

Office for  
**Budget  
Responsibility**

## **Forecast evaluation report**

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October 2011





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# **Office for Budget Responsibility**

## Forecast evaluation report

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# Contents

	Foreword .....	1
Chapter 1	Executive summary .....	5
	The economy .....	5
	Receipts .....	7
	Public expenditure .....	7
	Fiscal aggregates .....	8
	Conclusions: lessons to learn .....	9
Chapter 2	The economy.....	11
	The output gap and potential output.....	15
	The GDP growth forecast.....	16
	The composition of growth.....	17
	Inflation .....	22
	The labour market.....	23
	Interest rates .....	23
	The fiscal determinants .....	24
	Comparison with external forecasts.....	28
Chapter 3	Receipts.....	31
	Tax by tax forecasting errors .....	33
Chapter 4	Public expenditure .....	45
	DEL forecasting errors .....	47
	AME forecasting errors .....	49
Chapter 5	Fiscal aggregates.....	57
Chapter 6	Conclusions: lessons to learn .....	61



# Foreword

The Office for Budget Responsibility (OBR) was created in 2010 to provide independent and authoritative analysis of the UK's public finances. As a contribution to fulfilling this role, the Budget Responsibility and National Audit Act 2011 requires the OBR to publish "an assessment of the accuracy of fiscal and economic forecasts previously prepared by it" at least once a year. This *Forecast evaluation report (FER)* is our first such analysis.

The chances of any economic or fiscal forecast being accurate in every dimension are infinitesimally small. This reflects uncertainty both about the outlook for the economy and about the performance of revenues and spending in any given state of the economy. This uncertainty is compounded by the frequency with which statistical data describing the past behaviour of the economy and the public finances are revised, thereby rewriting history.

In our *Economic and fiscal outlook (EFO)* publications we set out a central, or median, forecast. In other words, we believe at the time of making the forecast that the risks to it are balanced, such that the actual outcome is as likely to be above our expectations as below. Second, we explicitly discuss the uncertainty around the forecast and the implications this has for the judgements we make about the government's performance against its fiscal objectives. We draw fan charts around our central projections for some of the key variables to show the probability of different outcomes based on past forecast errors. We then undertake extensive sensitivity and scenario analysis in order to illustrate the implications for the public finances of altering some of the key parameters and judgements in the central forecast.

In addition to addressing the uncertainties that surround our expectations for the future, it is important to learn lessons from how our forecasts look in retrospect. The annual *FER* allows us to look back and compare our forecasts with outturns, to analyse the reasons for forecast error and to identify areas in which our methodology and source data can be improved.

We produce two medium-term economic and fiscal forecasts each year, but for simplicity our *FERs* will focus primarily on the forecasts accompanying each year's spring Budget (especially in their detailed statistical comparisons). In this *FER* we focus on the OBR forecast that accompanied the Coalition Government's first Budget in June 2010. This included our assessment of the impact of the measures announced in that Budget. It is worth noting that Budgets typically take place in

March or April, so the later publication date in this case gave us access to another few months of data that would not usually be available at this stage.

Given that the OBR has only been in existence since May 2010, in this report we can only look at our forecast performance over the first year of the forecast horizon. In future reports, we will be able to assess the accuracy of our forecasts over more years of the forecast horizon.

The approach followed in this report builds on that taken by the Treasury in producing its past *End of year fiscal reports (EYFRs)*. Chapters 3 and 4 analyse differences between forecasts and outturns for specific revenue and spending categories. These are then gathered together, along with financial transactions, in Chapter 5, which assesses forecasts for the key fiscal aggregates, such as public sector net borrowing and net debt. But prior to that and extending the approach of past *EYFRs*, Chapter 2 sets out the errors in our economic forecasts, which are often a key factor explaining errors in the fiscal forecasts.

For any evaluation of forecast performance it is necessary to choose a vintage of data against which to assess our projections. In what follows, we compare our forecasts against data consistent with the latest Public Finances release<sup>1</sup> and the Quarterly National Accounts (QNA) up to and including the first quarter of 2011.<sup>2</sup> Therefore, this report does not take on the data released in the latest QNA on October 5<sup>th</sup>, which is consistent with the forthcoming *Blue Book 2011*. Ordinarily, we would like to assess our forecast against data that has gone through the full Blue Book process. But on this occasion it was not possible to do so:

- publication delays mean that the final *Blue Book 2011* will be published later in the year than is typically the case. Waiting until all the relevant data became available would not have left us enough time to produce this *FER* ahead of our Autumn *EFO*. Doing so is an important part of the purpose of this document as it allows us to take on board any lessons to be learned from the forecast errors we made in the previous year; and
- the *Blue Book* consistent QNA release on October 5<sup>th</sup> did not contain all the data needed to conduct a full assessment of our forecast. Due to publication delays, the release did not contain sector accounts data, which meant we would not be able to assess our forecasts of key fiscal determinants, such as wages and salaries.

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<sup>1</sup> Released 21<sup>st</sup> September 2011

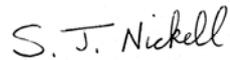
<sup>2</sup> Released 28<sup>th</sup> June 2011

As with any evaluation of forecast performance, the analysis presented here will develop as the data move on. This document and the analysis presented in it should be viewed as a snapshot assessment of the June 2010 Budget forecast.

The forecasts we publish represent the collective view of the three independent members of the OBR's Budget Responsibility Committee (BRC). Our economic forecast is produced entirely by OBR staff working with the BRC. For the fiscal forecast (given its highly disaggregated nature) we also draw heavily on the help and expertise of officials from across Government, most notably in HM Revenue and Customs and the Department for Work and Pensions. We are very grateful for this work and for the work that officials in these departments have contributed to the production of this report. However, the BRC takes full responsibility for the judgements that underpin the forecasts and for the errors that we present in this report.



Robert Chote



Steve Nickell



Graham Parker

The Budget Responsibility Committee



# 1 Executive summary

- 1.1 As set out in the *Foreword*, in this report we assess the accuracy of our June Budget 2010 forecast against outturn for calendar year 2010 and fiscal year 2010-11.

## The economy

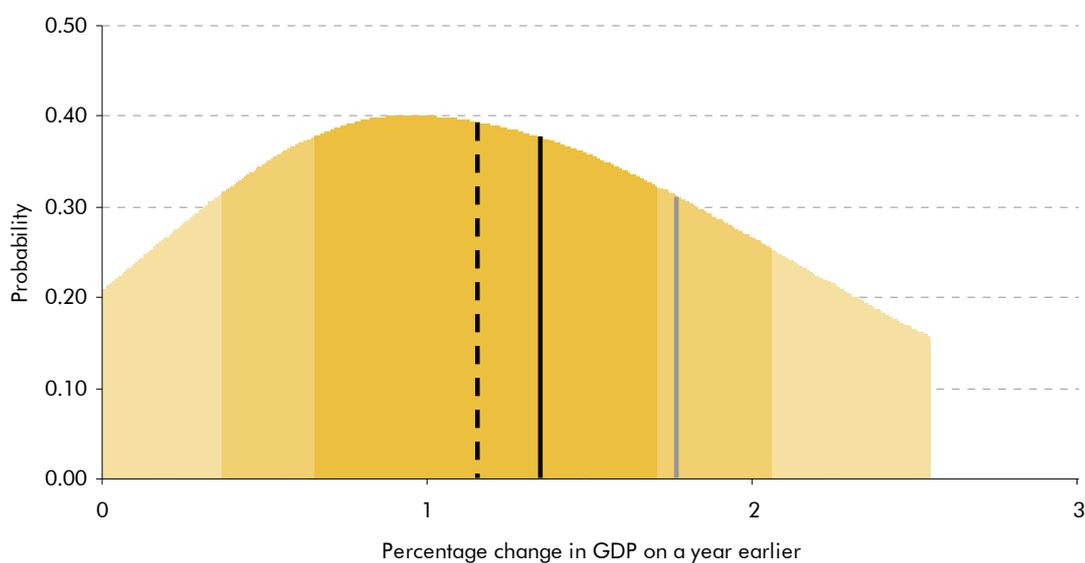
- 1.2 Real GDP growth was stronger in 2010 than our central projection of 1.2 per cent at the time of the June 2010 Budget. Chart 1.1 illustrates the degree of uncertainty around the central forecast if OBR forecasts were expected to be as accurate as Treasury forecasts in the past. It shows the probability that could be attached to the range of real GDP growth outcomes around our central projection.<sup>1</sup> Each band represents a 10 per cent probability of the outcome being within the range that it covers.
- 1.3 As explained in the *Foreword*, the analysis in this report is based on pre-*Blue Book 2011* outturn data. On this basis, the GDP growth outturn of 1.4 per cent was within the first set of 10 per cent probability bands around the central forecast. This implies that we would expect to make a larger forecast error than this in four out of every five years if we were to have the same forecast performance as the Treasury had in the past.<sup>2</sup> In the October 5<sup>th</sup> Quarterly National Accounts release consistent with *Blue Book 2011*, GDP growth was revised up to 1.8 per cent in 2010. This means that the forecast error was greater, and we would have expected to make an error larger than this in one out of every two years.
- 1.4 However, this reasonably accurate forecast for annual GDP growth masks larger errors in forecasting both the quarterly path of GDP over the year, and its composition. Growth in the first half of 2010 was much stronger than we expected, with construction output and therefore investment recovering by more than anticipated. In the second half of 2010 there was a slowdown in underlying growth momentum, coupled with adverse weather conditions, which led to output falling in the final quarter of 2010.

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<sup>1</sup> For further details, see Annex A of our *Pre-Budget Report, June 2010*.

<sup>2</sup> In part, the reasonable accuracy of this forecast may reflect the fact that the June 2010 Budget was later in the year than usual.

