# Inflation Report

August 2007





## **Inflation Report**

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In order to maintain price stability, the Government has set the Bank's Monetary Policy Committee (MPC) a target for the annual inflation rate of the Consumer Prices Index of 2%. Subject to that, the MPC is also required to support the Government's objective of maintaining high and stable growth and employment.

The *Inflation Report* is produced quarterly by Bank staff under the guidance of the members of the Monetary Policy Committee. It serves two purposes. First, its preparation provides a comprehensive and forward-looking framework for discussion among MPC members as an aid to our decision making. Second, its publication allows us to share our thinking and explain the reasons for our decisions to those whom they affect.

Although not every member will agree with every assumption on which our projections are based, the fan charts represent the MPC's best collective judgement about the most likely paths for inflation and output, and the uncertainties surrounding those central projections.

This *Report* has been prepared and published by the Bank of England in accordance with section 18 of the Bank of England Act 1998.

### The Monetary Policy Committee:

Mervyn King, Governor Rachel Lomax, Deputy Governor responsible for monetary policy John Gieve, Deputy Governor responsible for financial stability Kate Barker Charles Bean Tim Besley David Blanchflower Andrew Sentance Paul Tucker

The Overview of this *Inflation Report* is available on the Bank's website at www.bankofengland.co.uk/publications/inflationreport/infrep.htm.

The entire *Report* is available in PDF at www.bankofengland.co.uk/publications/inflationreport/2007.htm.

PowerPoint<sup>™</sup> versions of the charts in this *Report* and the data underlying most of the charts are provided at www.bankofengland.co.uk/publications/inflationreport/2007.htm.

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## Overview

In the United Kingdom, the recent brisk pace of output growth was sustained in the second quarter. There were tentative signs of a slowing in consumer spending. Business investment fell back modestly, but was substantially higher than a year earlier. The pace of global expansion remained rapid. In late July, credit spreads widened internationally and equity prices fell. Under the assumption that Bank Rate follows market yields, the Committee's central projection is for output growth to fall back to a rate closer to its long-run average.

Capacity pressures within companies remained elevated. Unemployment ticked down but there were few signs of higher pay pressures. Oil prices rose sharply. CPI inflation fell to 2.4% in June. In the central projection, inflation drops back further in the second half of this year as the contribution of domestic energy prices declines, before settling around the 2% target. The risks to growth are balanced, while those to inflation are weighted slightly on the upside.

### **Financial markets**

Since the May *Report*, the Monetary Policy Committee has raised Bank Rate by 25 basis points to 5<sup>3</sup>/<sub>4</sub>%. Short-term sterling interest rates suggest that market participants expect Bank Rate to peak at close to 6% by early 2008 and then drop back; the projections described below are conditioned on that assumption. Sterling appreciated against all the major currencies, but particularly against the dollar. The growth of bank credit and broad money remained rapid.

In late July, renewed concerns about the US sub-prime mortgage market triggered a general widening in credit spreads, particularly on riskier asset classes, and a hiatus in debt markets. Those concerns were also associated with sharp falls in international equity prices.

### **Domestic demand**

A key issue facing the Committee is judging the underlying momentum in domestic demand in the wake of the increases in Bank Rate over the past year. Smoothing through short-term volatility, consumer spending growth appears to have been surprisingly resilient in the face of those increases in Bank Rate, as well as subdued growth in real take-home pay. That resilience may in part reflect relatively slow pass-through of Bank Rate increases to the interest rates faced by households. But slower growth in retail sales during the

second quarter, signs of easing in the housing market and reports from the Bank's regional Agents suggest that spending growth may have started to ease.

Business investment has been buoyant over the past year, fuelled by brisk demand growth, a favourable financial position and easy credit conditions. Although capital expenditure fell back slightly in the first quarter, that was concentrated in a few industries in which spending had previously grown rapidly. Surveys of investment intentions suggest that capital spending will continue to grow strongly in the near term. While the underlying conditions supporting investment remain favourable, recent developments in credit markets pose a downside risk.

Government spending continued to make a moderate contribution to overall demand growth. According to the spending plans set out in the Budget, the public sector's contribution to nominal demand growth is set to decline gradually.

### **Overseas trade**

The recent rapid pace of global expansion has been maintained. Euro-area GDP continued to expand at a firm pace, on the back of further strong growth in capital spending. In the United States, output growth picked up, in part reflecting a recovery in non-residential investment. And activity has continued to surprise on the upside in Asia. Overall, the Committee expects demand in UK export markets to continue to grow strongly, though at a slightly more moderate pace. A sustained tightening in credit conditions would constitute a potential threat to that outlook, however.

In line with that buoyancy in UK export markets, surveys and reports from the Bank's regional Agents suggest that export demand has held up, despite the appreciation in the sterling effective exchange rate in recent quarters. Official estimates paint a less buoyant picture, but those data are subject to distortions arising from fraudulent activity. Estimates of net trade should be less affected by such measurement problems. Net trade is reported to have made a neutral contribution to GDP growth in the first quarter, but is expected to subtract from growth over much of the forecast period.

### The outlook for GDP growth

According to the ONS's preliminary estimate, GDP rose by 0.8% in 2007 Q2, a little faster than in the preceding quarter. Output growth in services remained solid and manufacturing activity rebounded. Evidence from business surveys, together with the pattern of past revisions, suggests that recent estimates of GDP growth may in due course be revised up.





The fan chart depicts the probability of various outcomes for GDP growth in the future. If economic circumstances identical to today's were to prevail on 100 occasions, the MPC's best collective judgement is that GDP growth over the subsequent three years would lie within the darkest central band on only 10 of those occasions. The fan chart is constructed so that outturns of GDP growth are also expected to lie within each pair of the lighter green areas on 10 occasions. Consequently, GDP growth is expected to lie somewhere within the entire fan chart on 90 out of 100 occasions. The bands widen as the time horizon is extended, indicating the increasing uncertainty about outcomes. See the box on pages 48–49 of the May 2002 *Inflation Report* for a fuller description of the fan chart and what it represents. The dashed line is drawn at the two-year point.

Surveys point to firm growth in the third quarter, though the recent flooding may have a modest adverse impact.

**Chart 1** shows the Committee's best collective judgement of the outlook for four-quarter GDP growth, assuming that Bank Rate follows a path implied by market yields and using current ONS estimates of recent GDP growth. The central projection is for output growth to moderate to around its long-term average as consumer spending and business investment decelerate in the near term and public spending growth eases further ahead. The profile is somewhat weaker than that contained in the May *Report*, reflecting the rise in market interest rates and the exchange rate.

### **Costs and prices**

A key determinant of the outlook for inflation is the margin of spare capacity in the economy. Survey measures continued to suggest that companies were working at above normal capacity. That is likely to reflect the pace of demand growth over the past 18 months, coupled with the legacy of relatively subdued business investment during the early part of this decade.

Employment growth has been subdued over the past year, but recovered somewhat in the three months to May. Unemployment ticked down, but remained rather higher than during 2001–05. Settlements have been muted and, overall, there is little evidence of any pickup in pay pressures, despite the rise in inflation last year. These developments seem consistent with a modest degree of slack in the labour market, in contrast to the heightened pressures on capacity within businesses. But part of the rise in unemployment may reflect other factors. Though pay growth has been muted, it may not have been sufficiently subdued to offset the adverse impact on the demand for labour of higher energy prices and other non-wage costs. Moreover, employers may have experienced greater difficulty in finding workers with the appropriate skills.

The evolution of energy and import prices is also central to the inflation outlook. World trade prices have risen sharply over the past few years, reflecting the pickup in oil prices and stronger global demand. UK import price pressures eased somewhat in late 2006, as energy prices moderated and sterling appreciated. But dollar oil prices have since risen sharply again — by around a third since the beginning of the year. And the prices of non-oil commodities have also picked up. That is likely to push up on import prices in the near term, though the recent appreciation of sterling provides a partial offset.

Survey measures of businesses' pricing intentions remained elevated, particularly in manufacturing. Businesses may simply be taking the opportunity afforded by stronger demand





The fan chart depicts the probability of various outcomes for CPI inflation in the future. If economic circumstances identical to today's were to prevail on 100 occasions, the MPC's best collective judgement is that inflation over the subsequent three years would lie within the darkest central band on only 10 of those occasions. The fan chart is constructed so that outturns of inflation are also expected to lie within each pair of the lighter red areas on 10 occasions. Consequently, inflation is expected to lie somewhere within the entire fan chart on 90 out of 100 occasions. The bands widen as the time horizon is extended, indicating the increasing uncertainty about outcomes. See the box on pages 48-49 of the May 2002 *Inflation Report* for a fuller description of the fan chart and what it represents. The dashed line is drawn at the two-year point.

conditions to pass through past increases in energy and other costs. But it is also possible that heightened capacity pressures are affecting companies' pricing behaviour. Finally, the rise in inflation in the year to March may have led people also to expect higher inflation in the future. There are few direct measures of the inflation expectations held by business people. But inflation expectations derived from financial market instruments and surveys of the general public, which had picked up, have not as yet fallen back as inflation has moderated.

CPI inflation declined to 2.4% in June, down sharply from its peak of 3.1% in March. Inflation is likely to drop back a little further in the coming months as cuts in domestic gas and electricity prices work through, though the near-term outlook is clouded by the prospective impact on food prices of the recent spell of poor weather.

### The outlook for inflation

**Chart 2** shows the Committee's best collective judgement of the outlook for CPI inflation, assuming that Bank Rate follows market yields. In the central projection, inflation falls back during the second half of this year and then settles around the 2% target. Compared with the corresponding projection in the May *Report*, the profile is a little higher in the near term, reflecting higher oil prices and a slightly smaller margin of spare capacity in the economy. Further out, it is marginally lower, reflecting the weaker projection for output growth.

As usual, there are substantial uncertainties surrounding these projections. These include, in particular: the prospective impact on domestic demand of past increases in Bank Rate and recent developments in credit markets; the degree of spare capacity in businesses and the labour market; the likely duration of the global expansion, and its implications for world prices; and the evolution of inflation expectations. As in May, there is greater-than-usual uncertainty over the outlook for inflation. Overall, the risks to growth are judged to be balanced. The risks to inflation are weighted slightly on the upside in the medium term. There is a range of views among the Committee on both the central projection and the balance of risks.

### The policy decision

The Committee noted at its August meeting that the central projection, under the assumption that Bank Rate followed market yields, was for inflation to fall back in the near term and then settle around the 2% target. Given that outlook, and bearing in mind the balance of risks, the Committee judged that no change in Bank Rate was necessary to meet the target for CPI inflation over the medium term.

## 1 Money and asset prices

Since the May *Report*, Bank Rate has been increased once, by 0.25 percentage points, to 5.75%. Financial markets were volatile in late July: credit spreads widened internationally and equity prices fell. Sterling appreciated against all of the major currencies since the May *Report*, but particularly against the US dollar. Retail interest rates have risen over the past year, although the degree of pass-through from increases in Bank Rate remained incomplete. The growth of bank credit and broad money remained rapid.



(a) Forward rates are derived from instruments that settle on Libor. That includes market rates on short sterling futures, swaps, interbank loans and forward rate agreements. The forward curve for May is a fifteen working day average of one-day forward rates to 9 May. The forward curve for August is a five working day average to 1 August. The curves have been adjusted for credit risk.

(b) The fan chart is indicative of the probability of different outcomes for interest rates in the future, based on the assumption that investors are risk-neutral. It has a similar interpretation to the fan charts in Section 5. The distribution is derived using the prices of options on three-month Libor contracts traded on Euronext.Liffe and has been adjusted for credit risk.





Source: JPMorgan Chase & Co.

Changes in Bank Rate affect inflation in part through their impact on financial markets. But financial markets also provide information that helps the MPC to assess economic conditions. Section 1.1 examines recent developments in financial markets, where there has been considerable volatility since the May *Report*, particularly in credit and equity markets. Section 1.2 considers the implications of movements in market interest rates for retail rates. The Committee has previously voiced concerns about the rapid growth of broad money and bank credit and the interaction of higher interest rates with the growing debt burden. These issues are considered further in Section 1.3.

### 1.1 Financial markets

Since the May *Report*, the MPC has increased Bank Rate, by 0.25 percentage points to 5.75%. A summary of the reasons for the Committee's policy decisions in June and July is provided in the box on page 10. In the run-up to the MPC's August meeting, short-term sterling interest rates suggested that market participants expected Bank Rate to peak at close to 6% by early 2008 (Chart 1.1). But market participants were uncertain about the future path, as shown in the fan chart in Chart 1.1.

There was considerable volatility in financial markets in late July. Renewed concerns about the US sub-prime mortgage market led to a sharp widening in the spreads on securities backed by those mortgages (**Chart 1.2**). That appeared to prompt a broadly based re-evaluation of the riskiness of lending portfolios, with credit spreads rising across a range of markets, particularly for riskier assets. Moreover, some investors became less willing to take on new credit exposures via the capital markets. All this came at a time when the demand for funds, for example to finance leveraged buyouts, had increased sharply. As a consequence, some financial institutions that originate such loans experienced difficulty in achieving their subsequent onward distribution in the capital

<sup>(</sup>a) The spreads refer to the ABX.HE indices, which are comprised of a basket of credit default swaps on 20 RMBS.

## Monetary policy since the May *Inflation Report*

The MPC's central projection in the May *Report*, under the assumption that Bank Rate followed a path implied by market yields, was for four-quarter GDP growth to remain close to its average rate over the past decade. CPI inflation was projected to drop back, dipping a little below the 2% target before picking up to settle around the target in the medium term.

By the time of the Committee's meeting on 6–7 June, there had been marked increases in international market interest rates and the spot oil price. The world economy was growing broadly as expected at the time of the May *Report*. Growth in the United Kingdom in Q1 had been unrevised at 0.7%. CPI inflation had fallen back as the sharp rises in retail gas and electricity prices during 2006 dropped out of the twelve-month inflation rate and announced cuts were phased in. Retail food price inflation had picked up further in April but fell back in May.

Some members preferred no change in Bank Rate. There were tentative signs of an easing in household spending and the housing market, and there might be more to come. The labour market had remained subdued and survey measures of the public's inflation expectations had remained stable, despite the pickup in actual inflation over the winter. Higher household debt levels might have increased the final impact of interest rate changes, which suggested raising interest rates at a measured pace. Surveys of pricing pressures in service sector businesses had eased.

Other members preferred an immediate increase in Bank Rate. The economy was still growing robustly despite the increases in Bank Rate since August 2006. There had been little news during the month to affect the judgement in the May *Report* that the balance of risks to the outlook for inflation was on the upside. The easing in household spending was at best tentative. The rapid growth of money and credit in part reflected easy credit conditions, and posed an upside risk to spending and inflation. Survey measures of capacity pressures were generally high and increasing and the world economy was strong.

Given these considerations, five Committee members voted to maintain Bank Rate at 5.5%. Four members preferred an increase in Bank Rate of 25 basis points.

At the time of the MPC meeting on 4–5 July, market interest rates had risen further, reflecting a rise in both real and inflation forward rates. The world economy had continued to develop broadly in line with the central projections in the May *Report*. In the United Kingdom, Q1 growth was unrevised, although four-quarter growth had been revised up a little. The latest indicators suggested that output growth in the second quarter was likely to be robust. Employment growth remained relatively weak given the strength of output growth.

Price indicators had given mixed signals on the month. Manufacturing input price inflation had risen sharply in May, though output price inflation had eased. CPI inflation had fallen to 2.5% in May. Some survey indicators of pricing pressures were elevated, but there had been no significant change in inflation expectations on the month.

