs and prices stemming from the latent spare capacity within companies, at least in the near term, is likely to be less.[6]

Developments in margins

Consider next the mark-up over and above costs that companies include in their selling price.

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[5] That is consistent with some surveys of companies' capacity utilisation, which do not seem to have fallen by as much as the fall in output might suggest.

[6] An important issue determining the evolution of supply in the medium-term is how quickly this mothballed capacity is either brought back on stream or eroded. This is likely to depend on the pace of the recovery.

In the past, margins in the UK have tended to fall back during periods of weak demand and vice versa.[7] One possible reason for this is if companies reduce their prices relative to their costs when demand is weak in order to gain market share which they hope to hold onto as demand increases, ie they hope to be able to exploit some degree of pricing power. If successful, the lower profits in the downturn are outweighed by the gains during the upswing. This pro-cyclicality of margins is another reason why inflation in the UK has tended to moderate during periods of weak demand.

But margins appear to have fallen by less during the recent recession than expected given the marked contraction in demand. Simple measures of margins, such as the profit share, have been relatively resilient. And a recent survey by the Bank's Agents suggested that margins on average were only a little below normal, despite the marked contraction in demand.[8]

Why so?

In part, aggregate margins may have been boosted by the sharp rise in sterling export prices following the depreciation of sterling. The increase in exporters' margins may well have masked a decline in margins earned by domestic producers.

But it may also reflect the nature of this recession.

Speak to almost any businessperson and they will tell you the same story: to be successful, businesses need healthy cash flow. Cash is king. That has always been the case. But one consequence of the financial crisis – as the availability of bank financed tightened and trade credit dried up – is that the importance placed on maintaining cash flows increased. Companies were less able to trade-off lower selling prices today for future gains in market share.[9]

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[7] Strictly, the model I am discussing talks about the mark-up over marginal cost, whereas margins are calculated with reference to average costs. Margins have the advantage that they can be calculated from companies' published accounts, wheras mark-ups are not directly observable. But different estimates of the mark-up in the United Kingdom have appeared to move in a similar direction to margins across economic cycles. See Haskel *et al* (1995) and Macallan and Parker (2008).

[8] See the box on page 5 of the July 2010 *Agents' summary of business conditions*, available at: http://www.bankofengland.co.uk/publications/agentssummary/agsum10jul.pdf

[9] Another defining feature of this recession is that it has been very deep. If companies are already down to their core customer base, cutting prices may generate little additional demand. Put more formally, as output fell, the demand curve faced by some companies may have become increasingly inelastic, thus reducing their incentive to cut their margins. See Bils (1989) and Ravn *et al* (2006) for examples of pricing models that incorporate such customer behaviour.

Inflation expectations

The final factor emphasised by the pricing model is inflation expectations.

The importance of inflation expectations is well understood. If wage and price setters expect the MPC to keep inflation close to target for much of the time, this will be reflected in their behaviour which, in turn, will help keep inflation close to target. Successful policy and anchored inflation expectations are self-reinforcing.

A significant risk associated with the recent period of above-target inflation is that it causes inflation expectations to become less well anchored. The dangerous talk may start to be believed. If so, temporary deviations in inflation would tend to be given greater weight in wage and price setting and so become more persistent. And the task of monetary policy would become substantially harder.

Although this remains a significant risk, my reading of the available evidence to date is that inflation expectations remain relatively well anchored. Measures of households' short-term expectations have picked up over the past year or so, but so have the MPC's projections for near-term inflation. Indeed, the MPC's own revisions to its central inflation projection over the past year have been similar to that implied by a majority of survey measures (Chart 3). And measures of households' medium-term inflation expectations have remained broadly stable, as have expectations of professional forecasters.

Indeed, the surprising strength in inflation during the recession may partly stem from inflation expectations being more firmly anchored than in the past, so helping to offset the downward pressure from spare capacity. This may reflect the different role played by monetary policy in this recession from that in the 1980s and 1990s. In those earlier recessions, policy was designed to reduce trend inflation. As such, expectations about future policy and the emerging spare capacity reinforced each other in bearing down on prices. In contrast, the aim of monetary policy during this recession has been to work against the downward pressure on inflation from excess capacity in order to avoid a prolonged period of below-target inflation.

Where does all this leave us?

To my mind, there is no great puzzle or mystery surrounding the period of above-target inflation seen over the past few years. Our economy has been affected by a number of large shocks – to energy prices, the level of VAT, and the value of sterling – which have caused prices to increase. Some of these shocks were not predictable in advance. And even if they were, trying to use monetary policy to offset short-run movements in inflation is likely to have amplified output volatility.