Chart 1.1: Probability projections for GDP in 2010



Source: ONS, OBR - - June 2010 Budget central forecast — Pre-Blue Book — Post Blue-Book

- 1.5 In terms of the composition of growth, private consumption and stock-building were also stronger than anticipated. But partially offsetting this was a corresponding rise in imports, which served to reduce the contribution to growth from net trade, and also lower government spending.
- 1.6 Our latest assessment of the cyclical indicators, set out in our March 2011 *EFO*, implied that the output gap – the difference between the actual level of output and the potential level consistent with stable inflation – was around 0.3 percentage points smaller than originally forecast.
- 1.7 Measured productivity growth was weaker than forecast, as growth in employment exceeded our forecast by more than growth in output. Growth in total wages and salaries was correspondingly higher, although the impact of higher employment growth was partially offset by slower average earnings growth; some of this will have reflected the fact that a higher proportion of employees were in part-time jobs than we expected.
- 1.8 CPI and RPI inflation both exceeded our forecasts, with energy price movements more than explaining the error in forecasting inflation in the final quarter of 2010. Oil prices grew by more than had been implied by futures prices in June, whilst electricity and gas prices rose strongly towards the end of the year.
- 1.9 The key economic determinants of the public finances are the forecasts of growth in wages and salaries, non-financial company profits and consumer spending, which drive receipts from income tax and NICs, corporation tax, and VAT,

respectively. The outturn for each of these determinants for the fiscal year 2010-11 was higher than forecast, but the difference was only significant in the case of non-financial company profits.

## Receipts

- 1.10 Total public sector receipts in 2010-11 were £4.1 billion (0.7 per cent) above our June Budget 2010 forecast. By recent historical standards, this is a small error.
- 1.11 As set out above, our forecasts of the key economic determinants that drive revenues were generally slightly above expectations. However, overall receipts were £1.5 billion lower than expected due to errors in the economic forecast. The most important driver of this was lower-than-expected short-term interest rates, which reduced interest and dividend receipts by £1.6 billion. We do not take an explicit judgement on the interest rate outlook, but instead assume that monetary policy follows the path expected by participants in financial markets. The impact of higher-than-expected non-financial company profits on corporation tax receipts was offset by lower profits from financial companies.
- 1.12 Relative to the June 2010 Budget forecast, errors modelling the strength of receipts in any given state of the economy (known as fiscal forecasting errors) were more important. Receipts were £5.6 billion higher than forecast as a result of such modelling errors. Notable errors arose in overestimating the amount of VAT repayments relating to litigation cases (£1.9 billion), underestimating the value of capital disposals subject to capital gains tax (in total, £1 billion above forecast) and assessing the impact of the one-off bank payroll tax (raising £0.9 billion more than expected). Income tax and national insurance contributions were also £0.9 billion above the June Budget forecast, although this represents less than 0.5 per cent of their combined revenues.

## Public expenditure

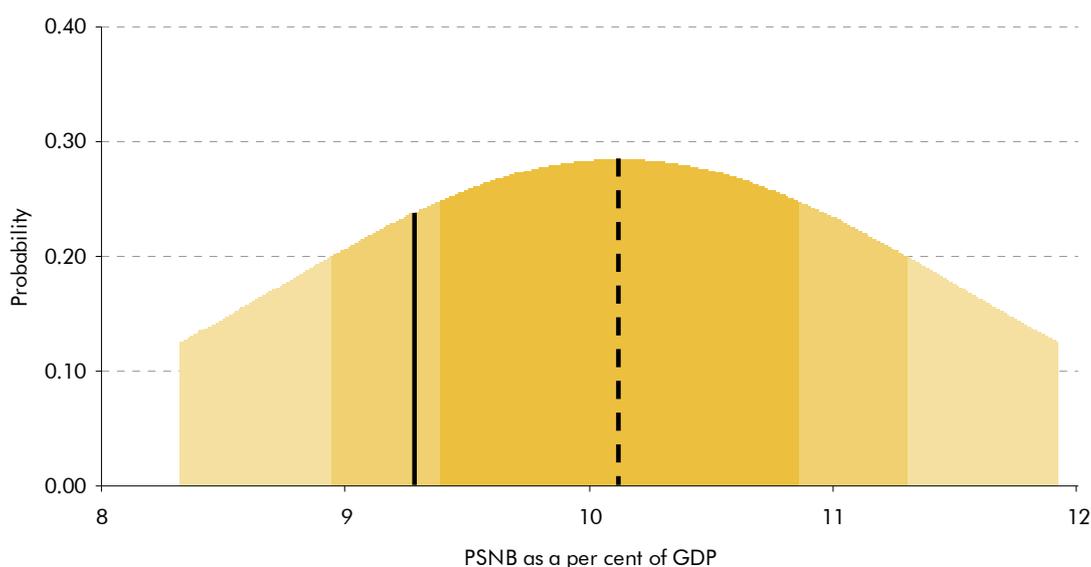
- 1.13 Total managed expenditure in 2010-11 was £8.3 billion (1.2 per cent) lower than forecast. Spending within departmental expenditure limits (DELs) – expenditure by government departments subject to fixed multi-year plans – was £1.3 billion below forecast. Larger errors were made in the forecast of annually managed expenditure (AME), in particular a £7 billion error in current AME.
- 1.14 The largest component of current AME, social security benefits (representing around 55 per cent of the total), was actually remarkably close to forecast (an error of £0.1 billion, or less than 0.1 per cent).
- 1.15 The most significant error can be found in locally-financed expenditure. In total, the current component of locally-financed expenditure was £4.4 billion lower

than forecast. English local authorities reduced current spending on their services by £2 billion compared to their budgets. A further £1.8 billion error arose because the forecast assumed that financial pressures on local authorities would lead them to draw down their reserves by £0.6 billion to finance spending, whereas provisional outturn figures indicate that they increased their reserves by some £1.2 billion.

## Fiscal aggregates

- 1.16 Public sector net borrowing (PSNB) represents the difference between total public sector receipts and expenditure. These are both very large aggregates and so small errors in either can result in big errors when forecasting PSNB. So, although receipts were only 0.7 per cent (£4.1 billion) above forecast and expenditure was only 1.2 per cent (£8.3 billion) below, both errors reduced borrowing and PSNB in 2010-11 came in 8.3 per cent (£12.4 billion) lower than expected.
- 1.17 Chart 1.2 illustrates the probability of a range of outcomes for PSNB around the June 2010 Budget central projection, based solely on the Treasury’s past forecasting errors. These did not represent our subjective view at the time of the June Budget. But based on this analysis, an error of the scale witnessed may have been expected once every two years.

Chart 1.2: Probability projections for PSNB in 2010-11



Source: ONS, OBR

— — June 2010 Budget central forecast — — Outturn

- 1.18 With investment spending close to original plans, the error in forecasting the current budget – borrowing excluding that undertaken for investment – was of a

similar magnitude to the PSNB forecast error. The cyclically-adjusted current budget represents an estimate of the underlying or 'structural' fiscal position. As our latest assessment set out in the March 2011 *EFO* implied that the output gap was narrower over 2010-11 than anticipated in June 2010, the degree to which the fiscal position can be expected to recover over time, simply as the economy recovers, is more limited. All else equal, this would imply a weaker structural position. However, in this case this was more than offset by the headline current budget, which was better than forecast. This means that overall, the cyclically-adjusted current budget deficit in 2010-11 was around 0.7 per cent of GDP smaller than we forecast in June 2010.

- 1.19 Public sector net debt (PSND) was also lower at the end of 2010-11 than expected, on account of lower expenditure and higher receipts. But as a stock measure of the public sector's net liability position, it can also be affected by revisions to earlier periods. Downward revisions to PSND in earlier years reinforced the better-than-expected profile over 2010-11. In total, PSND was 1.7 per cent of GDP lower than forecast at the time of the June 2010 Budget.

## Conclusions: lessons to learn

- 1.20 The *FER* is designed in part for us to lay out transparently how our forecasts have performed, so that people can understand them better and can be confident that they are based on (inevitably fallible) professional judgement rather than politically motivated wishful thinking. But a second key objective is to learn lessons that can be used to improve our future forecasts.
- 1.21 We continually review our forecasting models, to ensure they remain fit for purpose. In light of this year's report, there are a number of areas that we will be considering further. And even where forecasts appear to perform reasonably well, there is often scope for further development. Progress has been or is due to be made in the following areas:
- representing the household and external balance sheets in more detail;
  - reviewing the models used to forecast receipts from stamp duty land tax, alcohol duties and business rates;
  - assessing newly available data on in-year spending by local authorities and looking at the scope for further improvements to our approach to forecasting locally-financed expenditure; and
  - implementing a more transparent model to forecast debt interest payments.



## 2 The economy

- 2.1 This chapter sets out how the economy has deviated from the path we expected it to follow in our June 2010 Budget central forecast. We begin by examining our forecast of the degree of spare capacity in the economy before looking at our GDP growth projection and how the composition of growth differed from that which we anticipated. We then set out developments in inflation, the labour market and interest rates before outlining the errors made on key determinants of the public finances. We conclude by comparing our forecasts with those of external organisations.
- 2.2 For any evaluation of forecast performance it is necessary to choose a vintage of data against which to assess our projections. In what follows, we compare our forecasts against data consistent with the Quarterly National Accounts (QNA) up to and including the first quarter of 2011.<sup>3</sup> Therefore, this report does not take on the data released in the latest QNA on October 5<sup>th</sup>, which is consistent with the forthcoming *Blue Book 2011*. Ordinarily, we would like to assess our forecast against data that has gone through the full Blue Book process. But on this occasion it was not possible to do so:
- publication delays mean that the final *Blue Book 2011* will be published later in the year than is typically the case. Waiting until all the relevant data became available would not have left us enough time to produce this *FER* ahead of our Autumn *EFO*. Doing so is an important part of the purpose of this document as it allows us to take on board any lessons to be learned from the forecast errors we made in the previous year; and
  - the *Blue Book* consistent QNA release on October 5<sup>th</sup> did not contain all the data needed to conduct a full assessment of our forecast. Due to publication delays, the release did not contain sector accounts data, which meant we would not be able to assess our forecasts of key fiscal determinants, such as wages and salaries.
- 2.3 As with any evaluation of forecast performance, the analysis presented here will develop as the data move on. This document and the analysis presented in it should be viewed as a snapshot assessment of the June 2010 Budget

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<sup>3</sup> Released 28<sup>th</sup> June 2011

forecast. Next year's edition of the *FER* will update this analysis based on the latest available data.