For some members, a change in Bank Rate was not warranted this month, although there were differing views about the likelihood of Bank Rate needing to be raised in the future. The labour market had continued to surprise on the downside and indicators of capacity utilisation, although somewhat above normal, were not unusually elevated. Demand growth appeared to be strong but might have been offset by stronger supply growth. And the full effects of the past increases in Bank Rate had yet to be felt. The uncertainty about the impact of higher interest rates pointed to a gradual approach to any further tightening in policy.

But for a majority of members, there was a strong case for an immediate rise in Bank Rate of 25 basis points. The pressure on capacity utilisation within businesses seemed clear from the survey evidence, and there was a growing risk from import price pressures. Money and credit growth had remained strong. Weak labour market data could have reflected a possibly temporary structural increase in unemployment. The change in Bank Rate over the previous year had largely been a withdrawal of an accommodative policy stance, making it less surprising that demand growth had not yet slowed in response.

For some of these members, the news since the May *Report* had been sufficient to shift the balance in favour of a move in interest rates, but without a clear presumption that further increases would be necessary. For other members, the balance of risks was more firmly to the upside and any delay in raising Bank Rate would run the risk that interest rates would eventually need to be higher than they otherwise would have been, though no immediate judgement was being made about the future path of rates.

Six Committee members voted to increase Bank Rate by 25 basis points to 5.75%. Three members preferred Bank Rate to remain at 5.5%.

At its meeting on 1–2 August, the Committee voted to maintain Bank Rate at 5.75%.

### Chart 1.3 Sterling-denominated corporate bond spreads<sup>(a)</sup>



(a) Option-adjusted spreads over government bonds

(b) Aggregate index of bonds with a composite rating lower than BBB3

(c) Aggregate index of bonds with a composite rating of BBB3 or higher.





Sources: Bank of England and Bloomberg

(a) Instantaneous forward rates derived from the yields on nominal and inflation-linked government bonds.

Chart 1.5 UK breakeven inflation rates<sup>(a)</sup>



Sources: Bank of England and Bloomberg.

(a) Implied instantaneous inflation forward rates five, ten and twenty years ahead, based on the differences between the yields on nominal and inflation-linked government bonds. The instruments used are linked to RPI (rather than CPI) inflation, and the breakeven rates include inflation risk premia. As such, these breakeven rates are not directly comparable with the Bank's inflation target. markets. If these effects persist, they may impinge on the quantity of new credit that those financial intermediaries are willing to extend to both households and companies.

The rise in spreads was more modest for higher-quality financial assets such as investment-grade corporate bonds (Chart 1.3) as greater uncertainty encouraged a 'flight to quality'. This increased demand for less risky assets was also evident in the UK government bond market, where longer-term interest rates fell. Both nominal and real forward interest rates declined sharply from the middle of July (Chart 1.4), unwinding earlier increases in May and June.

The difference between nominal and real forward rates on government bonds provides an indication of the inflation expectations of financial market participants. These 'breakeven' inflation rates picked up sharply during June, but subsequently fell back somewhat. The June increase followed a more gradual rise since the second half of 2005 (Chart 1.5). Breakeven inflation rates are an imperfect measure of market expectations of CPI inflation as they are calculated using instruments linked to RPI inflation and contain risk premia. Survey measures of inflation expectations are discussed in Section 4, and the risks posed to the inflation outlook are reviewed in Section 5.

The recent financial market volatility was reflected in sharp falls in equity prices across countries (Chart 1.6). In the United Kingdom, the FTSE All-Share index averaged 3235 in the five working days to 1 August. That was 4% lower than the starting point for the May *Report* and returned the index close to its level at the start of the year.

In foreign exchange markets, sterling appreciated between May and late July against all the major currencies, but particularly against the dollar. In late July, the US dollar/sterling nominal exchange rate reached its highest level since 1981. But some of sterling's appreciation has unwound since late July. In the five working days to 1 August, the sterling effective exchange rate index averaged 105.2, 1% above the starting point in the May *Report*.

### 1.2 Retail interest rates

The implications of market interest rate movements for borrowing and saving decisions depend in part on the response of retail interest rates set by financial intermediaries. It is too early to assess the impact of the most recent movements in market interest rates on retail interest rates. In part, that will depend on the extent to which those movements persist. Prior to the recent market volatility, however, most effective retail interest rates — the average rates paid on outstanding balances — had already risen somewhat, reflecting the earlier



Chart 1.6 Cumulative changes in international equity

Table 1.A Bank Rate and effective corporate interest rates<sup>(a)</sup>

Per cent

Dor cont

	July 2006	June 2007	Changes (basis points)
Bank Rate	4.50	5.50	100
Private non-financial corporations			
Borrowing rates Variable <sup>(b)</sup> Fixed	6.34 6.06	7.01 6.88	67 82
Deposit rates Sight Time	3.48 4.27	4.55 5.24	107 97
Other financial corporations			
Borrowing rates	4.77	5.57	80
Deposit rates Sight Time	4.39 4.64	5.56 5.56	117 92

(a) Weighted averages of interest rates paid on outstanding balances over each month
 (b) Includes overdrafts and variable-rate loans.

i ci cent			
	July 2006	June 2007	Changes (basis points)
Bank Rate	4.50	5.50	100
Borrowing rates			
Mortgages	5.29	5.80	51
<i>of which:</i> Variable Fixed	5.46 5.06	6.35 5.22	89 16
Unsecured lending	9.43	9.82	39
<i>of which:</i> Variable <sup>(b)</sup> Fixed	9.69 9.06	10.45 8.93	76 -13
Deposit rates			
Sight Time	2.71 4.07	3.31 4.95	60 88

Table 1.B Bank Rate and effective household interest rates(a)

(a) Weighted averages of interest rates paid on outstanding balances over each month.
 (b) Includes credit card borrowing, overdrafts and variable-rate personal loans.

increases in Bank Rate. Data for the period following the Bank Rate increase in July are not yet available. But, between July 2006 and June 2007, the degree of pass-through from Bank Rate to certain effective retail interest rates was less than one-for-one (Tables 1.A and 1B).

The speed of pass-through from Bank Rate to effective rates depends in part on the prevalence of fixed-rate products.<sup>(1)</sup> In the household sector, effective rates on fixed-rate products have been relatively stable in the recent past. These effective rates are likely to rise in the coming months as more households refinance mortgages at the end of their fixed-rate terms. A large share of mortgage borrowing in 2005 was at fixed rates and much of that is likely to expire this year. But the aggregate impact on household disposable income is likely to be limited. The household sector borrowed almost £300 billion in secured debt during 2005, nearly 60% of which had a fixed interest rate for between 1–5 years. In June 2007 (the latest data available), the interest rate on new business for this form of lending was around 75 basis points higher than the low point in 2005. Assuming that two thirds of this 1–5 year fixed-rate lending is refinanced in 2007, then aggregate annual post-tax household income would be around 0.1% lower based on this change in interest rates. And, to the extent that households have anticipated this, they may have already adjusted their spending.

The incomplete pass-through of increases in Bank Rate between July 2006 and June 2007 also reflected an easing in credit conditions. Financial intermediaries can choose to make credit more attractive by lowering their retail rates on loans relative to market interest rates (that is, by compressing spreads). Between 2004 and mid-2007, there was a marked narrowing in the spreads on both household and corporate borrowing (Chart 1.7). In addition, certain non-price borrowing terms also loosened. For example, the loan to income ratio on secured household borrowing increased over this period. And evidence from lenders suggests that covenants were relaxed on lending to some private non-financial corporations (PNFCs). In contrast, conditions were tightened on unsecured household borrowing over the past two years.

There is considerable uncertainty about how long the past fall in retail lending spreads will be sustained, particularly following the recent widening in credit spreads in financial markets. The MPC will be monitoring closely data on both the price and quantity of credit over the coming period in order to assess this risk. The Committee will be assisted in this by a new Credit Conditions Survey, the first results from which will be released in the autumn of 2007.

(1) See the box on pages 14–15 of the May 2007 Inflation Report for a discussion of interest rate pass-through

### Chart 1.7 Changes in effective interest rate spreads on loans since January 2003<sup>(a)</sup>



Sources: Bank of England and Bloomberg.

(a) Effective retail interest rates on the stock of outstanding loans relative to an appropriate funding rate. For floating-rate products, that is assumed to be Bank Rate. For fixed-rate products, Libor and swap rates of similar maturities are used (averaged over the relevant horizon and lagged one month). Prior to 2004, the shares of each product within the total borrowing for each sector are held constant due to lack of data.

#### Chart 1.8 Broad money and bank credit(a)



(a) Broad money is defined as M4, while bank credit is M4 lending (excluding the effects of securitisations).

Chart 1.9 Households' debt-servicing costs



 (a) 'Gross interest payments' series, plus regular repayments of mortgage principal. Repayments data are non seasonally adjusted. Excludes payments associated with endowment policies.
 (b) National Accounts measure of household interest payments, which excludes the impact of Mortgage Interest Relief at Source (MIRAS).

### 1.3 Money, credit and balance sheets

The past easing in credit conditions is likely to have contributed to rising debt levels in the economy. Despite falling back in June, the annual growth of M4 lending sterling lending by UK banks and building societies to UK private sector residents — remained well above the rates seen over most of the past decade (Chart 1.8). Money growth has also been strong in recent years.

### Household finances

The ratio of household debt to annual income has risen by around a half since the start of the decade, to 160% in 2007 Q1. That rise in debt, together with recent increases in retail interest rates, has led to a significant rise in the share of income devoted to debt servicing (Chart 1.9). For example, gross interest payments have increased by more than 2 percentage points as a share of post-tax income over the past four years. But the aggregate rise in debt-servicing costs has in part been offset by rising interest receipts, which have increased by 1.5 percentage points as a share of post-tax income over the same period.

There are tentative signs of an easing in the rapid pace of household borrowing growth. The annual growth rate of unsecured borrowing has slowed sharply since early 2005 in response to tightening credit conditions. And the annual growth of secured borrowing has moderated slightly since the May *Report* (Table 1.C), consistent with developments in the housing market. Housing market activity appears to have eased since the end of 2006 and house price inflation also appears to have fallen back slightly in recent months (Chart 1.10).

Looking ahead, the household debt to income ratio is likely to continue to rise, despite initial signs of slowing in secured lending growth. Following the rise in house prices in recent years, those entering the housing market are likely to take out larger mortgages than those that are paid back by people leaving the market. That will lead to higher aggregate household debt. But given that only a relatively small fraction of the housing stock changes hands each year, it will take time for this to feed through. The expected rise in debt is likely to lead to further increases in households' debt-servicing costs. But the implications for consumption also depend on households' net wealth position, which is discussed further in Section 2.

### **Corporate finances**

The total finance raised by companies through bonds, shares and bank borrowing has increased since 2004. Within this, the annual growth of M4 lending to private non-financial companies (PNFCs) was 17.6% in 2007 Q2, around 10 percentage points higher than at the end of 2004. The rise in PNFC borrowing in part reflects the past easing in credit

### Table 1.C Lending to individuals<sup>(a)</sup>

Percentage changes on a year earlier

	Averages <sup>(b)</sup>	2006	2007	
	1995–2005		Q1	Q2
Total lending	9.8	10.5	10.5	10.2
<i>of which:</i> Secured (83%) Unsecured (17%)	8.7 15.0	11.4 6.4	11.5 5.8	11.2 5.2
<i>of which:</i> Credit card (5%) Other (13%)	20.3 13.3	3.6 7.4	2.5 6.9	1.6 6.5

 (a) Growth rates are for the last month in each period unless otherwise stated. The figures in parentheses show the share of total lending to individuals using average amounts outstanding in 2006. The components may not add up to the totals due to rounding.
 (b) Averages of monthly data.

Chart 1.10 Housing market activity and prices



Sources: Bank of England, Halifax, Home Builders Federation (HBF), Nationwide and Royal Institution of Chartered Surveyors (RICS).

- (a) The green area shows the range between the minimum and maximum readings of five indicators: HBF site visitors; HBF net reservations; RICS new buyer enquiries; RICS sales to stork ratic; and loan approvals. HBF data are seasonally adjusted by Bank staff.
- stock ratio; and Ioan approvals. HBF data are seasonally adjusted by Bank staff.
  (b) Average of Halifax and Nationwide house price inflation rates. The published Halifax index has been adjusted in 2002 by the Bank of England to account for a change in the method of calculation.

### Table 1.D Monetary aggregates(a)

#### Percentage changes on a year earlier

	2004	2005	2006	2007	
				Q1	Q2
Notes and coin <sup>(b)</sup>	5.5	3.1	5.1	4.1	4.8
M4	9.0	12.8	12.8	13.0	12.9
of which: Households (59%) Private non-financial corporations (15%) Other financial corporations (26%)	8.3 7.3 12.8	8.0 11.6 27.7	8.4 12.8 24.0	8.4 11.7 24.8	8.4 13.8 22.3

(a) Growth rates are for the last month in each period. The figures in parentheses show the share of total M4 using average amounts outstanding in 2006.
(b) Adjusted for special non-seasonal factors. conditions. Some of the increase in corporate debt has been used to fund increased merger and acquisition activity, in part reflecting the rise in private equity buyouts. But the increase in borrowing may also reflect the improvement in business investment intentions over the past year (Section 2).

Corporate borrowing is likely to be affected by the recent volatility in financial markets. But whether these developments help return corporate credit conditions to more normal levels over time, or end up tightening them by rather more, is highly uncertain at this stage. Section 5 discusses the risks to the outlook for demand posed by a tightening in credit conditions and a potential withdrawal of liquidity.

### Monetary aggregates

Developments in borrowing also have implications for money growth. Broad money has continued to grow at a rapid pace. The annual growth of M4 — a measure of money that includes bank and building society deposits held by households and companies, along with notes and coin in circulation — was 12.9% in the year to June (Chart 1.8).

If the increase in the money stock solely reflects credit becoming cheaper and more widely available, households and businesses will increase their spending on goods and services as well as on assets, both financial and real. That will raise nominal spending — either directly, or indirectly through raising household wealth — and push up on inflation. But to the extent that the rise in the money stock reflects a desire by households and companies to hold more money in their portfolios, then the extra money holdings will have fewer, if any, implications for inflation.

Broad money growth has picked up in the PNFC sector in recent years and remains high in the household sector relative to nominal consumer spending growth. But much of the pickup in broad money growth over the past three years reflects increased holdings by non-bank financial corporations (known as 'other financial corporations', or OFCs) (Table 1.D). This sector is made up of a diverse range of businesses, which are likely to use their money holdings in different ways. For example, the OFCs sector includes institutional investors, which may use increased money holdings to purchase other financial or real assets. But the sector also includes OFCs that mostly act as intermediaries between banks; increases in their deposits may pose less of a risk to inflation. In addition, some of the growth in OFCs' money is likely to reflect transfers of funds between OFCs and banks within the same banking group - there is considerable uncertainty about the implications that this has for inflation. The Committee will continue to monitor developments in money and credit closely.

## 2 Demand

Demand growth remained firm in the first half of the year. Quarterly consumption growth is likely to have rebounded in Q2, but there are tentative signs that spending may ease in the second half of the year. Business investment fell a little in Q1, but the short-term outlook remained positive. The world economy continued to grow at a brisk pace.



#### Table 2.A Expenditure components of demand<sup>(a)</sup>

Percentage changes on a quarter earlier

	Averages 2004	2005	2006	2006 Q4	<u>2007</u> Q1
Household consumption <sup>(b)</sup>	0.8	0.3	0.7	1.1	0.5
Government consumption	0.5	0.6	0.5	0.5	0.5
Investment	0.8	1.0	2.4	3.1	1.1
of which, business investment	0.1	0.7	3.1	4.1	-0.6
Final domestic demand	0.8	0.5	0.9	1.3	0.6
Change in inventories <sup>(c)(d)</sup>	0.0	-0.1	0.0	-0.3	0.2
Alignment adjustment <sup>(d)</sup>	0.0	-0.1	0.0	-0.4	-0.2
Domestic demand	0.8	0.2	0.9	0.6	0.7
'Economic' exports <sup>(e)</sup>	1.4	2.0	0.9	1.6	-0.5
'Economic' imports <sup>(e)</sup>	1.7	1.2	1.1	0.9	-0.4
Net trade <sup>(d)</sup>	-0.1	0.2	-0.1	0.1	0.0
Real GDP at market prices	0.6	0.5	0.8	0.8	0.7

Chained-volume measures

) Includes non-profit institutions serving households Excludes the alignment adjustment.