But that does not mean that we should not learn from the behaviour of inflation. My current assessment is that changes in the structure of the economy, the nature of the financial crisis, and the different role played by policy all affected the behaviour of inflation during the downturn. And it is important that we learn from those developments to help set policy in the future.

Conclusion

So what are the implications for policy?

Surely with inflation above target and expected to remain so for some time, the natural thing is to begin to reduce the degree of monetary stimulus? Monetary policy is extraordinarily loose and a small tightening would still leave policy hugely stimulatory. And what better way to counter the dangerous talk than by putting our money where our mouth is and beginning to withdraw the policy stimulus.

But it is not as straightforward as that – there are significant risks to both sides of the inflation outlook.

Yes: the period of above target inflation; the fact that inflation has been higher than expected; and that it is likely to remain above target until the end of next year all contribute to the risk that credibility and confidence in the MPC may start to waver. If that were to happen, and wage and price setters started to expect higher inflation to persist, the task facing the MPC in returning our economy to an environment of low and stable inflation would be substantially greater. Don't forget the repeated and costly failures of the 1970s and 80s. We lose our credibility at our peril – once the genie of inflation credibility escapes it is costly to put back. The response to a possible loss of credibility is clear – monetary policy would need to tighten, possibly aggressively so. But

I think this risk remains just that – a risk. Despite the dangerous talk, most measures of inflation expectations still appear broadly consistent with hitting the inflation target in the medium term.

And there are significant downside risks to inflation. It is difficult to know exactly how much spare capacity there is in the economy and what its precise impact is on inflation. But that there remains some slack in the economy and this is likely to be pushing down on costs and prices seems clear. That impact should become more apparent as the temporary effects associated with the shocks to input prices and VAT wane. It is perhaps noteworthy that in the US and euro area, which have not experienced falls in their exchange rates or large movements in indirect taxes, core inflation has weakened substantially. The downside risks to the growth outlook, stemming in particular from the substantial fiscal consolidation now in train and the continuing constraints on the supply of bank lending, add materially to the downside risks to inflation.

And even if the economic recovery does continue, it is possible that some of the factors that may have contributed to the surprising strength in inflation in the past may start to fade. As demand increases, companies may begin to bring mothballed capacity back on stream. And as firms build up their cash balances and credit becomes more available, margins may start to fall as companies seek to enter new markets and gain new customers.

The risks to the inflation target are real and substantial. The job of monetary policy is to try to balance these upside and downside risks to inflation. In essence this is no different to normal, monetary policy is always faced with a balancing act. But what is different is that the current risks to inflation are unusually large.

My central view is that these risks should gradually lessen as the temporary effects pushing up on inflation wane and the economic recovery continues. But it is possible that some of the risks will crystallise and policy will need to react.

It is quite likely that in hindsight, once we see how the economy evolved and which risks materialised, that the current stance of policy will be criticised for having been too tight or too loose. But we cannot set policy with hindsight. All we can do is set policy in such a way that balances the opposing risks to inflation and be ready to change policy decisively in either direction as this balance of risks alters. I do not know when policy will next change or in what

direction. But I can assure you that when making this decision, the objectives of policy will be clear and unchanging: inflation, inflation, inflation.

References

Benito, A, Neiss, K, Price, S and Rachel, Ł (2010), 'The impact of the financial crisis on supply', *Bank of England Quarterly Bulletin*, Vol. 50, No. 2, pages 104-114.

Bils, M (1989), 'Pricing in a customer market', *The Quarterly Journal of Economics*, Vol. 104 (4), pages 699-718.

Campa, J and Goldberg, L (2006), 'Distribution margins, imported inputs, and the sensitivity of the CPI to exchange rates', NBER *Working Paper* No. 12121.

Chamberlin, E (1933), "The theory of monopolistic competition", Cambridge, Mass. Harvard University Press.

Fisher, P (2010), 'Why is CPI inflation so high?', Remarks based on a talk given to Merseyside Young Professionals, available at:
http://www.bankofengland.co.uk/publications/speeches/2010/speech438.pdf

Haskel, J, Martin, C and Small, I (1995), 'Price, marginal cost and the business cycle', *Oxford Bulletin of Economics and Statistics*, Vol. 57, pages 25–41.

Ihrig, J, Marazzi, M and Rothenberg, A (2006), 'Exchange rate pass-through in the G7 countries', *International Finance Discussion Paper* No. 851, Board of Governors of the Federal Reserve System.