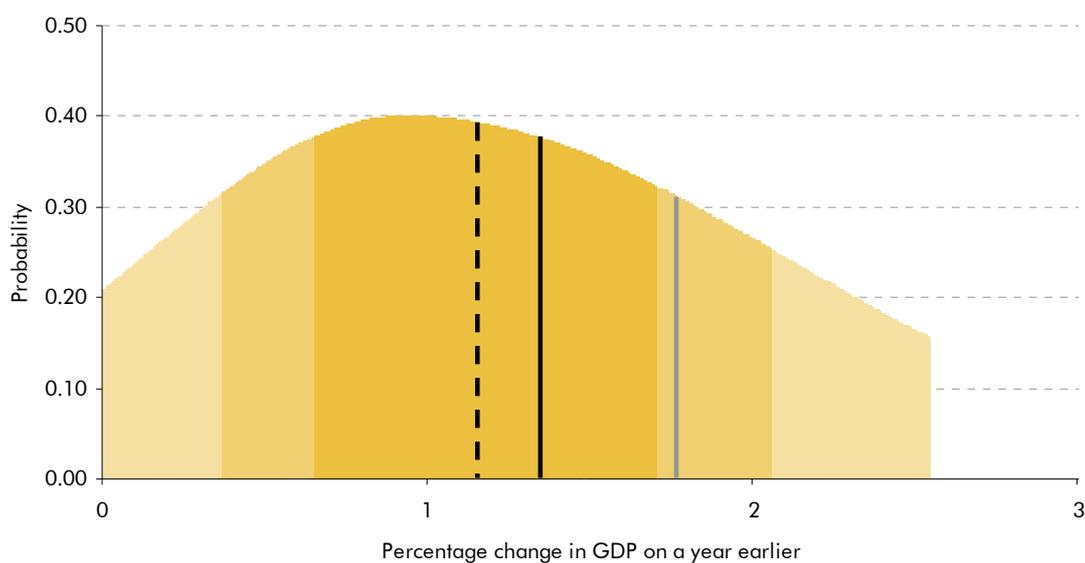
- 2.4 Therefore, in the remainder of this chapter our primary focus is to assess our forecast performance against the pre-October 5<sup>th</sup> QNA estimate that real GDP grew by 1.4 per cent between 2009 and 2010, which was a little stronger than our central projection of 1.2 per cent at the time of the June 2010 Budget.
- 2.5 Chart 2.1 illustrates the degree of uncertainty around the central forecast if OBR forecasts were expected to be as accurate as Treasury forecasts in the past. It shows the probability that could be attached to the range of real GDP growth outcomes around our central projection. Each band represents a 10 per cent probability of the outcome being within the range that it covers.
- 2.6 The uneven shape of the distribution is consistent with the distribution of past errors.<sup>4</sup> We make our central forecasts on the basis that we believe that the risks are balanced, such that upside errors are as likely as downside errors. This means that our forecasts are median forecasts. This is illustrated by an equal number of shaded bands being either side of the forecast. In this case, the outturn was within the first set of 10 per cent probability bands around the central forecast. This implies that we would expect to make a larger forecast error than this in four out of every five years if we were to have the same forecast performance as the Treasury had in the past.<sup>5</sup>
- 2.7 In the October 5<sup>th</sup> QNA release, GDP growth was revised up to 1.8 per cent in 2010. Against this the forecast error was greater, and we would have expected to make an error larger than this in one out of every two years. Box 2.1 sets out some further details on the key implications for our forecast performance of the partial information available in the October 5<sup>th</sup> QNA release.

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<sup>4</sup> Analysis of past Treasury forecasts shows that outturns for the first year of the forecast were more frequently above expectations than below. To replicate that feature, the chart shows a greater area above (i.e. to the right of) the most likely outcome, the mode, than below (i.e. to the left). To compensate, the median, where the risks are evenly balanced, is slightly above this point. For later years, the reverse picture holds. For further details, see Annex A of our *Pre-Budget Report, June 2010*.

<sup>5</sup> In part, the reasonable accuracy of this forecast may reflect the fact that the June 2010 Budget was later in the year than usual.

Chart 2.1: Probability projections for GDP in 2010



Source: ONS, OBR — June 2010 Budget central forecast — Pre-Blue Book — Post Blue-Book

**2.8** The reasonably accurate forecast for annual GDP growth masks larger errors in forecasting both the quarterly path of GDP over the year and its composition. We also made errors in other areas of the economic forecast:

- growth in the first half of 2010 was stronger than expected and more than offset a corresponding error in the second half of the year in which a slowdown in underlying growth momentum, coupled with adverse weather conditions, led to output falling in the final quarter of 2010;
- investment, private consumption and stock-building over 2010 were stronger than anticipated. But partially offsetting this were a corresponding rise in imports, which served to reduce the contribution to growth from net trade, and lower government spending;
- our latest assessment of the cyclical indicators implies that the output gap over 2010 was around 0.3 percentage points smaller than originally forecast;
- measured productivity growth was weaker than forecast, as employment also surprised on the upside. Total wages and salaries growth was higher, although partially offset by slower average earnings growth;
- CPI and RPI inflation both surprised on the upside primarily due to energy price movements; and

- the outturn for each of the key fiscal determinants – wages and salaries, private non-financial company profits and nominal consumer spending – was higher than forecast, but the difference was only significant in the case of private non-financial company profits.

2.9 Assessing the performance of our forecasts and examining where errors were made allows us to increase our understanding of the economy and direct our research and model development work to the areas that need it most. Judgement is central to the way in which the forecast is produced, so the accuracy of the forecast is as dependent on the economic reasoning underpinning it as on the data that have been used to construct it. A forecast should, therefore, be evaluated by looking at the quality of these judgements as well as the numerical size of the forecast error. To this end, we set out some possible explanations for why the economy behaved differently to how we expected as well as the extent to which that happened.

### Box 2.1: Quarterly National Accounts consistent with Blue Book 2011 – implications

This box briefly sets out the key differences between the vintage of data against which our forecasts are assessed in this report, and the information in the October 5<sup>th</sup> Quarterly National Accounts, which is consistent with the forthcoming *Blue Book 2011*. A summary of the main implications of the new data is that:

- the level of nominal GDP is little changed, although revisions to earlier years have caused the growth rate to be revised up;
- a similar pattern applies to real GDP, as revisions to earlier years have boosted the calendar year growth rate, although the quarterly growth rates through the year were largely unchanged;
- real domestic demand growth is unchanged, but with less of a contribution from investment and more from household consumption. At this stage, it is difficult to interpret the revisions to (real and nominal) consumption as a revised saving ratio for the period is not yet available; and
- only partial data is available on the income measure of GDP. Compensation of employees has been revised slightly higher but we do not yet have updated series for wages and salaries or company profits.

Overall, the analysis presented in this chapter remains broadly intact following the partial information currently available on the *Blue Book 2011* revisions. The larger revisions were concentrated in 2008 and 2009, reflecting the fact that data for these years underwent full balancing, while the 2010 data will not be balanced for the first time until *Blue Book 2012*.

## The output gap and potential output

- 2.10 The degree of spare capacity in the economy cannot be observed directly so there are no outturn data by which we can assess our forecast performance. Instead, we compare our output gap estimate at the time of our June 2010 Budget forecast with our revised estimate set out in the March 2011 *EFO*, now that more information has become available.
- 2.11 At the time of the June Budget we had cyclical indicator data available to the final quarter of 2009, from which point we applied our trend growth judgements and our forecast of actual GDP to arrive at an estimate of the output gap for 2010 as a whole. Based on the survey and GDP data released between our June 2010

and March 2011 *EFO* forecasts, we now think the output gap was 0.3 percentage points narrower in 2010 than we forecast in June 2010.<sup>6</sup>

## The GDP growth forecast

Table 2.1: The quarterly GDP path

	Percentage change on previous quarter				
	2010				2011
	Q1	Q2	Q3	Q4	Q1
Forecast <sup>1</sup>	0.3	0.6	0.6	0.6	0.5
Outturn <sup>2</sup>	0.4	1.1	0.6	-0.5	0.5
Error <sup>3</sup>	0.1	0.5	0.1	-1.1	-0.1

<sup>1</sup> Forecast from and including the second quarter of 2010  
<sup>2</sup> Consistent with the 2011Q1 Quarterly National Accounts, released 28th June 2011  
<sup>3</sup> Error in first quarter of 2010 reflects a later upward revision to the data

2.12 Our June 2010 Budget forecast proved too pessimistic on the outlook for growth in 2010 with the outturn on a pre-October 5<sup>th</sup> QNA basis around 0.2 percentage points higher than forecast. This is a reasonably small headline forecast error but it masks a number of larger and partially offsetting errors on the expenditure components of GDP. The overall picture is that the stronger than expected growth in the first half of the year more than offset the impact on the annual rate of the unforeseen slowdown in growth momentum and the adverse weather conditions toward the end of the year.

2.13 The slowdown may have reflected higher-than-expected inflation and a weakening in sentiment amid concerns surrounding sovereign debt sustainability in some Euro area periphery economies. Set against this, we were surprised by the speed with which the inventories cycle gathered pace and subsequently wound down.

2.14 We had outturn data for the first quarter of the year when we made the forecast and this was subsequently subject to a small upward revision. The second quarter saw growth accelerate and come in significantly above forecast at 1.1 per cent. A sharp contraction in air transport services in April, arising from the volcanic ash cloud that drifted over the UK, was more than offset by a surge in construction output, which grew 7 per cent on the quarter. The strong growth rate also came

<sup>6</sup> We made an adjustment to the output gap implied by fourth quarter GDP data which reduced it by 0.5 percentage points to account for the effect of the adverse weather. This is because we saw this as a temporary hit to the supply potential of the economy. We reversed this in the first quarter of 2011 so the adjustment was neutral overall.

as a surprise to external forecasters who were expecting 0.6 per cent growth on the eve of the GDP release.<sup>7</sup>

- 2.15** In the third quarter, construction again grew strongly, contributing around 0.2 percentage points to the quarterly growth rate. This was partially offset by an easing in services sector growth, which may have been one of the first indicators of slowing momentum in the economy.
- 2.16** The final quarter of 2010 saw output decline by 0.5 per cent, compared to our forecast of a 0.6 per cent expansion. This reflected two factors. First, the ONS estimates that unusually snowy weather conditions may have reduced output in the quarter as a whole by 0.5 per cent. Second, an examination of the monthly profile of services output shows that weakness in output growth started before the snow fell. Services output fell 0.8 per cent in October, did not significantly rebound in November and contracted by a further, snow-affected, 1.1 per cent in December. The October contraction was broad-based with falls across a number of subsectors.
- 2.17** If the ONS estimate of the temporary influence of snow is correct, then the first quarter of 2011 should have seen a rebound in GDP of 0.5 percentage points on top of what we would have expected in its absence. That growth only registered 0.5 per cent in the first quarter pointed to a continued weakness in growth momentum.