(d) Percentage point contributions to quarterly growth of real GDP.
 (e) Excludes the estimated impact of missing trader intra-community (MTIC) fraud

Monetary policy affects inflation through its impact on nominal demand. Annual growth in both nominal GDP and domestic demand remained around 6% in 2007 Q1, above their average rates since 2000 (Chart 2.1). Trends in nominal demand reflect developments in both prices and real activity. Prices are discussed in Section 4; the rest of this section examines developments in real demand.

Real GDP growth is provisionally estimated to have been 0.8% in 2007 Q2, up slightly from an estimated 0.7% in Q1 (Table 2.A). The Q1 National Accounts contained revisions to GDP and its components, but these did not substantially change the pattern of growth over the recent past (see box on page 16).

Since the start of August 2006, the MPC has increased Bank Rate by a total of 125 basis points. A key issue for the Committee is assessing the pace and scale of pass-through of those Bank Rate increases to domestic demand, and judging whether the impact of rate rises has been offset by stronger underlying demand pressures (Section 2.1). One reason why real GDP growth has remained robust, despite the increases in Bank Rate, is the rapid pace of growth in the world economy. Section 2.2 considers recent developments in global growth and their implications for UK export demand.

### 2.1 Domestic demand

### Household consumption

The increases in Bank Rate over the past year should bear down on household spending growth. However, there are only tentative signs as yet of a slowdown in the official spending data. Volatility in retail sales has distorted recent quarterly growth rates, pushing down on sales growth in Q1 and up in Q2 as a whole (Chart 2.2). Reflecting that, household consumption growth was 0.5% in Q1 and is likely to have picked up in Q2. However, looking at the most recent monthly data, growth in retail sales averaged 0.2% a month between April and June, slightly below its 20-year average rate.

### **Revisions to the National Accounts**

The ONS publishes GDP estimates on a quarterly basis in the National Accounts. These estimates often include revisions to earlier data based on new information. Additionally, once a year, the ONS publishes the *Blue Book* which typically provides more scope for revisions and incorporates a much wider range of information. But this year the ONS has reduced the scope of the Blue Book exercise so that resources can be directed towards modernising the United Kingdom's National Accounts for next year's Blue Book.(1)

### Sources of revisions in Blue Book 2007

The Blue Book often contains significant changes to statistical methods or concepts. But the only methodological change in the Blue Book 2007 has been to incorporate improved estimates of software developed in-house by companies. In general, that raises estimates of annual growth from 1970 onwards. Cumulatively this adds around 7% to the level of business investment and accounts for a large part of the 0.8% upward revision to the level of GDP in 2007 Q1. But, as this has little impact on the pattern of recent growth, it has few implications for the MPC's assessment of the margin of slack in the economy. Other methodological changes originally planned for this year have been postponed to 2008.

Other regular revisions have also been scaled back this year. The Blue Book usually incorporates information from the

ONS's most comprehensive surveys, such as the Annual Business Inquiry. That allows the ONS to benchmark quarterly estimates of GDP and its components in recent years to the more accurate annual data. The detailed annual data are also needed to balance the three measures of aggregate activity calculated by the ONS (based on total expenditure, output and income in the United Kingdom) and produce a more accurate estimate of GDP. This year a number of series have been provisionally benchmarked to new annual data sources but the ONS has not balanced the accounts for 2005 (or carried out the usual rebalancing for 2004).

### Implications

The revisions to growth in the 2007 Blue Book are smaller than those typically seen in a Blue Book release (Table 1). For example, GDP growth in 2005 was revised down a little and growth in 2004 was unrevised, whereas in past *Blue Book* releases, growth in the previous three years has on average been revised up. There have also been few significant changes to the individual expenditure components. To the extent that the National Accounts for the recent past contain somewhat less information than usual at this stage in the data cycle, estimates of growth over the past three years are therefore more uncertain than usual. More substantial revisions are likely in future Blue Books. Information from other sources, such as surveys, may provide a guide to the likelihood and direction of those revisions. The box on pages 24–25 discusses issues relating to data uncertainty in more detail.

Business investment<sup>(d)</sup>

2005

-0.52

2004

0.02

2006

-0.20

2004

0.00

Net trade<sup>(b)(e)</sup>

2005

0.03

2004

0.00

2006

0.04

### Table 1 Revisions to annual growth in real GDP and selected expenditure components<sup>(a)</sup>

Percentage points					
	GDP <sup>(b)</sup>	Consumption <sup>(c</sup>			
Revision to:	2006	2005	2004	2006	2005
2007 Blue Book	0.08	-0.09	0.00	0.05	0.10
Mama: average revisions to equivalent vears (f)	Voor 1	Voor 2	Voor 2	Voor 1	Voor 2

Memo: average revisions to equivalent years: <sup>(f)</sup>	Year-1	Year-2	Year-3										
Annual <i>Blue Book</i> releases	0.03	0.15	0.14	0.10	0.02	-0.03	0.92	0.05	0.83	0.02	0.03	0.01	
Non-Blue Book National Accounts releases	0.02	0.00	0.00	-0.02	0.00	0.00	0.16	0.00	0.00	0.01	0.00	0.00	

(a) Based on calendar-year data.
 (b) Memo rows exclude revisions in September 2003 related to adjustments to import data to account for missing trader intra-community (MTIC) fraud.

(d) Excludes the transfer of nuclear reactors from the public corporation sector to central government in 2005 Q2.

Contributions to GDP growth

(e) Contributions to CDP growth. (f) Average revisions between National Accounts releases from March 1995 to March 2007. For example, Year-1 refers to the average revisions to the previous calendar year.

#### Chart 2.2 Retail sales and household consumption



(a) Volume of sales at 2000 prices

 (b) Chained-volume measure (reference year 2003). Includes non-profit institutions serving households.





(a) Chained-volume measure. Includes non-profit institutions serving households. The dates indicate the quarter in which Bank Rate was first increased.

## Chart 2.4 Contributions to quarterly growth in real post-tax labour income



(b) Taxes include income and Council Tax.

(c) Consumption expenditure deflator (including non-profit institutions serving households).
 (d) General government benefits minus employees' National Insurance contributions.

More recent evidence from surveys and the Bank's regional Agents shows some signs of an easing in spending around the middle of the year. The *CBI Distributive Trades Survey* suggested that retail sales were weak for the time of year in July, with retailers expecting that sales would remain subdued in August. And reports from the Bank's regional Agents suggest that demand for both durable goods and consumer services has eased. The recent floods in parts of the United Kingdom may lead to some volatility in retail sales in coming months but the overall impact is uncertain. It is possible that sales were weak in affected areas during the floods. But there may be a subsequent boost to spending as households replace damaged goods.

Past experience may help to determine when higher interest rates are likely to start affecting consumer spending more significantly. Bank Rate was increased by 125 basis points between November 2003 and August 2004 and by 100 basis points between September 1999 and February 2000. On both those occasions, consumption growth showed clear signs of slowing around three calendar quarters after the first rate rise (**Chart 2.3**). But past experience is not always a good guide to current circumstances. It is important to take account of the other factors affecting household behaviour around the time of interest rate changes. For example, the slowdown in consumption growth in 2004 was probably also related to households reassessing their income prospects, following rises in energy prices and effective tax rates.<sup>(1)</sup>

One reason why household spending may have been slower to react to the latest rises in Bank Rate than in the past is delays in the pass-through to the retail interest rates that households face. That might reflect the relatively high proportion of borrowers on fixed-rate mortgages (Section 1). But it may be that other factors have also been supporting consumption.

The most important determinants of households' consumption decisions are their current and expected incomes. There are a number of measures of current income, but households' consumption decisions tend to be most closely related to their real post-tax labour income. Growth in this measure of income was weak in 2007 Q1, continuing the trend seen in recent quarters (Chart 2.4). The fact that consumption growth has not slowed over the past year in line with labour income suggests that households believe that the level of income is only temporarily depressed. An expected recovery in income may therefore be a factor supporting current consumption growth. But if income expectations turn out to be over-optimistic, there is a risk that households will revise down their view of lifetime income and rein in spending.

(1) See the box on page 19 of the May 2007 Inflation Report for more details.

#### Table 2.B Household sector trends<sup>(a)</sup>

Percentage changes on previous quarter<sup>(b)</sup>

	Twenty-year	Averages		2006		2007
	averages <sup>(c)</sup>	2005	2006 H1	Q3	Q4	Q1
Real consumption <sup>(d)</sup>	0.7	0.3	0.6	0.3	1.1	0.5
Real post-tax labour income <sup>(e)</sup>	0.6	0.5	0.2	-0.1	0.4	0.1
Real post-tax income <sup>(f)</sup>	0.7	1.0	-0.1	0.3	-0.1	-1.3
Saving ratio <sup>(g)</sup>	7.2	5.6	5.7	5.0	3.9	2.1
Inflation-adjusted saving ratio $^{(h)}$	5.7	4.4	4.5	3.9	2.8	1.1

Sources: ONS and Bank of England calculations

(a) Includes non-profit institutions serving households

(b) Unless otherwise stated.
 (c) 1987 Q2 to 2007 Q1.

(d) Chained-volume measure.
 (e) See Chart 2.4 for details on construction.
 (f) Total available households' resources deflated by consumption expenditure deflator.

Percentage of household's post-tax income. Saving adjusted for the impact of inflation on the real value of assets and liabilities held by the household sector which are fixed in nominal terms. Percentage of inflation-adjusted post-tax income.





<sup>(</sup>a) At current prices. Data exclude the transfer of nuclear reactors from the public corporation ctor to central government in 2005 Q2 (b) Excluding the alignment adjustment

A wider measure of income, incorporating elements such as net interest receipts, is needed to calculate households' saving. That measure of post-tax income fell sharply in Q1, taking the saving ratio to 2.1% (Table 2.B). The fall partly reflected erratic factors. But even before the Q1 decline, the household saving ratio looked low relative to the average of the past 20 years.

Changes in the structure of the economy can affect the amount households want to save. For example, based on experience of the past fifteen years, households may believe that the economic environment has become more stable. Over time, it has also generally become easier for households to access credit to smooth through any temporary weakness in income. Both of these factors would tend to reduce households' desire to build up precautionary savings.<sup>(1)</sup>

Another reason why households may be saving less is that their financial balance sheets have been boosted by high asset prices. Households' net financial wealth (their financial assets less financial liabilities) has been rising relative to income since 2004. That is because, on average over this period, equity price gains have boosted households' net financial wealth, and more than offsetting the impact of increased household debt. So, other things being equal, equity price gains may have led households to cut back on saving. More recent falls in equity prices (Section 1) may lead households to reassess their financial position, though equity prices are around their levels at the start of 2007. Section 5 considers the prospects for the household sector.

### Investment

Business investment fell a little in 2007 Q1, but was nevertheless nearly 10% higher than a year earlier. The slowing in Q1 was concentrated in the sectors which had been growing particularly strongly — including the real estate, rental and business activities sector. Annual growth in business investment excluding those sectors continued to pick up.

The strong growth in business investment in the year to Q1 took place despite the increases in Bank Rate. That could reflect a past easing in credit conditions for companies (Section 1). Or it could reflect the fact that many investment projects take time to complete, meaning that the current data may reflect projects initiated before much of the rise in Bank Rate. It is also possible that other factors have played a greater role in companies' investment decisions. There is a relatively close relationship between past profits and business investment spending. So the pickup in non-oil company profits may have supported investment (Chart 2.5).

(1) For a fuller discussion of recent trends in saving, see Whitaker, S (2007), 'National saving', Bank of England Quarterly Bulletin, Q2, pages 224-31.



(a) Measures weight together sectoral surveys using shares in real business investment. Disaggregated data on financial services investment are provided by the ONS, but are not subject to the scrutiny applied to officially released National Statistics.

- (b) Net percentage balances of companies who plan to increase investment in plant and
- (c) The presence of t
- (d) Net percentage balances of companies who say they have revised up their planned investment in plant and machinery over the past three months. Non seasonally adjusted. Four-quarter moving average.

### Chart 2.7 World GDP(a)



(a) Volume measure using purchasing power parity exchange rates. Includes IMF projections.
 (b) Based on World Economic Outlook Update, released on 25 July.



Chart 2.8 Changes in the euro-area investment to GDP

Sources: Eurostat, Thomson Datastream and Bank calculations

(a) Chained-volume measure. Thomson Datastream data used prior to 1995. The dates refer to the quarter in which output troughed.

Near-term prospects for investment appear firm. The Bank's regional Agents' scores and the BCC survey of near-term investment intentions both remain at high levels (Chart 2.6). Respondents to CBI surveys appear less upbeat, but the survey balances are still consistent with continued healthy growth in investment. The longer-term outlook for investment is discussed in Section 5.

### Government

In 2007 Q1, annual growth in nominal government consumption slowed to 3.7%, but nominal government investment growth picked up sharply to 14.3%. As in May, the MPC has based its projections on the 2007 Budget plans.

### 2.2 External demand and net trade

Developments in the world economy affect the demand for UK exports. World growth has been strong in recent years and has exceeded past expectations, as illustrated by the successive upwards revisions to IMF forecasts for world GDP (Chart 2.7). During 2006, the strength in Asian and European demand helped to offset the impact of the slowdown in the United States. Taking account of trade shares, UK-weighted world GDP growth was almost 4% in 2006, well above the average of the past 20 years.

### The euro area

The euro-area recovery continued in 2007 Q1, with GDP growth of 0.7%. Relative to past recoveries, investment has played a greater role in the current upswing in growth (Chart 2.8). One possibility is that strong growth in profits and a relatively low cost of finance has encouraged companies to invest at a relatively early stage of the recovery.

In contrast to the strength in investment, euro-area household consumption did not grow in Q1. In part, that was due to the increase in the German VAT rate. But consumption growth was moderate in other countries too. Euro-area consumption growth has been subdued for some time, but prospects for the household sector do seem to be improving. In particular, the euro-area unemployment rate was 6.9% in June 2007, 1 percentage point lower than a year earlier. The implied improvement in household income prospects should provide support for a more substantial recovery in private consumption over the rest of this year.

### **The United States**

US GDP growth was 0.8% in Q2, up from 0.2% in Q1 (Chart 2.9). That pickup in part reflected a recovery in non-residential investment growth following weakness around the turn of the year. Consumption growth slowed sharply, in part reflecting the renewed strength in gasoline prices. Labour income growth should provide support to consumption in the quarters ahead, though consumption growth may be slightly lower than the rates seen around the turn of the year. But a



Source: Bureau of Economic Analysis

(a) Chained-volume measures

(b) Includes non-profit institutions serving households

### Chart 2.10 Survey indicators of goods exports



Sources: Bank of England, BCC and CBI

(a) Manufacturing companies' reported annual growth in production for sales to overseas

(b) Net percentage balance of manufacturing companies saying that export sales/deliveries increased on the quarter. Four-quarter moving average.





key risk to the US outlook is the extent to which the recent tightening in credit markets is sustained and spills over to the wider economy.

### Asia

Asian growth has remained robust. A significant source of the upward revisions to economists' projections for world growth has been revisions to forecasts for Asia, in particular, China. Chinese GDP continued to grow at a fast pace in 2007 Q2, with annual growth reported to be almost 12%.