Macallan, C and Parker, M (2008), 'How do mark-ups vary with demand?', *Bank of England Quarterly Bulletin*, Volume 48, No. 2, pages 167-173.

Marshall, A (1920), Principles of Economics, London: Macmillan.

Posen, A (2010), 'The British recovery in international comparison', Speech given to the Society of Business Economists Annual Conference "Sustaining the Recovery", London , available at:
http://www.bankofengland.co.uk/publications/speeches/2010/speech439.pdf

Ravn, M, Schmitt-Grohé, S and Uribe, M (2006), 'Deep habits', *The Review of Economic Studies*, Vol. 73 (1), pages 195-218.

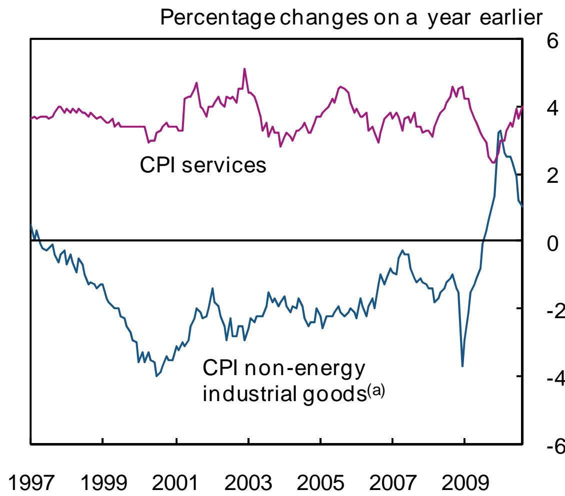
Salop, S (1979), 'Monopolistic competition with outside goods', *The Bell Journal of Economics,* Vol. 10 (1), pages 141-156.

Sentance, A (2009), 'Monetary policy in turbulent times', Speech at the Agricultural Engineers' Association Annual Conference, Institute of Civil Engineers, London, available at:
http://www.bankofengland.co.uk/publications/speeches/2009/speech385.pdf

Spence, M (1976), 'Product selection, fixed costs, and monopolistic competition', *The Review of Economic Studies*, Vol. 43 (2), pages 217-235.

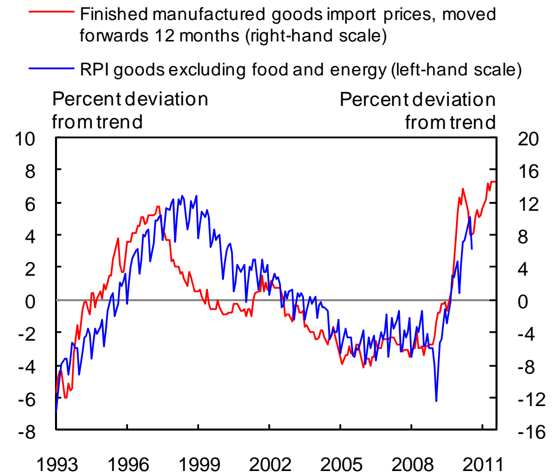
Charts

Chart 1: CPI non-energy industrial goods and CPI services



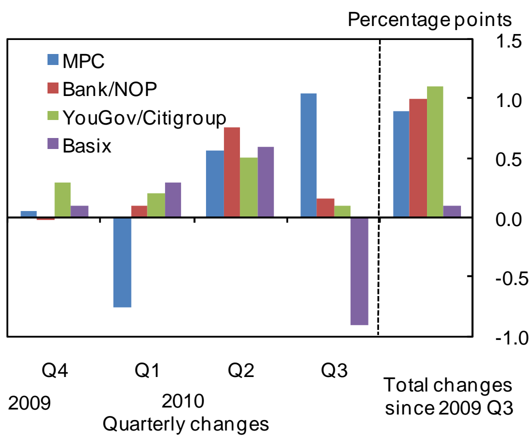
(a) CPI goods excluding food and non-alcoholic beverages, alcoholic beverages and tobacco, fuels and lubricants, and electricity, gas and other fuels.

Chart 2: Finished manufactured goods import prices and RPI goods prices excluding food and energy[a]



(a) Deviations from simple linear trends since 1992. Data are non seasonally adjusted.

Chart 3: Changes in one year ahead inflation expectations[a]



Sources: Bank of England, Barclays Capital, Citigroup, GfK NOP and YouGov.

(a) Quarterly changes are based on observations most comparable to *Inflation Report* publication dates.