## The composition of growth

- 2.18** Table 2.2 sets out the contributions to GDP growth from the expenditure components and the associated errors. Table 2.3, towards the end of the chapter, sets out the forecast errors in more detail, including annual growth rates for the expenditure components.

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<sup>7</sup> In constructing our near-term forecast we pay close attention to the output measure of GDP. This is because output data are timelier than expenditure or income data and it is the output measure which drives the early ONS estimates of quarterly GDP. The expenditure measure has more of a role in guiding estimates of calendar year growth.

Table 2.2: Summary of forecast errors in 2010

	Percentage change on a year earlier, unless otherwise stated		
	Forecast	Outturn <sup>1</sup>	Error
<b>Output at constant market prices</b>			
Gross domestic product (GDP)	1.2	1.4	0.2
<b>Main contributions (percentage points)</b>			
Private consumption	0.2	0.5	0.3
Business investment	0.1	0.3	0.2
Dwellings investment <sup>2</sup>	-0.2	0.2	0.4
Government <sup>3</sup>	0.4	0.0	-0.4
Change in inventories	1.2	1.5	0.3
Net trade	-0.5	-1.1	-0.6
<b>Inflation</b>			
CPI	3.1	3.3	0.2
RPI	4.3	4.6	0.4
<b>Labour market</b>			
Employment (millions)	28.8	29.0	0.2
Average earnings <sup>4</sup>	2.1	1.8	-0.3
ILO unemployment (% rate)	8.1	7.9	-0.2
Claimant count (millions)	1.53	1.50	-0.03
Output gap <sup>5</sup>	-3.7	-3.4	0.3

<sup>1</sup> Consistent with the 2011Q1 Quarterly National Accounts, released 28th June 2011

<sup>2</sup> The sum of public corporations and private sector investment in new dwellings and improvements to dwellings

<sup>3</sup> The sum of government consumption and general government investment

<sup>4</sup> Wages and salaries divided by employees

<sup>5</sup> There is no ONS outturn for the output gap, so the error is relative to subsequent estimates

## Consumer spending

- 2.19** Our June 2010 Budget forecast was for real private consumption to grow by just 0.2 per cent, held back by weak real disposable income growth of 0.2 per cent. Instead, real private consumption grew by 0.7 per cent while real disposable income fell by 0.8 per cent.
- 2.20** The unexpected weakness in real disposable income growth arose through a combination of higher-than-expected inflation and weaker nominal disposable income growth. The former reflected a shock to the level of prices from movements in commodity prices in the second half of the year. The latter was

concentrated in weaker net property income receipts. In particular, we overestimated the income attributable to households via their pension funds.<sup>8</sup>

2.21 The remaining forecast error comes from an underestimate of the degree to which nominal consumer spending would hold up despite subdued disposable income growth. This reflected a number of factors:

- data revisions saw real consumption grow more strongly towards the end of 2009 than we thought at the time of the June 2010 Budget forecast. This higher starting level for 2010 provided support to the consumption growth rate purely as a result of base effects;<sup>9</sup>
- we overestimated the extent to which households would save from their incomes, which meant consumption held up despite weaker disposable income growth. Our forecast of the saving ratio in 2010 was 6.9 per cent in the June 2010 Budget forecast but outturn came in at 5.3 per cent. The ONS later revised down the saving ratio by 1 percentage point for 2009, revealing that households had saved a lower proportion of their incomes over the course of the recession; and
- inflation was higher than we forecast in the second half of the year, so reducing real consumption and generating a partially offsetting forecast error.

### Government consumption

2.22 Real government consumption growth was weaker than we forecast in 2010, contributing around 0.2 percentage points less to GDP growth than we expected. The forecast error for nominal government consumption growth was larger still, reflecting an overestimate of the degree to which the price of government consumption would rise. Part of the government consumption error reflected our need to present National Accounts consistent forecasts – we have to convert the non-seasonally adjusted financial year fiscal forecasts we receive from departments to seasonally adjusted calendar year economic forecasts.

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<sup>8</sup> In this respect, that consumption was not weaker than we expected is perhaps no surprise. Household consumption, at least in the short term, is thought to respond more to changes in labour income than non-labour income. The enumeration of the household balance sheet in our model, from which the non-labour income flows are generated, has been greatly improved since the June 2010 Budget forecast and we continue to monitor our forecast performance in this area.

<sup>9</sup> Base effects refer to the influence on current year growth rates that arises from movements in the reference year.

### Investment

- 2.23 Real business investment growth was almost two percentage points stronger in 2010 than we forecast in the June 2010 Budget, contributing 0.3 percentage points to GDP growth in that year. Despite this, business investment finished the year some 17 per cent below its pre-crisis peak. Survey data released after our forecast was produced pointed to a pick up in capacity-building among exporting firms over that time. That we underestimated corporate sector profits growth (which came in at 4.5 per cent in 2010 relative to our forecast of 1.5 per cent) suggests firms may also have had more retained earnings with which to invest over that period.
- 2.24 We expected the weakness of investment in dwellings seen in 2009 to persist into 2010, falling 6.5 per cent on the year. However, the outturn surprised on the up side, growing 6.9 per cent on the year and contributing 0.2 percentage points to GDP growth. It is possible that some combination of the rally in house prices in the second half of 2009, stamp duty measures and first-time-buyer assistance programs run by the Government over that period may have done rather more to stimulate house-building than we expected.
- 2.25 Unusually, there was little corresponding increase in the volume of transactions in the housing market with which dwellings investment is typically well-correlated. Like business investment, investment in dwellings fell sharply during the recession and was even further (some 29 per cent) below its pre-recession peak at the end of 2010. Of course, the dwellings investment outturn data reflect the strong construction output growth seen in the middle of 2010.<sup>10</sup>
- 2.26 General government investment came in stronger than we expected at the time of the June 2010 Budget forecast. Part of the forecast error reflects our forecast for investment prices which rose less strongly than we expected. This accounts for around 1.1 percentage points of our forecast error leaving 4 percentage points unexplained.

### Stock building

- 2.27 In normal times, stock building tends not to influence the headline GDP growth numbers very much, but around recessions it can be important. The involuntary accumulation of inventories as the economy tips into recession, the subsequent depletion of stocks as working capital becomes scarce and the restocking that follows as the economy recovers all affect the path of GDP growth.

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<sup>10</sup> The construction output data from the GDP output measure feed directly in to the investment series that is used to construct the expenditure measure of GDP.

- 2.28 As the economy began its recovery, we expected restocking to contribute around 1.2 percentage points to the headline rate of GDP growth in 2010 with less in later years as the rate of stock building converges with the growth rate of GDP. Outturn for 2010 was consistent with a contribution of around 1.5 percentage points to GDP resulting in a 0.3 percentage point forecast error.
- 2.29 At the time of the June 2010 Budget forecast we assumed that total inventories would rise back toward the long-run ratio of stocks to GDP. However, the timing and speed of this rise was difficult to predict. After the forecast was produced, it became clear that the pace of the inventory cycle had exceeded our expectations and was probably completed around the turn of the year.

### World output and trade

- 2.30 World GDP and trade grew more strongly than we expected in our June 2010 Budget forecast. In particular, the 12.8 per cent rebound in world trade surprised a number of forecasters, including the IMF who, in April 2010, expected international trade to grow by 7 per cent in that year.
- 2.31 Our June 2010 Budget forecast was for net trade to detract from UK GDP growth by around 0.5 percentage points in 2010. In fact, outturn data showed that net trade slowed GDP growth by 1.1 percentage points, primarily due to higher than expected import growth.
- 2.32 This error can be traced back to errors on the other expenditure components. Investment, stock-building and household consumption each have a high import content and came in above forecast. We also assumed a small amount of import substitution, with consumers and firms expected to switch to domestically produced goods following the exchange rate adjustment during the recession. However, there was little evidence of this in 2010 with only travel services showing a marked decline in imports as 'staycations' rose in popularity.
- 2.33 Exports also grew faster than we forecast at the time of the June 2010 Budget. Part of this likely reflects stronger than expected growth in advanced economies, which account for the bulk of our export market. We also expected exporters to gain market share following the improved competitiveness delivered by sterling depreciation. But the evidence suggests that this happened less than we expected as exporters widened their profit margins instead – export prices rose faster than we forecast.
- 2.34 The current account balance reflects both the trade balance and the investment income generated by foreign assets less that which is paid out on foreign-owned domestic assets. Our net trade forecast accounted for around £5bn of our current account balance forecast error while our net investment income forecast accounted for the vast majority of the remaining £21bn error. In subsequent

forecasts we improved the enumeration of the external balance sheet in our model to improve our forecast of net investment income. However, these flows remain very difficult to predict and are affected by erratic components such as repatriated losses in the financial sector. Net investment income is also prone to large data revisions, with the 2009 data revised down by £8.5bn since our June 2010 Budget forecast.

## Inflation

- 2.35 In June 2010, the spot price for Brent crude oil averaged around \$75 a barrel. Our forecast used the oil futures market, which implied the price of oil would rise relatively slowly and finish the year at around \$78 a barrel. In fact, in the following six months the spot oil price rose to above \$90 a barrel. However, some of this price change was offset by currency movements, which reduced the sterling cost of oil. Electricity and gas prices also rose more strongly than we forecast toward the end of the year, rising 1.2 and 4.6 per cent respectively in December 2010. Energy prices, along with an unexpectedly strong increase in global agricultural commodity prices, explain the majority of our underestimate of the rate of inflation for 2010 as a whole.
- 2.36 We made a larger error on our RPI inflation forecast than we did on our CPI inflation forecast. RPI is influenced by movements in mortgage interest payments and housing depreciation, which are not included in the CPI. However, while we overestimated the contribution of mortgage interest payments to the headline rate, this was broadly offset by higher than expected house price inflation.
- 2.37 The main factor pushing the wedge between RPI and CPI above forecast was a methodological improvement to the collection practices for clothing and footwear prices, first implemented by the ONS at the beginning of 2010. Due to the differing approaches taken to averaging price changes in the CPI and RPI, this increased the wedge between the two measures of inflation. Data released since then led us to assume that the effect on the wedge would be permanent and we took this into account in our March 2011 *EFO*.