### Net trade

Robust growth around the world should support the demand for UK exports. The rise in the sterling effective exchange rate since April 2006 may act against that to a degree. However, reports from the Bank's regional Agents suggests that affected exporters have preferred to keep foreign currency prices low and accept lower margins, while some companies may have responded by actively reducing their costs. Consistent with that, surveys of exporters suggest that foreign demand for UK goods remained strong over the past year (Chart 2.10).

That survey evidence contrasts with official data on goods exports, excluding the estimated impact of missing trader intra-community fraud (MTIC), which suggest a sharp slowing in growth in recent quarters (Chart 2.11). Official data suggest that goods import growth has also slowed sharply. That is at odds with robust domestic demand growth, especially given the strong growth in business investment, which is relatively import-intensive. One possibility is that the official trade in goods volumes data are mismeasured.

Measurement problems in imports and exports may broadly offset one another, leaving net trade in goods less affected. And trade in services is unaffected by MTIC-related measurement issues. The latest estimates suggest that strong growth in exports of services has boosted GDP in the past two quarters. Taking goods and services together, net trade is estimated to have made a neutral contribution to GDP growth in 2007 Q1, similar to its average contribution over the past year (Table 2.A).



## **3** Output and supply

Output growth in 2007 Q2 was a little above its post-1997 average, according to the preliminary estimate. Manufacturing growth rebounded in Q2, while service sector growth remained solid. Capacity pressures continued to be elevated. Given these pressures, employment growth might have been expected to be stronger than observed over the second half of 2006 and early 2007, and the unemployment rate a little lower. Subdued hiring may have reflected the role of supply-side factors, including the rise in non-wage costs. Employment growth recovered somewhat in the three months to May and the unemployment rate edged lower.



<sup>(</sup>a) Whole-economy output is the ONS measure of gross value added at basic prices. Market sector output is a Bank calculation up to the end of 2004 based on ONS data. From 2005 the chart shows the ONS experimental estimate of market sector value added. It excludes output that does not have a market-determined price, such as government-provided education. For more details see Churm et al (2006), 'Measuring market sector activity in the United Kingdom', Bank of England Quarterly Bulletin, Q4, pages 404–14. The ONS estimate of market sector output is subject to the same data uncertainty issued iscussed in the box on pages 24–25. The 2007 Q2 estimate is marked as a diamond and is constructed using information in the preliminary GDP release.

A key determinant of inflationary pressure is the balance between output and potential supply. Section 3.1 reviews the official output data and the extent to which surveys and past revisions can help inform the current view of growth. A measure of the balance between output and potential supply within businesses is the degree of capacity pressure. A range of estimates suggest that capacity pressures are currently above normal (Section 3.2). Given these pressures, employment growth might have been expected to be stronger over the second half of 2006 and early 2007, and the unemployment rate a little lower. Section 3.3 discusses potential explanations for this, and the implications for labour market tightness.

### 3.1 Output

GDP at basic prices was provisionally estimated to have grown by 0.8% in 2007 Q2, 0.1 percentage points stronger than in the previous quarter. The annual growth rates of both GDP and market sector output were a little above the averages of the past decade (Chart 3.1).

Manufacturing output — around 15% of GDP — was provisionally estimated to have grown by 0.6% in 2007 Q2, a strong rebound from the decline recorded in Q1. Some of that increase was associated with unusually strong output in the building and repairing of ships, which is unlikely to be sustained. Service sector output — around three quarters of GDP — was provisionally estimated to have grown by 0.8% in 2007 Q2, continuing the solid growth of the past year. The pickup in annual service sector growth since mid-2005 largely reflects faster growth in the distribution sector (retail/wholesale and hotels/catering) (Chart 3.2), which rose around the same time as household consumption growth.

Early estimates of output growth are frequently revised, as more information becomes available or statistical methods improve. As the box on pages 24–25 discusses, there are two



(d) Includes transport, storage and communications.
 (e) Distribution sector includes transport, storage and communications.
 (e) Distribution sector includes retail/wholesale and hotels/catering.
 (d) Includes output of government and other sectors as well as rounding differences.

### Table 3.A Measures of manufacturing activity

	Averages since 1997	2006 Q3	Q4	2007 Q1	Q2	July
ONS <sup>(a)</sup>	0.1	0.6	0.1	-0.4	0.6	n.a.
CIPS/NTC <sup>(b)</sup> Output New orders	52.8 52.3	55.7 54.0	53.6 54.1	55.5 56.1	57.2 56.0	57.5 58.3
CBI(c)	-3	0	19	6	3	n.a.
BCC <sup>(d)</sup>	12	18	31	26	31	n.a.

Sources: BCC, CBI, CIPS/NTC and ONS

Percentage change on a quarter earlier

(b) A reading above 50 indicates increasing output/orders, and below 50 indicates falling output/orders

Averages of monthly indices. (c) Percentage balance of respondents reporting volume of output to be 'up' relative to 'down' over the past three months

(d) Percentage balance of respondents reporting domestic sales to be 'up' relative to 'down' over the past three months

### Chart 3.3 Indicators of private non-distribution service sector output



Sources: BCC, CBI/Grant Thornton, CBI/PwC, CIPS/NTC and ONS

(a) Gross value added at basic prices. The 2007 Q2 estimate, marked as a diamond, is constructed using information in the preliminary GDP release and excludes the subcomponents: distribution, hotels and catering and other services. (b) CBI balances capture the volume of business over the past three months. Financial and bu

consumer services are weighted together using nominal shares in value added. BCC and CIPS/NTC surveys measure sales and activity respectively. Each survey has been adjusted to have the same mean and variance as ONS private non-distribution output growth (1999 Q1–2007 Q2). The green area shows the range between minimum and maximum readings in each quarter

approaches to assessing uncertain data: looking at how the official data have been revised in the past; and incorporating other information sources, such as business surveys.

The official data for manufacturing growth have been weaker than the corresponding measures in the business surveys over the past year, which have been well above their post-1997 averages (Table 3.A). As discussed in the box on pages 24–25, early official estimates of manufacturing output growth have tended to provide a good indication of the movements in later estimates. But annual growth has, on average, tended to be revised upwards.

Early estimates of service sector output growth have also tended to be revised upwards. If that past pattern of revisions were repeated in the future, then current estimates of service sector output would be likely to be revised up somewhat. Business surveys also suggest some risk of upward revision; the majority of surveys relating to private non-distribution services output (60% of total services output) were stronger than the official data over the past six months (Chart 3.3).

Overall, the official GDP and market sector output data may be revised upwards in due course, and the MPC has drawn on that assessment in forming its projections for GDP growth (Section 5).

Looking ahead, the impact of the recent flooding in certain parts of the United Kingdom may lead to volatility in output growth over the second half of 2007.

### 3.2 Capacity utilisation within businesses

In response to a shift in demand, businesses usually adjust the intensity with which they work their existing employees and capital. That is because it takes time and resources for businesses to hire new employees or invest in new equipment. The degree to which existing employees and capital are being worked harder than usual is captured by estimates of capacity utilisation. Rising levels of capacity utilisation are often accompanied by increased costs and a greater tendency to raise prices.

Capacity pressures are not straightforward to measure. There are a range of approaches, several of which were discussed in the 2007 Q1 Quarterly Bulletin.<sup>(1)</sup> By weighting together business surveys for different sectors of the economy, it is possible to obtain an illustrative range of estimates (Chart 3.4). These estimates suggest that capacity utilisation remains above the average post-1999. But, the most recent data show a widening in the range — with the Agents' measure continuing to rise, but the BCC survey measure falling back.

### Chart 3.2 Contributions to pickup in annual growth of service sector output since 2005 Q3<sup>(a)</sup>

<sup>(1)</sup> See Ellis, C and Turnbull, K (2007), 'Gauging capacity pressures within businesses', Bank of England Quarterly Bulletin, Q1, pages 79-85.





(a) Three measures are produced by weighting together surveys from the Bank's regional Agents (manufacturing, services), the BCC (manufacturing, services), and the CBI (manufacturing, financial services, business/consumer services, distributive trades), using nominal shares in value added. The BCC data are non seasonally adjusted. The chart shows the range between minimum and maximum readings in each quarter

### Chart 3.5 Employment(a)



Source: Labour Force Survey

(a) Estimates of employment of those aged 16 and over. Estimates for 2007 O2 are shown by the diamond and pink bar, and are based on data for the three months to May

### Table 3.B Surveys of employment

	Averages since 1997	2006 Q3	Q4	2007 Q1	Q2
Manufacturing BCC <sup>(a)</sup> CBI <sup>(a)</sup> CIPS/NTC <sup>(b)</sup>	5 -16 48.2	17 -10 50.0	17 -18 49.0	9 -19 51.3	17 -9 51.2
Services BCC <sup>(a)</sup> CBI/Grant Thornton <sup>(a)</sup> CIPS/NTC <sup>(b)</sup>	16 13 52.1	24 14 53.8	17 28 55.1	14 12 54.2	21 33 53.7

Sources: BCC, CBI, CBI/Grant Thornton and CIPS/NTC.

(a) Net percentage balances of firms whose workforce increased over the past three months. BCC balances are

non seasonally adjusted. The CBI/Grant Thornton average is since 1998 Q4. (b) Averages of monthly data. A reading above 50 indicates increasing employment and below 50 indicates falling employment over the past three months.

Rising capacity pressures are likely to provide an incentive to invest in more capital. Business investment fell a little in 2007 Q1, but was nevertheless nearly 10% higher than a year earlier (Section 2).

### 3.3 Labour market tightness

Another way in which businesses can relieve capacity pressures is to raise employment levels. However, despite the apparently high level of capacity pressures, employment growth has been relatively subdued over the past year, rising by 0.6% in the three months to May, compared with the same period a year earlier. This followed a particularly weak outturn in Q1 (Chart 3.5).

There are a number of competing explanations for the combination of apparently tight capacity conditions but relatively weak growth in employment. First, it is possible that true employment has been stronger than the official data suggest. The estimates for employment are derived from the Labour Force Survey (LFS) and are subject to significant sampling variability.<sup>(1)</sup> In addition, the published totals rely on an estimate of population which may be subject to underrecording. In particular, the underrepresentation of temporary foreign workers and general difficulty in measuring net migration may lead to an underrecording of employment in the LFS. Survey evidence provides some support for this, pointing to stronger than average employment growth (Table 3.B). However, surveys have proved to be an imperfect measure of employment growth in the past and are themselves subject to sampling variation.

The rest of this section examines other potential influences on recent employment trends. One possibility is that businesses' demand for labour may be weaker than might have been expected given the apparent strength of output growth. Another is that unemployment has been pushed higher by supply-side factors. These explanations have different implications for the likely degree of labour market tightness.

### Labour demand

The recent pace of private sector employment growth may be a consequence of cyclical factors, particularly businesses' hiring patterns in 2005 and 2006 and their views on the likely strength of future demand. The slowdown in output growth in 2005 was accompanied by a marked slowing in labour productivity growth as firms continued to hire — perhaps with the view that the slowdown would be mild and short-lived. As the economy recovered in 2006, companies may have therefore chosen to work their existing staff more intensively rather than increase hiring. That is consistent with the

<sup>(1)</sup> The ONS notes that in the year to May, it is expected that in 95% of samples, the change in employment would lie in the range of 6,000 to 354,000, compared with an estimated increase of 180.000

### Data revisions and uncertainty

Early estimates of official data tend to be revised. Those revisions occur as more information becomes available and as the ONS implements methodological improvements. This box looks at how both the historic pattern of statistical revisions, and alternative evidence such as business surveys, can help deal with data uncertainty.

The profile of the latest estimate of annual GDP growth differs from that of earlier releases (Chart A). Patterns in those past revisions can be used to inform the interpretation of current early estimates. For example, on average, the direction of past revisions to aggregate GDP growth has been upwards.

#### Chart A Revisions to real GDP<sup>(a)</sup>



(c) Earlier estimates of GDP growth include: Preliminary; Output, Income and Expenditure; and Quarterly National Accounts estimates of annual GDP growth since 1993 Q1.

There are a number of ways of quantifying the degree to which earlier estimates of data have proved to be a good guide to movements in later vintages. One approach is to look at the correlation between earlier and later estimates. A high correlation would suggest that if an earlier estimate pointed to sharp movements in growth, then the same is likely to be true of later estimates. Conversely, a low correlation would suggest that sharp movements in earlier estimates may well be revised away over time.

An alternative measure, the signal to noise ratio, compares the magnitude of movements in later estimates with the magnitude of revisions to earlier estimates. A low signal to noise ratio indicates that movements in the later estimates of growth are small when compared with the size of revisions to earlier estimates of growth. Taken together, the combination of a low correlation and a low to signal to noise ratio would suggest placing less weight on earlier estimates and vice versa.

The magnitude of revisions tends to vary across the sectors that make up GDP. Earlier estimates of manufacturing output growth have tended to be closely correlated with later estimates and have had a high signal to noise ratio. That suggests earlier estimates are on average good indicators of the later estimates of manufacturing output growth. However, this is less true of earlier estimates of services output, which have had a relatively low correlation with later estimates and have also had a relatively low signal to noise ratio (Table 1). That is likely to reflect the general difficulty in measuring the value added of the service sector. Following the 2004 Allsopp Review,<sup>(1)</sup> the ONS is implementing a number of improvements to the measurement of the service sector.

### Table 1 Measures of data uncertainty<sup>(a)</sup>

	Correlation <sup>(b)</sup>	Signal to noise ratio <sup>(c)</sup>	Mean revision to second <i>Blue Book</i> <sup>(d)</sup>	Mean revision to latest estimate <sup>(e)</sup>
GDP	0.7	1.8	0.2	0.5
Services	0.4	0.9	0.1	0.6
Manufacturing	0.9	6.8	0.3	0.5
Construction	0.8	1.5	0.0	-0.2

Sources: ONS and Bank calculations

(a) Based on estimates between 1993 Q1 and 2004 Q4.

(c) Source annual growth rate in first Quarterly National Accounts estimate and latest estimate.
 (c) Signal to noise ratio defined as variance of latest estimate of annual growth divided by variance of revisions to first Quarterly National Accounts estimate.

(d) Mean revision between Quarterly National Accounts annual growth estimate and estimate for the same quarter after two sets of Blue Book revisions.
 (e) Mean revision between first Quarterly National Accounts annual growth estimate and latest estimate.

Given the uncertainty around earlier estimates of output growth in the service sector, there is likely to be benefit in looking at alternative measures, such as business surveys (Section 3.1). However, business surveys are not a panacea as they also tend to correlate imperfectly with the later estimates of output growth.

The Bank has an ongoing research programme into methods for estimating recent output growth on the basis of past patterns of revisions and the available survey indicators. For some time, the MPC has drawn on the results of this research when assessing the likely pace of output growth. Regression analysis<sup>(2)</sup> is used to estimate how much weight to put on the earlier ONS estimates of GDP growth, relative to the information contained in survey measures and historic patterns of revisions in the ONS data. Chart B gives an indication of the range of uncertainty around the official estimates based on that regression approach. It shows the range of possible eventual outturns for GDP for the central 90% of the estimated distribution. Chart B suggests that it is more likely than not that recent official estimates of GDP growth will eventually get revised upwards.

It is important to note that the regression-based estimate in **Chart B** assumes that ONS data accurately capture the underlying movements in output once they have been fully balanced (which normally occurs around two years after the first estimate is published). But for a variety of reasons, National Accounts remain subject to revision for many years after the initial release. In addition, the results assume both that past revisions are a good indicator of current uncertainty, and that the historic relationships between business surveys and later estimates of ONS data are a good guide to their present relationship.

The statistical techniques used to guide the MPC's assessment of underlying trends in output growth are likely to be refined in the future. The Bank intends to provide an update on its data uncertainty research programme in a forthcoming *Quarterly Bulletin*.