### Nominal GDP and the GDP deflator

- 2.38 Nominal GDP is an important determinant of the public finances as it is the nominal economy which drives tax receipts. Our June 2010 Budget forecast was for nominal GDP to grow 4.4 per cent in 2010, slightly above the outturn of 4.3 per cent. The forecast error reflected an overestimate of the degree to which whole-economy prices would rise (the GDP deflator) of around 0.3 percentage points. This was partly offset by our underestimate of real activity growth in 2010 of 0.2 percentage points. While we underestimated the rise in consumer prices, we overestimated the rise in the prices of government consumption and investment, as well as exports relative to imports (the terms of trade).

## The labour market

- 2.39 Our June 2010 Budget forecast was for the level of LFS employment to fall slightly over 2010, with falling employment at the beginning of the year and net gains in the second half. Outturn data shows that we underestimated the pick-up in employment which began in the second quarter of 2010. This was stronger than we might have expected given GDP growth in this period, so that productivity growth<sup>11</sup> came in weaker than we projected in 2010.
- 2.40 The ILO unemployment rate came in below our forecast for the year. This partly reflected the error we made on the level of employment, although an underestimate of the size of the available workforce also made a contribution. Total wages and salaries grew a little faster than we anticipated, reflecting the stronger than expected employment numbers. But this was partially offset by slower average earnings growth, possibly because a large share of the increase in employment appears to have been in part-time positions, which puts downward pressure on average earnings growth.
- 2.41 In the June 2010 Budget forecast we also produced estimates of the net reduction in general government employment over the period 2010-11 to 2015-16. Assessing the latest outturn for the 2010-11 baseline for this projection is difficult because the ONS have reclassified a number of workers as public sector workers, mainly those working in 6<sup>th</sup> form colleges. Taking these into account, general government employment is around 100,000 lower in 2010-11 than we assumed at the time of the June 2010 Budget. Full details of the current methodology used to produce these projections are set out in Box 3.6 of our March 2011 *EFO*.

## Interest rates

- 2.42 We derive our central forecast for interest rates using financial market instruments sourced from the Bank of England's website. Participants in financial markets did not expect Bank Rate to rise in 2010 at the time of the June 2010 Budget and they were proved correct. The interest rate on three-month interbank lending was expected to average 0.9 per cent in 2010 but came in at 0.7 per cent. Therefore, the spread between Bank Rate and the interbank lending rate came in lower than expected.
- 2.43 Part of this forecast error appears to reflect difficulty in measuring market expectations of interbank lending rates. Successive snapshots of financial market data indicated a persistent expectation that the spread of interbank lending rates over policy rates would widen in the near-term before falling back. This widening

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<sup>11</sup> In output per worker terms

was most obvious at maturities for which the instruments used are least liquid. The Bank of England has taken steps to improve the measurement of these expectations since our June 2010 Budget forecast but we will monitor this area of the forecast closely in forthcoming *EFOs*.

## The fiscal determinants

2.44 We produce our economic forecast as an input into our fiscal forecast. Table 2.4 details the financial year forecast errors associated with the key economic determinants of our public finances projection. These include the forecasts of growth in wages and salaries, non-financial company profits and nominal consumer spending, which drive receipts from income tax and NICs, corporation tax, and VAT, respectively.

2.45 Where there is an overlap with what we have presented so far in this chapter, the differences between our calendar and financial year errors were generally quite small:

- total wages and salaries was expected to grow 1.7 per cent in the 2010-11 financial year but outturn came in stronger at 1.9 per cent. As with the calendar year forecast error, stronger employment explains most of the deviation with weaker average earnings growth providing some offset. The average earnings growth error was larger for the 2010-11 financial year than for the 2010 calendar year. This reflected a combination of weaker than expected earnings growth in the first quarter of 2011, revisions to earlier data and base effects arising from rolling the annual comparison forward a quarter;
- non-oil corporate sector profitability grew faster than we anticipated in the 2010 calendar year, broadly reflecting stronger domestic demand growth than we anticipated and a widening of exporters' margins. The choice of the calendar year figure as the relevant determinant for 2010-11 corporation tax payments reflects the accounting periods used by firms;
- nominal consumer spending grew by 4.9 per cent in the 2010 calendar year (the relevant determinant for 2010-11 VAT receipts), faster than the 4.6 per cent growth we forecast at the time of the June 2010 Budget. This reflected an overestimate of household saving – household saving in the preceding year was later revised down significantly;
- market short-term interest rates (three-month interbank lending rates) came in lower than forecast in the June 2010 Budget. The forecast error is likely to reflect difficulties in measuring market expectations at specific maturities and steps have been taken to address this issue; and

- house prices rose more quickly than outside forecasters expected in the 2010-11 financial year<sup>12</sup> but turnover fell short of our forecasts. We expected property transactions to rise by 5.2 per cent in 2010-11 but, in fact, they fell by 2.8 per cent.

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<sup>12</sup> We take the average of new forecasts for the CLG measure of house prices from the Treasury's *Comparison of independent forecasts* for our current year projection.

Table 2.3: Detailed forecast errors in 2010

	Percentage change on a year earlier, unless otherwise stated			
	Forecast	Outturn <sup>1</sup>	Error	Historic error <sup>2</sup>
<b>World economy</b>				
World GDP at purchasing power parity	4.0	5.0	1.0	-
Euro Area GDP	0.7	1.8	1.1	-
World trade in goods and services	6.1	12.8	6.7	-
UK export markets <sup>3</sup>	4.1	8.5	4.4	-
<b>UK economy</b>				
Gross domestic product (GDP)	1.2	1.4	0.2	0.7
<b>Expenditure components of GDP</b>				
Domestic demand	1.6	2.7	1.1	0.7
Household consumption <sup>4</sup>	0.2	0.7	0.5	0.4
General government consumption	1.7	1.0	-0.7	1.2
Fixed investment	-0.5	3.7	4.2	3.0
Business	1.4	3.5	2.1	-
General government	-2.2	3.0	5.2	-
Private dwellings	-6.5	6.9	13.4	-
Change in inventories <sup>5</sup>	1.2	1.5	0.3	0.3
Exports of goods and services <sup>6</sup>	4.3	5.2	0.9	2.1
Imports of goods and services <sup>6</sup>	5.6	8.8	3.2	2.8
<b>Balance of payments current account</b>				
£ billion	-25	-46	-21	12
Per cent of GDP	-1.7	-3.2	-1.4	0.8
<b>Inflation</b>				
CPI	3.1	3.3	0.2	0.7
RPI	4.3	4.6	0.4	-
Terms of trade <sup>7</sup>	3.2	-0.2	-3.4	-
GDP deflator at market prices	3.2	2.9	-0.3	0.4
<b>Labour market</b>				
Employment (millions)	28.8	29.0	0.2	-
Wages and salaries	1.2	1.6	0.4	-
Average earnings <sup>8</sup>	2.1	1.8	-0.3	-
ILO unemployment (% rate)	8.1	7.9	-0.2	-
Claimant count (millions)	1.53	1.50	-0.03	-
<b>Household sector</b>				
Real household disposable income	0.2	-0.8	-1.0	-
Saving ratio (level, per cent)	6.9	5.3	-1.6	-
House prices	5.9	7.4	1.4	-
<b>Nominal indicators</b>				
Nominal GDP	4.4	4.3	-0.1	0.9
Non-oil PNFC profits <sup>9</sup>	1.5	4.5	3.0	-

<sup>1</sup> Consistent with the 2011Q1 Quarterly National Accounts, released 28th June 2011

<sup>2</sup> The historical forecasting errors are 10 year rolling averages of absolute errors (where available)

<sup>3</sup> Other countries' imports of goods and services weighted according to the importance of those countries in the UK's total exports

<sup>4</sup> Includes households and non-profit institutions serving households

<sup>5</sup> Contribution to GDP growth, percentage points

<sup>6</sup> Trade levels are distorted by MTIC fraud

<sup>7</sup> Ratio of export to import prices

<sup>8</sup> Wages and salaries divided by employees

<sup>9</sup> Private non-oil non-financial corporations' gross trading profits

Table 2.4: Fiscal forecast determinant errors in 2010-11

	Percentage change on a year earlier, unless otherwise stated		
	Forecast	Outturn	Error
<b>GDP and its components<sup>1</sup></b>			
Real GDP	1.8	1.8	0.1
Nominal GDP (£ billion) <sup>2</sup>	1474	1472	-2
Nominal GDP <sup>2</sup>	4.4	4.3	-0.1
Wages and salaries <sup>3</sup>	1.7	1.9	0.2
Non-oil PNFC profits <sup>3, 4</sup>	1.5	4.5	3.0
Consumer spending <sup>3, 4</sup>	4.3	4.9	0.6
<b>Prices and earnings</b>			
GDP deflator <sup>1</sup>	2.9	3.0	0.0
RPI (Q3) <sup>5</sup>	4.3	4.7	0.4
Rossi (Q3) <sup>6</sup>	4.5	4.9	0.4
Whole economy earnings growth <sup>1</sup>	2.0	1.2	-0.8
<b>Other key fiscal determinants</b>			
Claimant count unemployment (Q4, millions) <sup>7</sup>	1.50	1.46	-0.04
VAT gap (per cent) <sup>8</sup>	12.7		
<i>Financial and property sectors</i>			
Equity prices (index) <sup>9</sup>	2677	2885	209
HMRC financial sector profits <sup>2, 4, 10</sup>	8.9	4.0	-4.9
Residential property prices <sup>11</sup>	4.1	5.5	1.4
Residential property transactions <sup>12</sup>	5.2	-2.8	-8.0
Commercial property prices <sup>13</sup>	6.7	0.1	-6.6
Commercial property transactions <sup>12</sup>	9.0	8.5	-0.5
<i>Oil and gas</i>			
Oil prices (\$ per barrel) <sup>4</sup>	78	80	2.3
Oil production (million tonnes) <sup>4, 14</sup>	64.6	63.0	-1.6
Gas production (billion therms) <sup>4, 14</sup>	20.3	20.6	0.3
<i>Interest rates</i>			
Market short-term interest rates (per cent) <sup>15</sup>	1.1	0.7	-0.4
Market gilt rates (per cent) <sup>16</sup>	3.4	3.8	0.4

<sup>1</sup> Outturn consistent with the 2011Q1 Quarterly National Accounts, released 28th June 2011

<sup>2</sup> Not seasonally adjusted

<sup>3</sup> Nominal

<sup>4</sup> Calendar year

<sup>5</sup> Used for revalorising excise duties in current year and uprating income tax allowances and bands in the following year

<sup>6</sup> RPI excluding housing costs

<sup>7</sup> UK seasonally-adjusted claimant count

<sup>8</sup> The first outturn estimate of the 2010-11 VAT gap will be published by HMRC in November

<sup>9</sup> FTSE All-share index

<sup>10</sup> HMRC Gross Case 1 trading profits

<sup>11</sup> Communities and Local Government (CLG) property prices index

<sup>12</sup> ONS property transactions series

<sup>13</sup> Outturn data from HMRC information on stamp duty land tax

<sup>14</sup> DECC forecasts available at [www.og.decc.gov.uk](http://www.og.decc.gov.uk)

<sup>15</sup> 3-month sterling interbank rate (LIBOR)

<sup>16</sup> Weighted average interest rate on conventional gilts

## Comparison with external forecasts

- 2.46 This section presents a selection of charts which show how our June Budget forecasts compared with those of external organisations relative to outturn in 2010. The data source is the Treasury's *Comparison of Independent Forecasts*, from which we take a sample consisting only of new forecasts for the month of July. This was a month later than our June forecast but allowed sufficient time for external forecasters to take into account policy changes announced in the Budget.
- 2.47 Chart 2.2 shows that our GDP forecast for 2010, at 1.2 per cent, was in line with the independent average and below outturn by 0.2 percentage points. Chart 2.3 shows that our inflation forecast for the final quarter of 2010 was consistent with those of independent forecasters but that the outturn came in higher than the majority expected. Chart 2.4 shows that our expectation of a small fall in total employment over 2010 was consistent with the expectations of outside forecasters but ultimately too pessimistic.

Chart 2.2: GDP growth forecast comparison in 2010

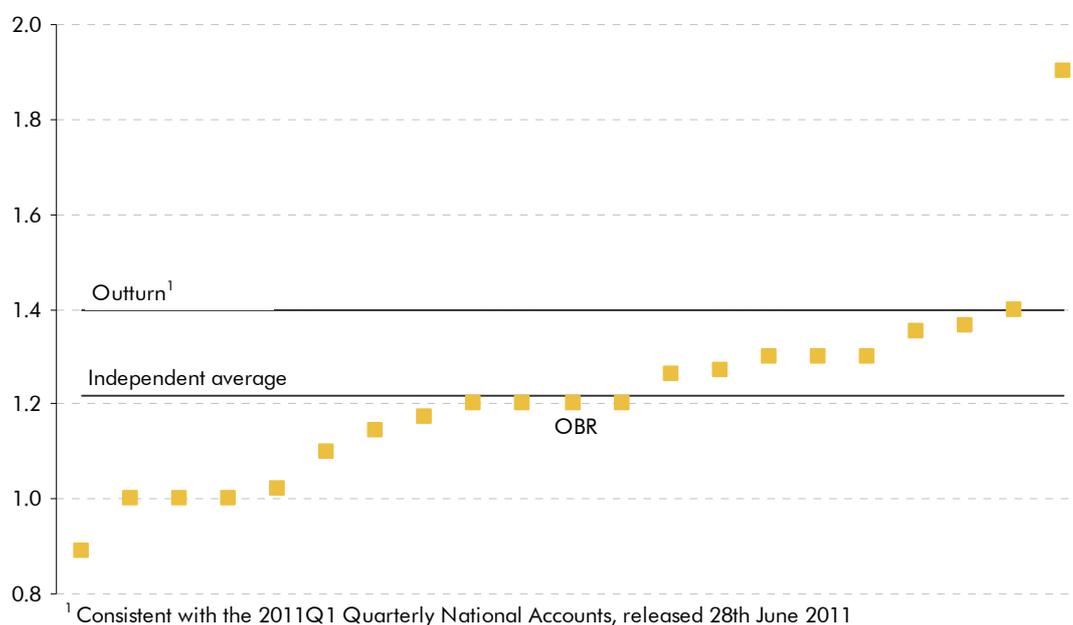


Chart 2.3: CPI inflation forecast comparison in 2010Q4

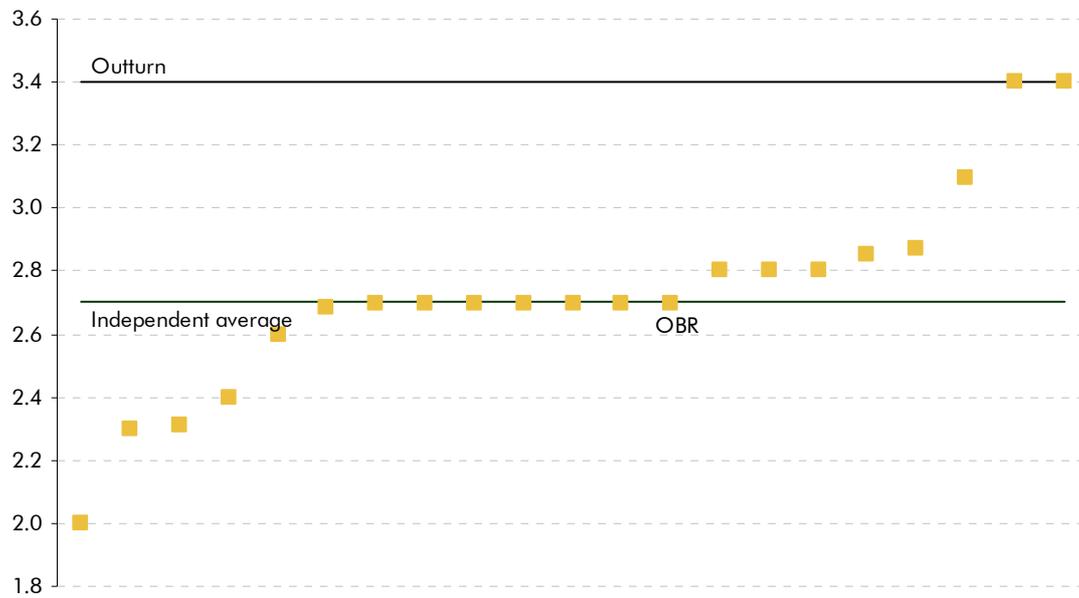
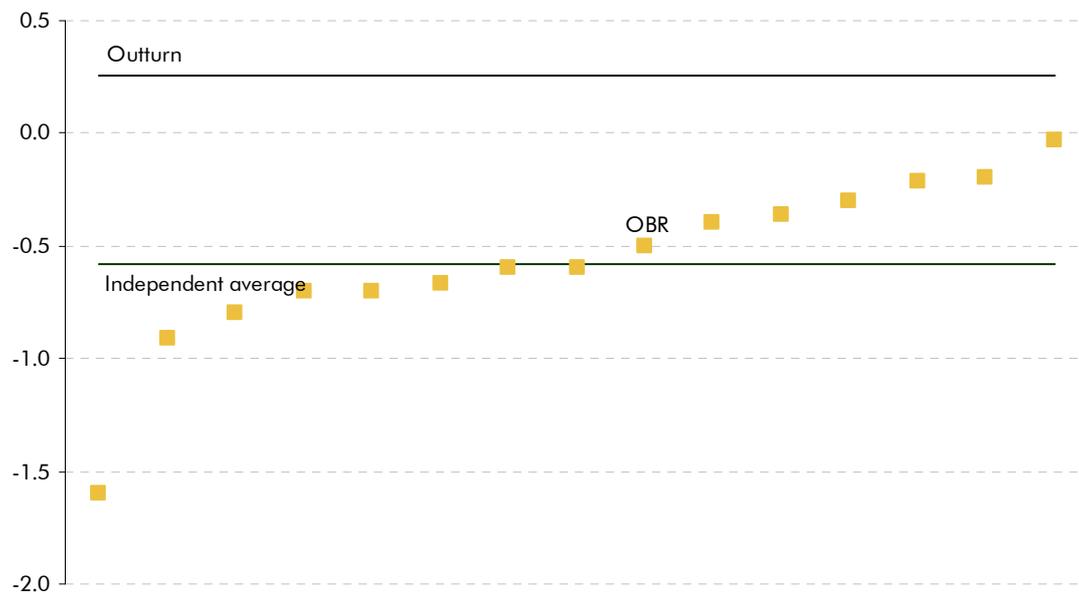


Chart 2.4: Employment growth forecast comparison in 2010





## 3 Receipts

3.1 This chapter provides a detailed analysis of how actual receipts in 2010-11<sup>13</sup> compare to our forecasts made at the time of the June 2010 Budget. Current receipts were £551.8 billion in 2010-11 which is a little above our June 2010 Budget forecast of £547.7 billion. Total forecasting errors in 2010-11 were therefore 0.7 per cent (£4.1 billion) of our receipts forecast which is a relatively small error in comparison to average historic errors.

3.2 However, within this most of the differences between forecast and outturn reflect modelling errors rather than errors in economic determinants. Outturns were significantly above forecasts for:

- VAT, following lower than expected litigation repayments;
- capital gains tax, due to an underestimate of gains realised from financial assets; and
- the bank payroll tax, where we underestimated the proportion of bonus payments subject to the tax.

Receipts were significantly below forecast for:

- business rates, where transitional relief was higher than forecast; and
- interest and dividend receipts, reflecting lower than expected short-term market interest rates over 2010-11.

3.3 This analysis provides an important diagnostic for the receipts forecast process. In particular, fiscal forecasting errors that are large or sustained over time will point to model failure and hence highlight where attention on model improvements should be focused.