### Chart B Measure of uncertainty around latest ONS estimate of GDP<sup>(a)</sup>



- (a) Chained-volume measure at market prices. The fan chart depicts an estimated probability distribution for CDP growth over the recent past. It can be interpreted in the same way as the fan charts in Section 5. The estimated distribution suggests that there is a 90% probability that growth was within the purple shaded area. The central darkest band indicates the most likely path, although there is only a 10% probability that growth lay within that band. Regressions are estimated for sectoral output data using a variety of indicators including the scores from the Bank's regional Agents, the CIPS/NTC, CBI and BCC business surveys and the number of profit warnings. The width of the fan chart reflects the degree of uncertainty implied by the regressions. The equations assume that ONS data accurately capture the underlying movements in output once they have been fully balanced (which normally occurs around two years after the first estimate is published).
- (1) Details of the Allsopp Programme can be found on the ONS website:
- www.statistics.gov.uk/about/data/development/allsopp/.
- (2) Described in Ashley, J, Driver, R, Hayes, S and Jeffery, C (2005), 'Dealing with data uncertainty', Bank of England Quarterly Bulletin, Spring, pages 23–29.



Source: ONS (including Labour Force Survey).

substantial increase in labour productivity growth during this year and last (Chart 3.6).

Continued firm growth in output would eventually lead to increased hiring. But if companies were uncertain about the pace of future demand growth following recent increases in Bank Rate, then they may have scaled back hiring plans. However, concerns about the outlook for output growth have not so far featured heavily in the business surveys.

One feature of the recent labour market outturns has been the strength of self-employment. Around half of the rise in overall employment over the past year can be accounted for by self-employed workers. That may reflect unwillingness on the part of companies to hire workers. Alternatively, it may indicate that increased household wealth has made it financially easier for people to pursue their own business interests.

Part-time employment growth has also been strong recently. Much of the increase in part-time employment can be accounted for by those who were not able to find a full-time job. That could be indicative of less buoyant demand.

<sup>(</sup>a) The market sector data use the output estimate defined in Chart 3.1, divided by a measure of employment that excludes general government employees (adjusted to be on a calendar-quarter basis).





 (a) Household post-tax wages and salaries per head divided by the consumption deflator. Includes non-profit institutions serving households. Productivity is calculated from ONS data on non-oil and gas market sector output divided by private sector employees.
 (b) Total compensation of employees per head divided by the gross value added (GVA) deflator

of the non-oil and gas market sector. Productivity is calculated from ONS data on non-oi and gas market sector output divided by private sector employees.

Chart 3.8 Unemployment rate<sup>(a)</sup>



(a) Percentage of the economically-active population. Three-month moving average measure.





(a) Estimates only available to 2007 O1.

(b) Data adjusted to be on a calendar-quarter basis

### Supply-side factors

An alternative explanation for recent labour market trends is that supply-side factors have acted as a brake on employment growth. First, it is possible that the strength of energy prices and other non-wage business costs has deterred companies from hiring. Second, it may be that businesses have not increased their hiring in response to the high level of capacity pressures because of difficulty in finding appropriately skilled workers. This is often referred to as skill mismatch.

As discussed in previous *Reports*, companies' costs increased sharply between 2004 and 2006 — there were substantial rises in energy and import prices, as well as increases in other non-wage labour costs (such as pensions). Initially, the increase in non-wage costs pushed up on the real product wage, relative to productivity, by squeezing the value added component of companies' output prices (**Chart 3.7**). Those increases in costs ultimately require a downwards adjustment in real take-home pay. Since 2004, real take-home pay has indeed fallen relative to productivity. But if employees were slow to scale back their wage aspirations, that may have deterred businesses from hiring and contributed to the rise in the unemployment rate over 2005 and 2006 (**Chart 3.8**).

Looking ahead, the 2004–06 rise in non-wage costs may continue to affect hiring trends. Wage growth appears to have been fairly subdued over the past year (Section 4). But if in the future people demanded a higher level of wages than was affordable, businesses may be discouraged from increasing hiring rates. Conversely, if employees have accepted the decline in real wages as permanent, unemployment might be expected to decline. More recently, there has been a further rise in oil prices (Section 4). This will push up businesses' costs again and may require a further adjustment to real take-home pay. If employees resist any further required wage adjustment, then this may also push up on unemployment in the near term.

A second factor that may have led to subdued employment growth is a rise in skill mismatch. Reports from the Bank's regional Agents have indicated that some businesses have had more difficulty in recruiting appropriately skilled employees. That is likely to reflect three factors. First, an increase in the demand for higher-skilled workers. Second, an increase in the number of lower-skilled workers available; information on workers coming to the United Kingdom from the EU Accession Countries suggests that the vast majority are employed in low-paying jobs.<sup>(1)</sup> Third, the fall in public sector employment; much of the weakness in whole-economy employment growth has been due to declining public sector employment (**Chart 3.9**). To the extent that some jobs are quite specific to the public sector, it may take time for workers to move into private sector employment.

(1) Based on wage information collected under the Worker Registration Scheme.

### Chart 3.10 CBI indicators of skill shortages(a)



(a) Four-quarter moving averages. The CBI survey asks respondents: 'What factors are likely to limit your output over the next three months?'. The percentages answering 'skilled labour' or 'other labour' are used to construct the higher-skilled and lower-skilled measures respectively. The measures weight together manufacturing, financial services and business/consumer services using employee jobs weights.

### Chart 3.11 Measures of labour market tightness



Sources: Bank of England and ONS (including Labour Force Survey).

(a) Three-month average. Job vacancies per unemployed person are calculated as the number of job vacancies divided by the Labour Force Survey measure of unemployment. Vacancies exclude agriculture, forest and fishing. The diamond for 2007 Q2 is based on the three months to May.

(b) Agents' scores for recruitment difficulties was referred to as skill shortages prior to 2005.

Evidence from business surveys provide some support for an increase in skill mismatch. Over the past 18 months, businesses have reported increased difficulty in hiring those with higher skills, but no more difficulty than usual for others (Chart 3.10).

### Implications for labour market tightness

There are a variety of commonly used measures of labour market tightness — including the unemployment rate and the ratio of job vacancies to unemployment. To understand the implications of movements in those measures for the degree of wage pressure in the labour market, it is necessary to distinguish between the impact of cyclical demand-side changes and supply-side effects. If businesses' cyclical demand for labour were the main driver of recent trends in the labour market, then the rise in the unemployment rate and associated measures in 2005–06 would suggest that wage pressures were easing during that period. But if supply-side factors have been the principal influence on the labour market over the recent past, then the loosening in wage pressures will be rather less than it would have been if all the rise in unemployment reflected cyclical factors (Section 5).

More recently, movements in measures of labour market tightness have been mixed. The unemployment rate fell a little in the most recent period (Chart 3.8), although the weighted non-employment rate - an alternative measure of tightness that weights together different groups of unemployed and inactive people by an estimate of their probability of finding work — was broadly stable. That partly reflects the rise in inactivity over the past year. The ratio of vacancies to unemployment, another measure of labour market tightness, has picked up since mid-2006. The Bank's regional Agents also make an assessment of the recruitment difficulties facing businesses as part of their regular liaison meetings. Their estimate of recruitment difficulties has moved closely with the ratio of vacancies to unemployment in the past and has been rising recently (Chart 3.11). The outlook for labour market conditions is discussed in Section 5.

## 4 Costs and prices

CPI inflation declined to 2.4% in June, mainly reflecting lower inflation rates for domestic gas and electricity. Regular pay growth remained subdued, but bonus growth increased a little on average over the past year. A rebound in oil prices added to companies' costs. Prices of non-oil imports also rose, and there were signs that underlying global price pressures might be strengthening. Solid demand growth and higher inflation in the United Kingdom appeared to raise companies' pricing intentions around the turn of the year, and recent indicators have remained elevated, particularly in manufacturing.





#### Table 4.A Contributions to CPI inflation(a)

Percentage points

	<u>2007</u> Mar.	Apr.	May	June	Changes Mar.–June
Vehicle fuels and lubricants	0.0	0.0	0.0	0.1	0.1
Food and non-alcoholic beverages	0.6	0.6	0.5	0.5	-0.1
Electricity, gas, liquid and solid fuels	0.8	0.6	0.3	0.2	-0.6
Household goods	0.2	0.2	0.2	0.3	0.1
Other	1.5	1.5	1.5	1.4	-0.2
CPI	3.1	2.8	2.5	2.4	-0.7

(a) Contributions to annual (non seasonally adjusted) CPI inflation. Components may not sum to CPI inflation due to rounding. In the May *Report*, the MPC highlighted a number of risks to inflation from developments in costs, capacity utilisation and inflation expectations. These included: the extent to which increases in inflation over the past year would affect pay growth; the impact of demand conditions and recent movements in energy and import prices on companies' pricing behaviour; and how inflation expectations would be affected by the outturns for CPI inflation. This section examines the extent to which these risks are materialising.

### 4.1 CPI inflation

CPI inflation — the measure targeted by the MPC — declined to 2.4% in June, from 3.1% in March (**Chart 4.1**). In an accounting sense, the decline in CPI inflation was largely explained by lower domestic gas and electricity price inflation (**Table 4.A**). As expected, the contribution from these components fell, as earlier price increases dropped out of the annual comparison and the cuts announced by energy suppliers in the spring fed through. These factors are likely to continue to push down on inflation over the next few months.

In the May *Report*, the Committee assumed that energy suppliers would make another round of price cuts, of similar magnitude, later in the year. An assumption that there will be further price cuts has been maintained, but the magnitude is assumed to be a little smaller, consistent with recent increases in futures prices for wholesale gas (see the box on page 38). It remains uncertain whether, and when, these cuts in retail prices will take place. If they do not, that could lead to somewhat higher CPI inflation around the turn of the year than would otherwise be the case.

Oil prices have increased sharply in recent months (Section 4.3), pushing up petrol prices. But the annual rate of increase in petrol prices has so far been little changed because similar increases took place a year earlier. The contribution to

CPI inflation from petrol prices could pick up in the autumn when sharp falls last year drop out of the annual comparison, but that will depend on movements in oil prices in the coming months.

Another important driver of recent movements in CPI inflation has been the price of food. Annual inflation for food and non-alcoholic beverages rose to 6% in April, before falling back a little in May and June. Potential factors driving the changes in food price inflation are discussed in the box on pages 30–31.

Looking ahead, the recent floods in parts of the United Kingdom could lead to further volatility in food prices in the coming months. Rainfall in the three months to July was the highest since Met Office records began in 1766. And the floods are likely to have damaged some crops in the worst-affected areas. However, the overall effect on harvests is highly uncertain at this stage, and is likely to depend in part on subsequent weather conditions. Contacts of the Bank's regional Agents suggest that the full impact on wholesale prices may not become apparent until the autumn. The implications for consumer prices will also depend on the extent to which any domestic shortages can be replaced by imported products and the degree to which retailers pass through any increases in wholesale prices. Overall, the outlook for food prices is particularly uncertain at the moment.

### 4.2 Labour costs

Labour accounts for a substantial proportion of businesses' costs, so the evolution of pay growth is an important influence on inflationary pressures. According to the official average earnings index, pay growth has been muted. In the private sector, regular pay growth — which excludes bonuses — was 3.6% in the three months to May, around the same rate as over the past two years (Chart 4.2).

Bonuses have been more volatile in recent months, rising sharply in January and February before falling back. On average, the bonus contribution has been around half a percentage point higher over the past year compared with the previous two years. If bonuses have been set to improve staff retention, that could lead to upwards pressure on future labour costs. But some bonuses are likely to reflect a sharing of previous profits that does not commit companies to paying higher wages in future.

Settlements, which form an important part of the wage-determination process, typically come into effect in the first half of each year: almost three quarters of private sector settlements take place between January and June. During the first half of this year, private sector settlements averaged 3.5%, only a little higher than those in 2006, despite the pickup in inflation (Chart 4.3). Public sector settlements

Chart 4.2 Private sector earnings<sup>(a)</sup>



(b) Percentage points. Defined as private sector average earnings growth less regular pa growth.





Sources: Bank of England, Incomes Data Services, Industrial Relations Services, the Labour Research Department and ONS.

(a) The average annual increase in wage settlements over the first six months of each year compared with average annual inflation over the final six months of the previous year.

### Food price inflation

Food price inflation picked up sharply in the year to April. The annual rate reached 6%, the highest for almost six years. However, it fell back in May and June. This box considers the potential factors driving movements in food price inflation and whether they are likely to persist. It concludes that there is considerable uncertainty about the outlook, with risks in both directions.

In an accounting sense, the recent movements in food price inflation have played a key role in the volatility in overall CPI inflation. But the overall impact on CPI inflation depends on how the prices of other goods and services are affected by the developments in food prices. For example, higher food prices may reduce the income available to spend on other goods and services, thus depressing their prices.

The increase in food price inflation over the past year has been reasonably broadly based across different types of food. The prices of meats, vegetables, cereals and dairy products have risen particularly sharply (**Chart A**). Like all marketed goods, the prices of these items depend on the interaction of demand and supply.



Chart A Contribution of food to CPI inflation

(a) Contribution of food and non-alcoholic beverages to annual (non seasonally adjusted) CPI inflation.

### Global demand and supply

In part, the movements in food prices reflect global factors. Food price inflation has picked up in most major economies in recent months, and has been running higher than overall domestic CPI inflation (**Chart B**). And the prices of the foods that have contributed most to UK inflation, such as meat and cereals, have also picked up sharply in those countries. In part, that could reflect stronger global demand. Rising incomes among newly industrialised countries, such as China, will have increased the demand for food, particularly high-protein foodstuffs such as meat. For China, membership of the WTO also appears to have increased its demand as import tariffs were lowered. In 2004, Chinese imports of food products rose by more than 40% in value terms compared with the previous year. In addition, alternative uses for foodstuffs, such as maize and sugar cane being converted into biofuels, have become increasingly important. For example, ethanol production in the United States is estimated to account for around a fifth of its maize use, compared with 5% a decade ago. And the share is projected to increase to 30% over the next ten years. Such demand factors are likely to persist.





(a) Annual inflation rates for food and non-alcoholic beverages less overall domestic CPI inflation. Non seasonally adjusted.

Food prices have also been affected by global supply factors. For example, the recent drought suffered by Australia — a major wheat exporter — substantially reduced its wheat output. Upward pressure on prices from weather effects may prove to be temporary, though climate change could lead to greater volatility in food prices over the longer term. Another potential supply factor affecting food prices is the sharp increase in energy prices in 2004–06. This has increased the cost of energy-intensive inputs for agriculture, such as fertiliser, transport and machinery.

### **Domestic factors**

Domestic factors also appear to have played a role in recent movements in CPI food prices. UK food price inflation has been higher relative to overall CPI inflation than in other countries (**Chart B**). The prices charged to consumers depend on retailers' costs and demand conditions. One key driver of their costs is the prices charged by manufacturers for food products (producer prices). The annual inflation rate for these prices picked up over the past year, in part reflecting the global pressures on the food commodity prices. Looking forward, the recent floods could also lead to higher wholesale prices (Section 4.1). However, consumer prices for food have risen more rapidly than producer prices over the past year. That could reflect increases in other costs faced by retailers. Alternatively, prices may have been raised in an attempt to boost retailers' profits as demand strengthened. Consumer spending on food increased more rapidly than overall consumption over the past two years. However, anecdotal evidence suggests that competition may have intensified between supermarkets more recently, which could offset some of the upward pressure.





(a) Three-month moving average measures. The average weekly earnings series is experimental

Another possibility is that changes in retailers' marketing strategies are influencing measured CPI food prices. To the extent that retailers are making greater use of temporary special offers that are not typically picked up in the price comparisons, such as 'buy one, get one free', measured food price inflation may be higher. Retailers may also be encouraging consumers to switch to higher-quality brands for particular food products at higher prices. But this price level shift is unlikely to affect measured CPI inflation.

declined sharply in 2007 Q2 as the phasing in of new deals began.

Pay growth can be measured only imperfectly, particularly in the near term. Alternative measures of pay growth suggest a slightly different picture. In particular, growth in the experimental average weekly earnings (AWE) measure has been stronger than that for the average earnings index (AEI) over the past two years (Chart 4.4). A qualitative measure of broader labour costs from the Bank's regional Agents has also picked up.

The AEI and AWE series use the same underlying data, so the divergence in growth rates results from the way the measures are constructed. An initial analysis by the ONS suggests that part of this gap can be accounted for by the different treatment of firms that do not respond to the survey consistently from month to month.<sup>(1)</sup> And the different treatment of outliers - companies with very unusual earnings growth — can account for much of the particularly large gap in 2007 Q1, which was mainly associated with bonuses. Other differences, such as the adjustment for small firms in the AWE and the more frequent updating of sectoral weights, have tended to work in the opposite direction. Overall, these methodological differences can only explain part of the divergence between the AEI and the AWE. In principle, the AWE series may be a more useful measure of pay growth, but the ONS notes that more work is required to assess the robustness of this experimental statistic.

It is possible that subdued pay growth over the past year could in part reflect a cyclical weakening of labour demand against a background of increasing labour supply (Section 3). But it is also likely that some of the weakness in pay growth was associated with the adjustment to sharp increases in non-wage costs, such as energy and import prices, during 2004–06. To offset those higher costs, growth in real take-home pay needed to be lower. And if employees resisted part of this squeeze on pay growth, that may also have led to higher unemployment. The rebound in oil prices since the start of the year may mean that a further adjustment to real take-home

See ONS (2007), 'A preliminary analysis of the differences between Average Weekly Earnings and the Average Earnings Index'.



a) Forward price for delivery in 10 to 21 days' time.

(b) Weekly data for the US dollar *Economist* metals index, which includes nickel, tin, zinc, copper lead and aluminium, converted into sterling using daily market exchange rates.

### Chart 4.6 Manufacturers' producer prices and measures of capacity utilisation for the major economies<sup>(a)</sup>



Sources: Bank of Japan, Board of Governors of the Federal Reserve System, Bureau of Labor Statistics, Eurostat and ONS.

- (a) Measures of producer prices and capacity utilisation for the euro area, Japan and the United States weighted together by shares of UK import values. The 2007 Q2 reading for euro-area producer prices is based on data for April and May.
   (b) Capacity utilisation measures are taken from the European Commission business survey, the
- (b) Capacity utilisation measures are taken from the European Commission business survey, the Tankan survey and a measure calculated by the Board of Governors of the Federal Reserve System.

pay is required. The prospects for pay pressures are discussed in Section 5.

### 4.3 Global costs and prices

To the extent that they are not offset by movements in exchange rates, global costs and prices can affect UK inflation in two ways: directly, through the prices of imported consumer goods; or indirectly, through their influence on companies' costs. Recent years have seen large swings in energy prices. But the prices of other imported goods and services have also varied. UK import price inflation declined sharply in the year to 2007 Q1, in part reflecting falls in oil prices in the second half of 2006, but picked up again in April and May.

Oil prices have rebounded sharply in recent months (Chart 4.5). In the five working days to 1 August, the spot price of Brent crude oil was £38 per barrel, 14% above the starting point for the May *Report*, and 25% higher than at the start of the year. Futures prices have also risen since May, although by less. Sterling spot prices for industrial metals have increased this year as well. And UK wholesale gas futures prices for 2008 and 2009 in the five working days to 1 August were on average 4% higher than in May.

The increases in global commodity prices are likely to reflect the current and prospective strength of global demand (Section 2), although supply concerns may also have played a role. Robust demand growth could also put upward pressure on the prices of traded goods and services more generally. In the major economies, measures of manufacturers' capacity utilisation have picked up (Chart 4.6). Producer price inflation in those countries eased in the second half of 2006 as the effects of previous energy price increases faded. But it remained above its average over the past decade.

Rising capacity constraints could also lead to increasing price pressures in low-cost countries such as China. As these countries have become integrated into the global trading system, they have driven down the relative prices of manufactured goods in particular, leading to lower import prices for those goods in other countries. But low-cost countries have also been a key driver of the rising demand for commodities. So their overall impact on UK import prices is ambiguous. The prospects for import prices are discussed in Section 5.

### 4.4 Pass-through to consumer prices

Companies' pricing decisions depend in part on costs and demand conditions. Much of the increase in energy and import costs during 2004–06 now appears to have been offset through lower labour costs or passed through into higher prices. And some of those non-wage cost pressures eased in

Chart 4.5 Sterling commodity prices

Chart 4.7 Producer prices



### Table 4.B Survey measures of prices(a)

	Averages	2007				
	since 1997 <sup>(b)</sup>	Mar.	Apr.	May	June	July
Manufacturing						
CBI – expected	-5	21	16	25	16	11
BCC – expected	12	23	-	-	24	-
CIPS/NTC – reported	51.6	55.5	56.8	56.9	56.8	57.5
Agents' scores – reported	0.3	2.1	2.3	2.4	2.5	n.a.
Services						
CBI/Grant Thornton – expe	cted 3	30	-	-	4	-
BCC – expected	24	30	-	-	28	-
CIPS/NTC – reported	52.2	55.3	53.9	52.5	53.3	52.2
Agents' scores – reported	2.5	3.1	3.1	3.0	3.0	n.a.

Sources: Bank of England, BCC, CBI, CBI/Grant Thornton and CIPS/NTC.

(a) The BCC and CBI surveys ask about prices over the next three months. The CIPS/NTC surveys ask about prices over the past month and the Agents' scores refer to prices over the past three months compared with a year earlier. The quarterly BCC and CBI/Grant Thornton surveys have been allocated to the final month in each quarter.

(b) The averages for the CIPS/NTC manufacturing, BCC and CBI/Grant Thornton surveys are since the series began in November 1999, 1997 Q2 and 1998 Q4 respectively. The averages for the Agents' scores are since July 1997 for manufacturing and January 2005 for services.





Sources: BCC, ONS and Bank calculations.

(a) Percentages of firms citing each factor as more of a concern to their businesses than three months ago. Non seasonally adjusted data. Manufacturing and service sector responses are weighted together using their nominal shares of output. the second half of 2006. However, as discussed above, energy prices have rebounded this year. So a key question is whether there are further price pressures in the pipeline.

Producer prices measure the prices of goods and services at an earlier stage in the production chain than consumer prices. They can therefore give an indication of future movements in CPI inflation. Estimates of producer prices in the service sector suggest that annual inflation remained above its average over the past decade, although it eased to 2.7% in 2007 Q1 (Chart 4.7). In the manufacturing sector, producer price inflation picked up in the first half of this year, reaching 2.4% in 2007 Q2. In part, that reflected renewed strength in the price of energy products. But the inflation rates of other goods have also remained elevated over the past year. The continued strength of producer price inflation could put upwards pressure on consumer prices.

Another way to assess price pressures is to look at survey measures of companies' pricing intentions.<sup>(1)</sup> These price balances generally picked up in 2006 and the early part of 2007, and remained at or above their averages over the past decade. Developments have been more mixed since the May *Report*: service sector balances eased, but those in the manufacturing sector generally remained strong **(Table 4.B)**.

One factor that may have kept pricing intentions elevated is the strength of demand. Companies are likely to face increasing pressures on capacity as demand growth builds. And that can feed through to higher costs and prices. But it is possible that robust demand conditions could also lead companies to seek to increase the mark-up of prices over costs in order to boost their profits.

The degree to which companies are able to increase their profits by raising prices will depend on the amount of competition they face. The BCC survey suggests that competition became less of a concern to companies over the past year (Chart 4.8). To the extent that this indicates greater pricing power, it could pose an upside risk to inflation for a period.

### 4.5 Inflation expectations

Inflation expectations are also an important factor in pricing decisions. Companies are more likely to believe that they can raise their prices without suffering a significant drop in sales if they think competitors' prices will also be increasing. Expectations are not directly observable, but surveys provide indirect information. The BCC survey indicates that companies have become increasingly concerned about inflation over the

<sup>(1)</sup> See the box on pages 32–33 of the May *Report* for a more detailed discussion of these surveys.

### Table 4.C Surveys of households' inflation expectations over the next twelve months

Per cent

	2007	2007						
	Q1 <sup>(a)</sup>	Apr.	May	June	July			
Bank/GfK NOP survey <sup>(b)</sup>	2.7	-	2.7	_	-			
YouGov/Citigroup survey <sup>(c)</sup>	2.5	2.5	2.5	2.4	2.5			
GfK NOP survey <sup>(d)</sup>	67	68	67	67	70			

Sources: Bank of England, Citigroup, GfK NOP, YouGov and research carried out by GfK NOP on behalf of the European Commission.

(a) Averages of monthly data for YouGov/Citigroup and GfK NOP.

(b) Median of respondents' expected change in prices in the shops over the next twelve months.
 (c) Median of respondents' expected change in consumer prices of goods and services over the next twelve months.

(d) Net balance expecting prices to increase. The question asks: 'In comparison with the past twelve months, how do you expect consumer prices will develop in the next twelve months?'.

**Chart 4.9** Bank/GfK NOP survey of households' inflation expectations over the next twelve months<sup>(a)</sup>



(a) Respondents' expected change in prices in the shops over the next twelve months. Proportions exclude those respondents who said they had no idea.

past year (**Chart 4.8**). That may reflect previous increases in the prices of key inputs such as energy. But it is possible that companies' expectations of future output prices, at least in the short run, have also edged higher.

Households' inflation expectations are also relevant to the inflation outlook. In particular, employees may press for higher nominal wages if they expect prices to rise more rapidly. A quarterly survey carried out by GfK NOP for the Bank suggests that households' median expectation of inflation over the next twelve months was higher in 2006 than in 2005. And this measure remained elevated in May (**Table 4.C**), despite the decline in actual CPI inflation. While there continues to be a range of views about future inflation across different households, the distribution of those views has shifted. In 2005 it was broadly balanced around the MPC's 2% inflation target. But since then, the proportion of households that expected inflation to be above 3% in a year's time has increased (**Chart 4.9**).

Higher frequency surveys of near-term inflation expectations have also suggested little change since the May *Report*. The YouGov/Citigroup measure was broadly unchanged, while a monthly GfK NOP measure picked up a little (**Table 4.C**). The recent fall in overall inflation, as well as highly visible subcomponents such as domestic gas and electricity prices, may reduce inflation expectations over the coming months.<sup>(1)</sup>

<sup>34</sup> 

<sup>(1)</sup> For a more detailed discussion, see Driver, R and Windram, R (2007), 'Public attitudes to inflation and interest rates', Bank of England Quarterly Bulletin, Q2, pages 208–23.

## **5** Prospects for inflation

In the central projection, which assumes that Bank Rate follows market yields, GDP growth slows from recent brisk rates, as higher interest rates bear down on consumption and investment. CPI inflation falls back during the second half of this year and then settles around the 2% target. The slowdown in demand is somewhat sharper than in the May *Report*, but inflation is a little higher in the near term. With the outlook judged to be highly uncertain, risks of particular relevance to the setting of monetary policy include: the prospective impact on domestic demand of past increases in Bank Rate and recent developments in credit markets; the degree of spare capacity in businesses and the labour market; the likely duration of the global expansion, and its implications for world prices; and the evolution of inflation are judged to be slightly on the upside.

Chart 5.1 GDP projection based on market interest rate expectations



The fan chart depicts the probability of various outcomes for GDP growth in the future. If economic circumstances identical to today's were to prevail on 100 occasions, the MPC's best collective judgement is that GDP growth over the subsequent three years would lie within the darkest central band on only 10 of those occasions. The fan chart is constructed so that outtures of GDP growth are also expected to lie within each pair of the lighter green areas on 10 occasions. Consequently, GDP growth is expected to lie somewhere within the entire fan chart on 90 out of 100 occasions. The bands widen as the time horizon is extended, indicating the increasing uncertainty about outcomes. See the box on pages 48–49 of the May 2002 *Inflation Report* for a fuller description of the fan chart and what it represents. The dashed line is drawn at the two-year point.

### 5.1 The projections for inflation and demand

As anticipated in the May *Report*, CPI inflation has fallen sharply from its peak of 3.1% in March, largely as the result of lower domestic gas and electricity price inflation. Falling energy utility bills are likely to push down a little further on inflation over the next few months (Section 4). But the main focus of monetary policy is on the outlook for inflation over the medium term, and that is shaped by the outlook for demand, supply, inflation expectations and energy and import prices.

Demand growth has remained resilient despite the 125 basis point tightening in monetary policy over the past year. But the outlook depends critically on the extent to which that resilience is judged to reflect a delayed response to higher interest rates, or stronger underlying demand pressures. The MPC's projection for four-quarter GDP growth — shown in Chart 5.1 on the assumption that Bank Rate follows a path implied by market yields — places weight on both factors. In the central case, GDP growth slows in the first year as higher interest rates bear down on consumption and investment. Further out, GDP growth falls back to a rate closer to its long-run average as investment continues to ease back and government spending slows in line with the plans set out in the Budget. That is a weaker outlook than in the May Report, reflecting the rise in market interest rates and the exchange rate. The risks around this outlook for demand growth are discussed in Section 5.2.

**Chart 5.1** shows the MPC's projection alongside the current vintage of official output growth data. But, judging by the past pattern of revisions and indications from business surveys, the

### Chart 5.2 GDP projection based on Bank estimates of past growth and market interest rate expectations



The fan chart depicts the probability of various outcomes for GDP growth in the future, and should be interpreted in the same way as **Chart S1**. The solid green line represents the central estimate of past GDP growth from **Chart B** in the box in Section 3 (page 25). The probability distribution for **quarterly** growth in CDP over the future is the same as that embodied in **Chart S1**. But because the chart displays **four-quarter** growth, it has a different profile to that in **Chart S1** in the first year of the projection, reflecting the higher starting point. Beyond the first year of the projection, **Charts S1** and **S2** are the same.

Chart 5.3 CPI inflation projection based on market interest rate expectations



Committee considers it likely that recorded output growth in recent quarters will eventually be revised up. The scale of these revisions could be quite marked, reflecting the fact that the annual National Accounts revisions exercise this year was less comprehensive than normal (see the box on page 16). It is not possible to predict the eventual pattern of revisions with any precision. But to illustrate the possible impact, **Chart 5.2** shows what the GDP growth projection would look like if the official estimates for GDP were to be revised up to coincide with the central estimate shown in **Chart B** on page 25. Both **Charts 5.1** and **5.2** display four-quarter GDP growth rates. **Chart 5.2** consequently shows not only somewhat more rapid growth than **Chart 5.1** over the past, but also a sharper slowdown over the coming year, reflecting the higher starting point.

The implications of a given path of demand for inflation cannot be assessed without first making judgements on developments in supply, inflation expectations and energy and import prices. Inflation rose unexpectedly sharply in the twelve months to March, as discussed in the box on pages 46–47. To the extent that this reflected one-off rises in domestic gas and electricity bills, that should have no implications for the medium-term outlook. But it may have also partly reflected a more persistent rise in underlying inflationary pressures. Judging the balance between those factors is a key issue for the outlook.