3.4 Our approach to receipts forecasting is a bottom-up process where each category of receipt is forecast separately based on a consistent outlook for the economy. Most of the major tax receipt forecasts are produced by HMRC who

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<sup>13</sup> Consistent with the ONS release *Public Sector Finances August 2011*, released 21<sup>st</sup> September 2011.

maintain detailed tax models, but based on techniques, assumptions and judgements agreed by us. Forecasts for some of the smaller tax receipts are provided through a similar process by other government departments or collected from other sources.

**3.5** The forecasting models are specific to each individual tax and can take a variety of different forms such as econometric equations, micro-simulation models based on samples of individual tax records, projections in line with selected indicators or just simply by judgement. Recent policy measures are then incorporated by adding policy costings to the baseline forecast. The fiscal forecasting process is described in detail in the OBR Briefing paper *Forecasting the public finances*.<sup>14</sup>

**3.6** The causes of differences between receipts forecasts and outturns can be split into three main categories:

- **economic determinants** – tax revenues or more specifically the tax bases (transactions, assets or activities on which the taxes are charged) are largely related to particular economic variables forecast by the OBR. For example, income tax receipts are strongly determined by levels of wages and salaries, and VAT receipts by consumers' expenditure. Any difference between the forecasts of these economic determinants used in the original tax forecasts and their eventual values will partly explain differences between forecasts and outturns of tax receipts;
- **policy measures and classification changes** – reflect the impact of new policy measures announced after the June 2010 Budget forecast and changes in the definitions or statistical treatment of components of the public finances; and
- **fiscal forecasting errors** – any difference between outturn and forecast that cannot be explained by economic determinants, policy measures or classification changes is attributed to fiscal forecasting error. Fiscal forecasting errors can result from a number of factors, broadly due to:
  - a reliance on a proxy economic variable. For example, the OBR does not explicitly forecast consumer expenditure on beer, which would be ideal for forecasting beer duty receipts. Therefore, the fiscal forecasting models instead use the most relevant macroeconomic variable available (in this case total consumer expenditure), which can introduce error to the forecast; and

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<sup>14</sup> OBR Briefing Paper No.1 'Forecasting the public finances', available at <http://budgetresponsibility.independent.gov.uk/category/publications/briefing-papers/>

- unexpected changes in the relationships between the main economic determinants, tax bases, tax rates and tax revenues. These types of errors may result from trying to forecast non-linear and complex relationships with simpler and more tractable linear models. For example, there are threshold effects in many taxes making it difficult to predict a stable relationship between economic activities and receipts. There may also be unanticipated behavioural responses by taxpayers to changes in economic conditions and fiscal policy.

## Tax by tax forecasting errors

- 3.7** A full breakdown of differences for year-ahead forecasts of receipts made at the June 2010 Budget and their respective outturns are presented in Table 3.1. These differences, on a tax by tax basis, have also been apportioned to economic determinants, policy measures and classification changes and fiscal forecasting errors.
- 3.8** Table 3.1 presents receipts on a cash basis which is comparable with the receipts tables published in the June 2010 Budget forecast and in previous Treasury forecasts.<sup>15</sup> However, the presentation of receipts in this table differs from our current approach in that receipts which score in the National Accounts on an accrued basis are shown on that basis.<sup>16</sup>

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<sup>15</sup> The receipts forecasts for 2010-11 in Table 3.1 were published in Table C11 of the June 2010 Budget available at [http://budgetresponsibility.independent.gov.uk/wordpress/docs/junebudget\\_annexc.pdf](http://budgetresponsibility.independent.gov.uk/wordpress/docs/junebudget_annexc.pdf).

<sup>16</sup> The receipts tables were first published on an accrued basis at the November 2010 *EFO*. The latest forecast for current receipts on an accrued basis can be found in Table 4.7 of the March 2011 *EFO*.

## Receipts

Table 3.1: Breakdown of June 2010 Budget forecasting errors for receipts in 2010-11

	£ billions							Total Error (%)
	Forecast	Outturn	Error	of which			Fiscal forecasting errors	
				Economic factors	Policy and classification changes			
Income tax (gross of tax credits)	150.2	153.5	3.3	-0.1	0.0	3.4	2.2	
o/w Pay as you earn (PAYE)	130.1	132.3	2.2	0.9	0.0	1.3	1.7	
Self assessment (SA)	21.5	22.1	0.6	-0.9	0.0	1.5	2.6	
Other income tax	-1.4	-0.9	0.6	-0.1	0.0	0.6	-38.8	
National insurance contributions	98.9	96.5	-2.4	0.3	0.0	-2.7	-2.4	
Value added tax	80.7	83.5	2.8	0.1	0.0	2.7	3.5	
Corporation tax	42.6	42.1	-0.4	0.6	0.0	-1.0	-1.0	
o/w Non-North Sea	35.7	35.6	-0.1	0.3	0.0	-0.5	-0.4	
North Sea	7.6	7.3	-0.3	0.2	0.0	-0.5	-3.8	
Company tax credits	-0.8	-0.8	0.0	0.0	0.0	0.0	0.0	
Petroleum revenue tax	1.7	1.5	-0.3	-0.5	0.0	0.2	-15.7	
Fuel duties	27.3	27.3	0.0	0.0	0.0	0.0	-0.1	
Capital gains tax	2.6	3.6	1.0	0.0	0.0	1.0	37.3	
Inheritance tax	2.2	2.7	0.5	0.0	0.0	0.5	23.5	
Stamp duties	8.9	8.9	0.0	-0.1	0.0	0.1	0.0	
o/w Stamp duty land tax	5.8	6.0	0.2	-0.3	0.0	0.5	2.8	
Stamp duty on shares	3.1	3.0	-0.2	0.2	0.0	-0.3	-5.1	
Tobacco duties	9.4	9.1	-0.3	0.0	0.0	-0.3	-3.1	
Alcohol duties	9.5	9.4	-0.1	0.3	0.0	-0.4	-0.7	
Bank payroll tax	2.5	3.4	0.9	0.0	0.0	0.9	36.6	
Environmental taxes	2.1	2.0	0.0	0.0	0.0	0.0	-1.3	
o/w Aggregates levy	0.3	0.3	0.0	0.0	0.0	0.0	7.1	
Climate change levy	0.7	0.7	0.0	0.0	0.0	0.0	1.4	
Landfill tax	1.1	1.1	-0.1	0.0	0.0	-0.1	-4.9	
Other HMRC	8.9	9.1	0.2	0.0	0.0	0.2	2.1	
o/w Insurance premium tax	2.3	2.4	0.1	-0.1	0.0	0.2	4.2	
Air passenger duty	2.3	2.2	-0.1	-0.1	0.0	0.0	-4.9	
Customs duties	2.9	3.0	0.1	0.2	0.0	-0.1	4.0	
Betting and gaming duty	1.4	1.5	0.1	0.0	0.0	0.1	5.9	
<b>Total HM Revenue &amp; Customs</b>	<b>441.7</b>	<b>447.2</b>	<b>5.5</b>	<b>0.6</b>	<b>0.0</b>	<b>4.9</b>	<b>1.2</b>	
Vehicle excise duties	5.9	5.8	-0.1	0.0	0.0	-0.1	-1.4	
Business rates	24.9	23.8	-1.1	0.0	0.0	-1.1	-4.5	
Council tax	25.3	25.3	0.0	0.0	0.0	0.0	0.1	
VAT refunds	13.5	13.3	-0.2	-0.4	0.0	0.2	-1.6	
Other taxes and royalties	4.3	5.0	0.6	-0.2	0.0	0.8	15.0	
<b>Net taxes and NI contributions</b>	<b>515.5</b>	<b>520.2</b>	<b>4.8</b>	<b>0.0</b>	<b>0.0</b>	<b>4.8</b>	<b>0.9</b>	
Accruals adjustment on taxes	2.7	3.8	1.2	0.0	0.0	1.2	43.0	
less VAT and own resources EU contributions	-4.8	-5.3	-0.5	0.0	0.0	-0.5	10.6	
less PC onshore CT payments	-0.3	-0.1	0.1	0.0	0.0	0.1	-50.7	
Tax credits adjustment	0.8	0.8	0.0	0.0	0.0	0.0	-0.4	
Interest & dividends	4.5	2.4	-2.1	-1.5	0.0	-0.6	-46.4	
Gross operating surplus	24.7	25.1	0.4	0.0	0.0	0.4	1.6	
Other receipts	4.6	4.8	0.2	0.0	0.0	0.2	4.5	
<b>Current receipts</b>	<b>547.7</b>	<b>551.8</b>	<b>4.1</b>	<b>-1.5</b>	<b>0.0</b>	<b>5.6</b>	<b>0.7</b>	

## Income tax and national insurance contributions

- 3.9 The combined receipts from income tax and national insurance contributions (NICs) in 2010-11 were £0.9 billion above the forecast we made at the June 2010 Budget. Given that total income tax receipts and NICs in 2010-11 were £250 billion, or just under half of total receipts, the error in our forecast was very small at less than half a per cent of the forecast.
- 3.10 The various elements of income tax and NICs are forecast separately and using different techniques. However, it makes sense to analyse the differences between outturns and forecasts together. This is because the largest elements of each tax, which are Pay-As-You-Earn (PAYE) income tax receipts (86 per cent of all income tax receipts) and Class 1 NICs (97 per cent of total NICs), are collected together from employers in respect of their employee earnings. Most employers send in just one payment each month, and until HMRC receive the end of year returns from these employers the split between PAYE and Class 1 NICs is based on an estimation process.
- 3.11 This often results in large but offsetting fiscal forecasting errors due to changes in the apportionment of receipts between the two taxes. Between the June 2010 and March 2011 forecasts the share of receipts allocated to PAYE income tax in 2010-11 increased. This explains a large proportion of fiscal forecasting errors, which in total were £1.3 billion for PAYE income tax and -£2.6 billion for Class 1 NICs.
- 3.12 Our forecasts of each tax also tend to be driven by the same set of economic determinants. As Table 3.2 shows, stronger than expected growth in wages and salaries led to combined outturn exceeding the forecast at the June 2010 Budget by £1 billion.