The MPC's projection for CPI inflation is shown in **Chart 5.3**, on the assumption that Bank Rate follows market yields. In the central case, inflation falls back as domestic gas and electricity prices decline, and then settles around the 2% target. The margin of spare resources in the economy is judged to be limited at the start of the projection, putting modest upwards pressure on inflation, but falls back somewhat as demand growth eases. Compared with the





Charts 5.3 and 5.4 The fan charts depict the probability of various outcomes for CPI inflation in the future. If economic circumstances identical to today's were to prevail on 100 occasions, the MPC's best collective judgement is that inflation over the subsequent three years would lie within the darkest central band on only 10 of those occasions. The fan charts are constructed so that outturns of inflation are also expected to lie within each pair of the lighter red areas on 10 occasions. The bands widen as the time horizon is expected to lie somewhere within the entire fan charts on 90 out of 100 occasions. The bands widen as the time horizon is expected to lie somewhere within the entire fan charts on 90 out of 100 occasions. The bands widen as the time horizon is expected to lie somewhere within the entire fan charts and what it represents. The dashed lines are drawn at the respective two-year points.

projection in the May *Report* (Chart 5.4), the inflation profile is a little higher in the near term, reflecting higher oil prices and a slightly smaller margin of spare capacity in the economy. Further out, it is marginally lower, reflecting the weaker projection for output growth. The scope for further upwards pressure on commodity prices, the limited margin of spare capacity and the continued elevation of some measures of inflation expectations and pricing intentions mean that the balance of risks around this central case is judged to be slightly on the upside. But the upside risks are judged to have diminished somewhat, given the decline in CPI inflation and the possibility that recent developments in financial markets could lead to a more widespread tightening in credit conditions. The risks to inflation are discussed in detail in Sections 5.3 and 5.4.

### 5.2 Risks to demand

Demand has remained resilient, despite the tightening in monetary policy over the past year (Section 2). But the scale and timing of interest rate effects on activity are highly uncertain. Interest rates may simply be taking longer than usual to work through: some recent indicators suggest tentative signs of slower growth in the household sector, and the recent tightening in international credit conditions facing companies may begin to offset past easing. But the resilience in activity probably also reflects underlying demand pressures. Judging where that balance lies is a key issue for the outlook.

### How sharply will credit conditions tighten?

One possible reason for the resilience in demand growth is that the rise in Bank Rate may not have passed through to the borrowing terms faced by households and companies as rapidly as normal. Interest rate spreads and some non-price lending criteria eased over the past year, and the higher share of fixed-rate mortgages has temporarily shielded some households from the increase in Bank Rate (Section 1).

At least some of that easing is expected to unwind over the forecast period. The cash-flow gain for households with fixed-rate mortgages appears small in aggregate terms, and should prove short-lived (Section 1). More importantly, recent developments in financial markets suggest that a tightening of corporate credit conditions may be under way as difficulties in some sectors cause a broader-based re-evaluation of the riskiness of lending portfolios. Whether these developments help return domestic credit conditions to more normal levels over time, or end up tightening them by rather more, is highly uncertain. Credit spreads for investment-grade bonds have so far risen only modestly, and the impact on yields has been somewhat offset by a decline in risk-free rates during the recent period of financial market volatility as investors seek out higher-quality assets. But the possibility of a sharper rise in global interest rates, or a more widespread withdrawal of liquidity, raising borrowing costs and putting downward

### Financial and energy market assumptions

The projections for CPI inflation and GDP growth described in **Charts 5.1–5.3** are conditioned on a path for official interest rates implied by market yields (**Table 1**). That path provides a convenient benchmark assumption on which to condition the MPC's projections.<sup>(1)</sup>

Table I Expectations of Dank Nate implied by market yields.	Table 1	<b>Expectations</b>	of Bank Rate im	plied by	/ market vields(a
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Per cent													
	2007		200	8			200	9			2010	C	
	Q3(b)	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
August	5.8	5.9	6.0	6.0	5.9	5.9	5.9	5.9	5.9	5.9	5.8	5.8	5.8
May	5.7	5.7	5.7	5.7	5.6	5.6	5.5	5.5	5.5	5.5	5.4	5.4	

(a) The data for August are five working day averages of one-day forward rates to 1 August 2007. The data for May are fifteen working day averages to 9 May 2007. They have been derived from instruments that settle on the London interbank offered rate. That includes market rates on futures, swaps, interbank loans and forward rate agreements, adjusted for credit risk. The MPC may change the way it estimates these expectations from time to time, as shifting market conditions can alter the relative advantages of using different methods.

(b) August figure for 2007 Q3 is an average of realised spot rates to 1 August, and forward rates thereafter

In view of the market volatility in the period leading up to the August MPC meeting, the Committee's projections have been conditioned on a five working day average for market interest rates and asset prices, rather than the usual fifteen working day window. Under this assumption, the market yield curve implied that financial market participants expected Bank Rate to peak in early 2008, before easing back slightly. The profile is above that in May. Market participants' perceptions of uncertainty about future short-term interest rates are shown in **Chart 1.1** in Section 1.

The starting point for the sterling exchange rate index in the MPC's projections was 105.2, the average for the five working

days to 1 August. That was 1% above the starting point for the May forecast. Under the MPC's usual convention,<sup>(2)</sup> the exchange rate is assumed to depreciate to 103.4 by 2009 Q3 and is higher throughout the forecast period than assumed in May.

The starting point for UK equity prices was 3235 — the average of the FTSE All-Share for the five working days to 1 August. That was 4% below the starting point for the May forecast. Equity prices are assumed to grow broadly in line with nominal GDP in the long run.

Over the medium term, energy prices are assumed to evolve broadly in line with the path implied by futures markets. Both oil and gas futures prices have risen since the May *Report*. Average Brent futures prices were 6% higher (in US dollar terms) over the period to the end of 2009 and wholesale gas prices were 4% higher. There remain uncertainties about the scale and pace of pass-through of past developments in wholesale markets to the prices of gas and electricity faced by households and companies. The central projection now assumes that, taken together, retail gas and electricity prices fall by a further 7%, spread evenly over 2007 Q4 and 2008 Q1. That is a slightly smaller fall than the 10% assumed in the May *Report*, consistent with recent movements in futures prices.

(2) See the box, 'The exchange rate in forecasting and policy analysis', on page 48 of the November 1999 Inflation Report.

pressure on the prices of assets such as equities and housing, poses a downside risk to the outlook for activity. The Committee will be monitoring closely data on both the price and quantity of credit over the coming period in order to assess this risk. At present, however, broad money and bank credit continue to grow rapidly.

### The role of world demand

Another factor supporting UK growth has been the continued strength of world demand. In UK-weighted terms, global activity grew by almost 4% in 2006, supported by a recovery in the euro area — the United Kingdom's largest trading partner — and robust expansion in Asia (Section 2). In the central projection, global growth is assumed to ease back a little over the forecast period as the euro-area upswing matures and Asian growth cools slightly, more than outweighing a modest recovery in the United States. But world activity is still expected to remain robust, helping to

<sup>(1)</sup> See the box, 'The interest rate assumptions in the projections', on pages 42–43 of the August 2004 *Inflation Report*.

support UK export growth despite the appreciation in sterling since the first half of 2006. The outlook is similar to that in the May *Report*.

It is possible that global growth may be somewhat stronger than assumed by the MPC in the near term. Output in Asia has repeatedly exceeded expectations, and may continue to do so. And consumption in the euro area — which has remained anaemic — may yet play a bigger role in driving the recovery, particularly if the labour market continues to improve. In the short term, those factors are judged likely to outweigh the risk of slower growth in the United States, though the scale of that downside risk has increased since May. And a further tightening in global credit conditions could pose a more pervasive downside risk to world activity, particularly if it induces a general re-evaluation of asset prices.

## Domestic demand: expected incomes, asset prices and debt

A third possible reason for the sustained pace of demand growth in the face of higher interest rates is that households' and companies' expectations of future conditions, including those embodied in asset prices, have remained upbeat.

Capital spending by the corporate sector has been particularly buoyant over the past year. Business investment fell back a little in Q1, but that was concentrated in a few industries in which spending had previously grown particularly strongly (Section 2). And annual growth remained firm, consistent with stable demand prospects and elevated levels of capacity utilisation. With surveys of investment intentions suggesting a firm outlook, the MPC's central case is for business investment to continue to rise healthily throughout the forecast period at a growth rate above that of GDP, though falling back from the high rates seen in the second half of 2006. Average growth over the forecast period is similar to that in the May *Report*. But recent developments in financial markets, if they became more widespread, could pose a downside risk to this central case.

In the household sector, consumer spending growth has been firm over the past year despite subdued real income growth (Section 2). Households may have run down savings and increased borrowing in the expectation that income growth would recover, and that is the view embodied in the MPC's central projection. Real household income growth is projected to return to around its post-1997 average as effective tax rates stabilise and real take-home pay grows steadily at a rate somewhat above that of the past three years. Consumer spending growth is projected to slow somewhat below its average of the past decade, however, as the rebound in income growth is more than offset by an increased debt-servicing burden, reflecting the higher path of market interest rates. That is a weaker outlook than in the May *Report*.

The capacity of households to service their growing stocks of debt poses perhaps the biggest risk to the outlook for domestic demand. If income expectations turn out to be over-optimistic, or asset prices fall back sharply, households may be forced to rein in their spending by more than in the central case. That would pose a downside risk to activity. But with an ongoing availability of credit, consumers may continue to smooth their spending, which could imply some greater near-term momentum in consumption than in the central case.

### 5.3 Risks to CPI inflation

All of the risks to demand pose risks to inflation. But even if the outlook for demand were certain, there would still be a further set of uncertainties about the outlook for inflation reflecting risks to supply, world prices and inflation expectations.

## How tight are supply constraints in companies and the labour market?

The pressure of demand on resources can be broken down into two components — one reflecting the intensity with which companies are using their existing staff and capital, and one reflecting the tightness of conditions in the labour market. Neither set of pressures can be directly observed, so must be inferred from other data. That makes this one of the most uncertain parts of the projection.

Survey measures suggest that capacity pressures within companies lie above historical averages, reflecting the continued solid expansion of demand, and the legacy of subdued capital investment in the early part of the decade. But elevated capacity pressures do not appear to have fed through fully to labour demand: employment growth has been relatively weak until recently, and unemployment rose over the past two years (Section 3).

One possible reason for subdued employment growth is that companies may be reasonably comfortable with current capacity pressures, perhaps because of uncertainty over future demand. In that case, much of the rise in unemployment since 2005 would have reduced wage pressures. But concerns about the outlook for output growth have not featured heavily in the main business surveys. It therefore seems likely that at least part of the weak employment growth and higher unemployment reflects continued resistance to the downwards adjustment in real take-home pay required by past rises in energy and other costs, or companies' difficulties in finding appropriately skilled workers. These factors may well prove temporary. But while they last, the loosening in wage pressures will be rather less than it would have been if all of the rise in unemployment reflected cyclical factors.

In the central projection, the overall pressure of demand on resources is judged to be a little above average at the start of the forecast period. The degree of slack in the labour market is assumed to be relatively modest, and a little smaller than in the May *Report*, reflecting an assumption that part of the pickup in unemployment reflected supply-side constraints rather than cyclical factors. The downwards influence of labour market slack on companies' pricing is more than outweighed by the upward influence of capacity pressures within companies, which are assumed to lie above the historical average. The overall pressure of demand on resources in the central projection eases somewhat over the course of the forecast period.

There are marked risks on both sides of this central case, particularly in the labour market. Wage pressures could be weaker than in the central projection if the pickup in unemployment proves to have been primarily cyclical, if any real wage resistance or skills mismatch is short-lived, or if inward migration accelerates. However, if employees seek to claw back past reductions in real earnings growth, or recruitment difficulties prove to be more persistent, wage pressures may be somewhat higher.

### How inflationary will the global expansion be?

One reason for the rise in inflation in the twelve months to March was the past pickup in commodity and world export prices, which occurred against the background of strong global growth. During the later part of 2006, commodity prices stabilised or fell back. But more recently, oil prices have picked up again. With world activity expected to remain robust over the forecast period, a key issue is whether there could be renewed upwards pressure on imported inflation.

One risk comes from the price of oil and other internationally traded commodities. On average over most of the post-war period, many real commodity prices have been relatively stable, as increased global demand has been met by higher supply. Since 2004, however, the high pace of demand growth in China and other countries has put pressure on existing supply sources, raising both the level and the volatility of commodity prices. Higher prices should eventually induce a supply response, but it is highly uncertain when that will take place. For the purposes of the central projection, the MPC has assumed that oil prices evolve in line with the futures curve, which is broadly flat. But further growth of demand in excess of supply could pose an upside risk to this outlook.

The extent to which changes in commodity prices affect overall UK import price inflation depends on what happens to the prices of other imports, and the exchange rate. For much of the past decade, the expansion of low-cost economies put downwards pressure on UK goods price inflation, both directly through a shift in domestic spending towards imports of

cheaper manufactured goods, and indirectly through intensified competition. Since 2004, however, average inflation rates for internationally traded goods have risen somewhat. Whether that reflects a temporary adjustment to higher energy costs, or a more lasting increase, is uncertain. To the extent that higher prices reflect monetary policy overseas, the impact on UK prices should be offset by an exchange rate adjustment. But such adjustment can be erratic, and may not completely offset price movements reflecting changes in the pattern of real demand.

In the central projection, import price inflation remains well below domestic inflation over the forecast period. But average import price inflation is a little higher than it was in the May *Report*, consistent with the possibility that the recent strength in overseas export prices may prove more persistent. While import price inflation might be weaker than this central case, for example if downward pressure on goods prices from low-cost economies intensifies, the balance of risks probably lies on the upside, from sharper increases in commodity prices, or tighter overseas capacity constraints.

### Will inflation expectations remain elevated?

One risk associated with the pickup in CPI inflation in the twelve months to March is that households and companies might expect above-target inflation to persist, and build those expectations into wages and prices. CPI inflation has fallen back somewhat, which might be expected to reduce this risk over time if the decline persists. Survey measures of companies' pricing intentions have eased in the service sector but they remain elevated in manufacturing. And past increases in market breakeven inflation rates and survey measures of households' inflation expectations have not yet unwound (Sections 1 and 4). The extent to which that indicates continued concern about the outlook for CPI inflation is unclear: breakeven rates are linked to RPI, and also include risk premia; and household surveys do not reference a specific inflation index. But while these measures remain elevated, a potential upside risk remains.

### 5.4 The balance of risks

The overall balance of risks to the inflation outlook reflects the judgements discussed in Sections 5.2 and 5.3 relating to: the prospective impact on domestic demand of past increases in Bank Rate and recent developments in credit markets; the degree of spare capacity in businesses and the labour market; the likely duration of the global expansion, and its implications for world prices; and the evolution of inflation expectations. The Committee judges there to be a high degree of uncertainty about the outlook for inflation, reflected in the wide bands around the fan chart (similar to those used in the previous *Report*). While the risks to output growth are judged to be balanced, the risks to inflation are weighted a little on the





Chart 5.6 Projected probabilities in May of CPI inflation outturns in 2009 Q3 (central 90% of the distribution)<sup>(a)</sup>



(a) Chart 5.5 represents a cross-section of the CPI inflation fan chart in 2009 Q3 for the market interest rate projection. The coloured bands have a similar interpretation to those on the fan charts. Like the fan charts, they portray the central 90% of the probability distribution. If economic circumstances identical to today's were to prevail on 100 occasions, the MPC's best collective judgement is that inflation in 2009 Q3 would lie somewhere within the range covered by the histogram on 90 occasions. Inflation would be outside the range covered by the histogram on 90 occasions. Chart 5.6 shows the corresponding cross-section of the May *Inflation Report* fan chart.
 (b) Average probability within each band. The figures on the y-axis indicate the probability of inflation being within ±0.05 percentage points of any given inflation rate, specified to one decimal place.





(a) These figures are derived from the same distribution as Chart 5.3. They represent the probabilities that the MPC assigns to CPI inflation lying within a particular range at a specified time in the future.

Chart 5.8 Frequency distribution of GDP growth based on market interest rate expectations<sup>(a)</sup>



(a) These figures are derived from the same distribution as Chart 5.1. They represent the probabilities that the MPC assigns to GDP growth lying within a particular range at a specified time in the future. upside (Chart 5.5). There is a range of views among the Committee on both the central projection and the balance of risks.

The Committee will be monitoring a range of data to assess these risks. First, as in May, indicators of pricing pressure including capacity constraints, pricing intentions, inflation expectations and global commodity and output price inflation - remain important. In the central case, these measures are all expected to fall back over the course of the forecast period, helping to keep CPI inflation close to target. If instead they were to remain elevated, the Committee would be likely to view some of the upside risks as crystallising. Second, the evolution of labour costs may help to determine the extent to which the past rise in unemployment reflected either cyclical or supply-side factors. In the central projection, real wage growth remains broadly stable, but somewhat higher than over the past three years. If instead real wage growth were to fall back, the Committee would be likely to view that as evidence that the balance of risks had shifted. And, third, the future path of demand indicators — particularly in those parts of the economy most sensitive to interest rates - will help to resolve the question of whether the resilience of growth reflects a delayed response to monetary tightening or stronger underlying demand pressures. The central projection envisages a slowdown in growth. So outturns either materially above or below this path would be consistent with the crystallisation of risks around the central case for inflation. In the light of recent market volatility, the Committee will be monitoring credit conditions, looking not only at the evolution of credit spreads but also particularly at the quantities of credit extended.

To give an indication of the sensitivity of the projections to interest rates, **Charts 5.9** and **5.10** show fan charts for GDP growth (measured on the same basis as **Chart 5.1**) and inflation on the alternative assumption that Bank Rate stays





Chart 5.10 CPI inflation projection based on constant nominal interest rates at 5.75%



See footnote to Charts 5.3 and 5.4.

constant at 5.75%. These are two-year rather than three-year projections.<sup>(1)</sup> The central projection for CPI inflation under constant interest rates is higher than that under market rates.

### 5.5 The policy decision

The Committee noted at its August meeting that the central projection, under the assumption that Bank Rate followed market yields, was for inflation to fall back in the near term and then settle around the 2% target. Given that outlook, and bearing in mind the balance of risks, the Committee judged that no change in Bank Rate was necessary to meet the target for CPI inflation over the medium term.

(1) For an explanation of why these projections are only shown for a two-year period, see the box on pages 42–43 of the August 2004 *Report*.

### Other forecasters' expectations

Every three months, the Bank asks a sample of external forecasters for their latest economic projections. In the most recent survey, carried out in mid-July, the average central expectation of forecasters was for CPI inflation to return to target in the medium term (Table 1 and Chart A). That was similar to the average central expectation reported in the previous survey.

### Table 1 Averages of other forecasters' central projections(a)

	2009 Q3	2010 Q3	
CPI inflation <sup>(b)</sup>	2.0	2.0	
GDP growth <sup>(c)</sup>	2.5	2.6	
Bank Rate (per cent)	5.3	5.2	
Sterling ERI <sup>(d)</sup>	100.1	99.3	

(New index: January 2005 = 100)

Source: Projections of outside forecasters as of 16 July 2007

(a) For 2009 Q3, there were 21 forecasts for CPI inflation and GDP growth, 20 for Bank Rate, and 15 for the sterling ERI. For 2010 Q3, there were 20 forecasts for CPI inflation and GDP growth, 18 for Bank Rate, and 15 for the sterling ERI.

Twelve-month rate

 (c) Four-quarter percentage change.
 (d) Where necessary, responses were adjusted to take account of the difference between the old and new ERI measures, based on the comparative outturns for 2006 Q1

### Chart A Distribution of CPI inflation central projections for 2009 Q3



Source: Twelve-month CPI inflation projections of 21 outside forecasters as of 16 July 2007.

The Bank also asks forecasters for an assessment of the risks surrounding their central expectations. For CPI, those risks were judged to be broadly balanced around the 2% target in the medium term (Table 2).

For GDP, the average central expectation was for four-quarter growth of 2.5% in 2009 Q3 and 2.6% in 2010 Q3. The projection for two year ahead GDP growth (2009 Q3) was very slightly weaker than in the equivalent survey for the May *Report*, but that for three year ahead GDP growth was the same. As in May, forecasters on average judged there to be a greater risk of GDP growth being below 2% than above 3%.

### Table 2 Other forecasters' probability distributions for CPI inflation and GDP growth<sup>(a)</sup>

### **CPI** inflation

Pro	bab	ility,	per	cent	F	Rang
-----	-----	--------	-----	------	---	------

	<1%	1–1.5%	1.5–2%	2–2.5%	2.5–3%	>3%	
2009 Q3	6	16	30	28	14	6	
2010 Q3	8	15	27	27	15	7	

### GDP growth

Probability, per cent	Range:			
	<1%	1–2%	2–3%	>3%
2009 Q3	8	27	43	22
2010 Q3	9	27	39	25

Source: Projections of outside forecasters as of 16 July 2007

(a) For 2009 Q3, 21 forecasters provided the Bank with their assessment of the likelihood of twelve-month CPI inflation and four-quarter GDP growth falling in the ranges shown above; for 2010 Q3, 20 forecasters provided assessments. The table shows the average probabilities across respondents. Rows may not sum to . 100 due to rounding.

External forecasters are also asked about their central expectations for Bank Rate and the sterling ERI. For Bank Rate, the average central expectation was 5.3% two years ahead (2009 Q3) and 5.2% three years ahead (2010 Q3). That was a little higher than three months earlier, but below the interest rates implied by market yields (see the box on page 38).

On average, external forecasters expected the sterling ERI to depreciate, although the distribution of average expectations two years ahead (2009 Q3) was a little wider than in the previous survey (Chart B). The Committee's projections for inflation and GDP growth assume a higher path for the sterling ERI than that implied by the average expectation of external forecasters. In the MPC's projection, the ERI is assumed to decline from 105.2, the average for the five working days to 1 August, to 103.4 by 2009 Q3 (see the box on page 38).





Source: Projections of 15 outside forecasters as of 16 July 2007

### The MPC's recent forecasting record

In March 2007 CPI inflation reached 3.1%, more than 1 percentage point away from the 2% target. On average, in 2007 Q1, CPI inflation was 2.9%. This box examines the 2007 Q1 outturn, relative to the MPC's projection in the February 2006 Inflation Report.(1)

### The forecast projections and outturns

The MPC's projections for growth and CPI inflation are probability distributions, typically represented in Inflation Reports as fan charts. The central projection within the fan chart shows the Committee's view of the most likely path for inflation or GDP, and the fan summarises the risks around it. The MPC expects outturns to lie within the coloured area of the fan on 90 out of 100 occasions.

The outturn for CPI inflation in 2007 O1 was outside the red area of the February 2006 fan chart (Chart A). In February 2006, external forecasters also saw little probability of a sharp pickup in inflation (Table 1). In contrast to CPI inflation, the outturns for GDP growth have broadly followed the central path of the February 2006 Inflation Report projection (Chart B). But growth in 2006 Q4 was stronger than expected by external forecasters (Table 1).

Chart A February 2006 CPI inflation projection based on market interest rate expectations and outturn<sup>(a)</sup>



Over the past year, there has been significant news on inflationary pressures both in the United Kingdom and worldwide. The MPC incorporated these developments into subsequent projections (Chart C). For example, the August 2006 Inflation Report projection closely anticipated recent CPI outturns. The rest of this box outlines developments over the past 18 months, and how they differ from the assumptions embedded in the February 2006 projection.

### Table 1 Other forecasters' probability distributions for CPI inflation and GDP growth in 2006 Q4<sup>(a)</sup>

#### **CPI** inflation

Probability, per cent

Range	:					Memo:	
<1%	1–1.5%	1.5–2.0%	2.0-2.5%	2.5–3%	>3%	External forecasters' central projection	Outturn
3	13	42	30	9	4	1.9	2.7

### GDP growth

Probability, per cent

Range	:			Memo:		
<1%	1–2%	2–3%	>3%	External forecasters' central projection	Outturn	
6	30	51	14	2.4	3.1	

Source: Projections of outside forecasters as of 1 February 2006

(a) 26 forecasters provided the Bank with their assessment of the likelihood of twelve-month CPI inflation and four-quarter GDP growth falling in the ranges shown above. The table shows the average probabilities across respondents: for example, on average forecasters assigned a probability of 3% to CPI inflation being less than 1% in 2006 Q4. Rows do not sum to 100 due to rounding.

### Chart B February 2006 GDP projection based on market interest rate expectations and outturn(a)



(a) See footnote to Chart 5.1 for information on how to interpret the fan chart

### Chart C CPI inflation and past mean projections(a)



(a) Mean projections based on market interest rate expectations

### The forecast conditioning assumptions

The MPC's forecasts are conditioned on paths for interest rates and the exchange rate derived from financial market expectations. The February 2006 Inflation Report projection was conditioned on interest rates remaining close to 4.5% over the forecast horizon and a steady decline in the sterling ERI. However, the MPC increased Bank Rate by 50 basis points during 2006, and both market interest rates and the exchange rate also moved higher. Had the February 2006 Inflation *Report* been conditioned on that higher path for market interest rates and the exchange rate, the projections for both GDP growth and CPI inflation would have been lower in 2007 Q1 than the forecasts shown in Charts A and B. Relative to the February 2006 Inflation Report, there has therefore been material upside news on both GDP growth and CPI inflation, and that was one factor behind the MPC's decision to increase Bank Rate.

### Demand and capacity constraints

There has been positive news on both external and domestic demand. World growth in 2006 was stronger than implied by the MPC's central projection in February 2006. And domestic household and corporate sector conditions have also been stronger than expected. For example, business investment had been expected to recover over the forecast horizon in February 2006, but the extent of the pickup in 2006 itself was greater than anticipated. By themselves, these underlying demand pressures would have pushed up on output growth. But their impact was largely offset by the effects of higher interest rates and the exchange rate.

The inflationary impact of demand depends on companies' capacity to meet it. In the February 2006 projection, the MPC assumed that there was a substantial degree of slack in the economy at the start of the forecast period. In August 2006 however, the MPC reassessed its view of capacity pressures within businesses in the light of survey evidence. The MPC now believes that capacity pressures were considerably tighter at the beginning of 2006 than its initial forecasts assumed. Had the February 2006 projection incorporated tighter capacity pressures, the central projection for CPI inflation in 2007 Q1 would have been up to a quarter of a percentage point higher, other things being equal, although considerable uncertainties surround this estimate.

### **Developments in cost pressures**

Cost pressures also play a significant role in explaining the rise in inflation. Higher wholesale energy prices and non-oil import prices have a direct impact on inflation, for example by raising consumer prices for petrol. But they also push up costs for companies producing other goods and services.

Estimates of these direct and indirect effects are incorporated into MPC forecasts for CPI inflation, based on information available at the time (for example, the outlook for oil prices is based on futures prices). However, the February 2006 forecast did not anticipate the full extent to which rises in wholesale gas prices would push up on retail prices. And much of the rise in non-oil import prices was not anticipated at the time of the February 2006 projection. Partly offsetting this, the oil futures curve moved down over the second half of 2006. Bank estimates, based on observed past relationships between costs and prices, suggest incorporating these higher cost pressures in the February 2006 projection would have raised the central projection for CPI inflation by a quarter to half a percentage point in 2007 Q1. However, the MPC is uncertain about the precise impact of rises in costs on overall consumer prices.<sup>(2)</sup>

### Other factors

A number of other factors may help to explain why CPI inflation in 2007 Q1 was higher than the central projection in the February 2006 *Inflation Report*. For example, future revisions to data may show that there was more momentum in the economy during early 2006. Another explanation, albeit one which is not easily quantifiable, is a rise in inflation expectations. Over the past year, companies appear to have become more confident in their ability to raise prices. That could be related to factors already discussed — the tighter capacity constraints within companies or pass-through from previous cost increases. But, as discussed in the May 2007 *Report*, buoyant nominal demand and money and credit growth could have led to a rise in companies' inflation expectations, as well as contributing to stronger demand pressures.

<sup>(1)</sup> The MPC's forecasting record is examined in a box in the *Inflation Report* each August. For more detail on assessing economic forecasts see Elder, R, Kapetanios, G, Taylor, T and Yates, T (2005), 'Assessing the MPC's fan charts', *Bank of England Quarterly Bulletin*, Autumn, pages 326–48.

<sup>(2)</sup> For a fuller discussion of these issues, see the box on pages 32–33 of the February 2007 Inflation Report.

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### Text of Bank of England press notice of 7 June 2007 Bank of England maintains Bank Rate at 5.5%

The Bank of England's Monetary Policy Committee today voted to maintain the official Bank Rate paid on commercial bank reserves at 5.5%.

The minutes of the meeting will be published at 9.30 am on Wednesday 20 June.

### Text of Bank of England press notice of 5 July 2007 Bank of England raises Bank Rate by 0.25 percentage points to 5.75%

The Bank of England's Monetary Policy Committee today voted to raise the official Bank Rate paid on commercial bank reserves by 0.25 percentage points to 5.75%.

In the United Kingdom, output growth has remained firm and appears to be evolving in line with the Committee's most recent projections. Credit and broad money continue to grow rapidly. The pace of expansion of the world economy remains robust.

CPI inflation fell back to 2.5% in May. Lower gas and electricity prices mean that CPI inflation is likely to continue to fall back to around the 2% target in the course of this year. Although pay pressures remain muted, the margin of spare capacity in businesses appears limited and most indicators of pricing pressure remain elevated.

The Committee judged that, relative to the 2% target, the balance of risks to the outlook for inflation in the medium term continued to lie to the upside. Against that background, it further judged that an increase in Bank Rate of 0.25 percentage points to 5.75% was necessary to meet the 2% target for CPI inflation in the medium term.

The minutes of the meeting will be published at 9.30 am on Wednesday 18 July.

### Text of Bank of England press notice of 2 August 2007 Bank of England maintains Bank Rate at 5.75%

The Bank of England's Monetary Policy Committee today voted to maintain the official Bank Rate paid on commercial bank reserves at 5.75%.

The Committee's latest inflation and output projections will appear in the *Inflation Report* to be published on Wednesday 8 August.

The minutes of the meeting will be published at 9.30 am on Wednesday 15 August.

## Glossary and other information

### Glossary of selected data and instruments

AEI – average earnings index.
AWE – average weekly earnings.
CPI – consumer prices index.
ERI – exchange rate index.
GDP – gross domestic product.
LFS – Labour Force Survey.
Libor – London interbank offered rate.
M4 – UK non-bank, non-building society private sector's holdings of sterling notes and coin, and their sterling deposits (including certificates of deposit, holdings of commercial paper and other short-term instruments and claims arising from repos) held at UK banks and building societies.
RPI – retail prices index.

### Abbreviations

- BCC British Chambers of Commerce.
- CBI Confederation of British Industry.
- CIPS Chartered Institute of Purchasing and Supply.
- EU European Union.
- **FTSE** Financial Times Stock Exchange.
- GfK Gesellschaft für Konsumforschung, Great Britain Ltd.
- GVA gross value added.
- HBF Home Builders Federation.
- IMF International Monetary Fund.
- MIRAS Mortgage Interest Relief at Source.
- MPC Monetary Policy Committee.
- MTIC missing trader intra-community.
- **OFCs** other financial corporations.
- **ONS** Office for National Statistics.
- **PNFCs** private non-financial corporations.
- PwC PriceWaterhouseCooper.
- RICS Royal Institution of Chartered Surveyors.
- RMBS residential mortgage-backed securities.
- S&P Standard and Poor's.
- VAT value added tax.
- WTO World Trade Organisation.

### Symbols and conventions

Except where otherwise stated, the source of the data used in charts and tables is the Bank of England or the Office for National Statistics (ONS) and all data, apart from financial markets data, are seasonally adjusted.

n.a. = not available.

Because of rounding, the sum of the separate items may sometimes differ from the total shown.

On the horizontal axes of graphs, larger ticks denote the first observation within the relevant period, eg data for the first quarter of the year.

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