Table 3.2: Breakdown of forecast errors for PAYE income tax and Class 1 NICs receipts in 2010-11

	£ billions		
	PAYE income tax	Class 1 NICs	Total
Forecast	130.1	96.2	226.3
Outturn	132.3	93.8	226.1
Error	2.2	-2.3	-0.1
Economic factors	0.9	0.3	1.2
o/w Wages and salaries	0.7	0.3	1.0
Other	0.2	0.0	0.2
Fiscal forecasting	1.3	-2.6	-1.3

## Receipts

**3.13** Self-assessed income tax applies to income from a number of sources, including self-employment, dividends and saving, and taking account of tax already paid, for example through PAYE. Self-assessment receipts in 2010-11 were £0.6 billion above forecast. There was a negative error due to economic determinants of £0.9 billion, primarily due to weaker growth in self-employment income and financial income (see Table 3.3). However, this was offset by a fiscal forecasting error of £1.5 billion. Self-assessment returns suggest that savings income did not decline by as much as the economic determinant would imply, while dividend income rose, whereas the economic determinant suggested a fall. Self-assessment is typically difficult to forecast as there has historically been a complex relationship between receipts and the available economic determinants.

**Table 3.3: Breakdown of forecast error for self-assessment income tax receipts in 2010-11**

	£ billions
Forecast	21.5
Outturn	22.1
Error	0.6
Economic factors	-0.9
o/w Self-employment income, wages and salaries	-0.6
Saving, dividend, pension, land and property income	-0.3
Other	-0.1
Fiscal forecasting	1.5

## Value added tax

**3.14** VAT receipts in 2010-11 turned out to be £2.8 billion higher than we forecast at the June 2010 Budget. Replacing the economic determinants used then with current outturn data would have increased the receipts forecast by £0.1 billion. Although nominal consumer spending turned out to be higher than forecast, which we would expect to increase the VAT receipts forecast, this was partly offset by:

- a lower than forecast share of consumption on goods and services on which VAT is paid at the standard rate, implying that the proportion of consumer spending on zero-VAT rated, reduced-VAT rated and/or VAT exempt items increased; and
- weaker growth in other categories of spending subject to VAT, such as government procurement and housing investment.

**3.15** The remaining difference of £2.7 billion between actual VAT receipts in 2010-11 and our forecast is due to fiscal forecasting errors. Over half of this is accounted for by lower than expected litigation payments. In 2010-11, £1.6 billion of

repayments were made as a result of the Fleming and Condé Nast cases<sup>17</sup> which were £1.5 billion below the amount we forecast. Likewise, repayments as a result of the Rank case<sup>18</sup> were also lower than we anticipated by £0.3 billion. Fewer and/or lower value time to pay arrangements being agreed explain a further £0.3 billion of the fiscal forecasting error.

**Table 3.4: Breakdown of forecast error for Value Added Tax receipts in 2010-11**

	£ billions
Forecast	80.7
Outturn	83.5
Error	2.8
Economic factors	0.1
o/w Nominal consumer spending	1.2
Standard rated share of consumer spending	-0.4
Other	-0.7
Fiscal forecasting	2.7
o/w Litigation payments	1.9
Time to pay arrangements	0.3
VAT gap forecast error	-0.4
Other fiscal forecasting	0.9

**3.16** The VAT gap is the difference between actual VAT receipts and the theoretical level of VAT liability based on relevant spending. At the June 2010 Budget we had assumed that the VAT gap would fall by 0.5 percentage points between 2009-10 and 2010-11. Provisional outturn and forecast estimates for these years now suggest a smaller reduction in the VAT gap, which we estimate to have reduced VAT receipts by £0.4 billion relative to our forecast. The first outturn estimate of the 2010-11 VAT gap and supporting analysis will be published by HMRC in November, following incorporation of *Blue Book 2011* data, which could potentially result in significant revisions to VAT gap estimates.

## Onshore corporation tax

**3.17** Onshore corporation tax receipts in 2010-11 were £35.6 billion, only marginally below our June 2010 Budget forecast of £35.7 billion. The total shortfall of £0.1 billion, however, comprises a number of different offsetting components.

<sup>17</sup> Background information on Fleming claims for VAT repayments can be found at [www.hmrc.gov.uk/thelibrary/background-fleming.pdf](http://www.hmrc.gov.uk/thelibrary/background-fleming.pdf).

<sup>18</sup> These relate to the VAT treatment of participation fees in mechanised cash bingo. For more information see the Revenue & Customs Brief 40/09 at [www.hmrc.gov.uk/briefs/vat/brief4009.htm](http://www.hmrc.gov.uk/briefs/vat/brief4009.htm).

## Receipts

3.18 Economic determinants led to outturn exceeding forecast by around £0.3 billion. The majority of this error can be explained by:

- non-oil non-financial profits were stronger than assumed for 2010. This resulted in outturn receipts for industrial and commercial companies exceeding the forecast by £0.3 billion;
- an over-optimistic financial sector profits forecast resulted in outturn receipts that were £0.5 billion lower than forecast for financial sector corporation tax; and
- foreign income and equity prices determinants were both stronger than their respective forecasts at the June 2010 Budget pushing receipts £0.4 billion above forecast.

3.19 The positive error due to economic determinants was offset by a negative fiscal forecasting error of £0.5 billion. Much of this reflects higher than expected repayments in 2010-11 relating to previous years' liabilities.

Table 3.5: Breakdown of forecast error for onshore corporation tax receipts in 2010-11

	£ billions
Forecast	35.7
Outturn	35.6
Error	-0.1
Economic factors	0.3
o/w Industrial and commercial profits	0.3
Foreign income	0.2
Financial profits	-0.5
Equity prices	0.2
Fiscal forecasting	-0.5

## UK oil and gas revenues

3.20 UK oil and gas revenues in 2010-11 were £0.6 billion lower than our June 2010 Budget forecast, with shortfalls of around £0.3 billion for both offshore corporation tax and petroleum revenue tax. This was accounted for by:

- a slightly lower sterling oil price as the impact of the higher world oil price in US dollars was more than offset by a weaker value of sterling against the US dollar (£0.1 billion);

- new data provided by the Department of Energy and Climate Change (DECC) which suggest lower overall production levels in offshore oil fields during 2010 than assumed in our forecast<sup>19</sup> (£0.2 billion); and
- other fiscal forecasting errors, in part relating to errors in production projections for individual fields and the modelling of gas prices (£0.3 billion).

## Fuel duties

- 3.21** Receipts forecasts for fuel duties are based on expected fuel consumption, which in turn reflects total distance travelled and fuel efficiency assumptions. Outturn fuel duty receipts in 2010-11 of £27.3 billion were in line with our June 2010 Budget forecast.
- 3.22** Within this total, gains in fuel efficiency were greater than expected, which reduced receipts by £0.3 billion relative to our forecast. This reflects changes in the composition of the stock of cars towards more fuel efficient models and could, in part, be due to the vehicle scrappage scheme that ran between May 2009 and March 2010. This was offset by a positive modelling error leaving the overall forecast in line with the outturn.

## Capital gains tax

- 3.23** Capital gains tax is levied on the profits arising from the sale of assets. Outturn receipts in 2010-11 were £3.6 billion, approximately £1 billion higher than we had forecast at the time of the June 2010 Budget. This forecast error was proportionately large compared to other receipts shown in Table 3.1.
- 3.24** Capital gains tax is paid with a lag of one year so receipts in 2010-11 mainly reflect asset sales in 2009-10.<sup>20</sup> The main fiscal determinants that are used in the capital gains tax forecast are house prices and volumes and equity prices and volumes. For 2009-10, these variables were known with a high degree of accuracy at the time of the June 2010 Budget forecast. Differences between forecast and outturn receipts for 2010-11 are therefore due to fiscal forecasting errors.

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<sup>19</sup> The latest DECC data implies a shift in oil production away from petroleum revenue tax (PRT) to non-PRT fields which would account for the economic determinants effects for North Sea corporation tax and PRT having opposite signs in Table 3.1.

<sup>20</sup> Disposals that make up 2010-11 capital gains tax receipts would have already occurred before the June 2010 forecast. Around 94 per cent of 2010-11 receipts are due to disposals in 2009-10 with the remainder from the previous three years.

## Receipts

**3.25** Capital gains tax receipts have been more volatile than other tax receipts due to sharp movements in asset prices, recent policy changes and behavioural changes in taxpayer decisions on when to realise gains and losses. These factors have meant that capital gains tax receipts have varied between £2.5 billion and £7.8 billion in the last three years. Two specific reasons that might account for the under-forecast in 2010-11 are:

- an overly pessimistic forecast following on from weak receipts in 2009-10. These were based on a lower than usual level of asset disposals in 2008-09 after the pre-announcement of the ending of taper relief had led to a surge in disposals in 2007-08 as taxpayers realised more gains than usual in that financial year; and
- the forecast model did not fully capture the relationship between growth in economic determinants and growth in capital gains. Our economic determinants, based on movements in the FTSE all-share index, underestimated the gains from financial assets which also comprise of financial assets from non-listed companies.

## Inheritance tax

**3.26** In 2010-11, outturn receipts for inheritance tax of £2.7 billion exceeded our June 2010 Budget forecast by £0.5 billion. As a proportion of receipts this was a relatively large forecast error.

**3.27** The main economic determinants for the inheritance tax forecast are house prices, equity prices and household saving deposits which determine the value of assets held by estates. However, errors in these determinants were small. Therefore most of the difference between outturn and forecast receipts was attributed to fiscal forecasting errors. Of this, £0.3 billion reflects updated inheritance tax data in the model, with the remainder being partially due to a disproportionate increase in receipts from higher value estates.

## Stamp duties

**3.28** Stamp duty comprises stamp duty land tax, which is levied on land and property transactions, and stamp taxes on shares which is levied on share transactions. In 2010-11 total stamp duty receipts of £8.9 billion were exactly in line with our June 2010 Budget forecast.

**3.29** Stamp duty land tax receipts in 2010-11 were £0.2 billion higher than our June 2010 Budget forecast. Economic determinants were actually weaker than forecast, in particular residential transactions volumes and commercial property prices. This was offset by positive fiscal forecasting errors of £0.5 billion possibly

reflecting a higher number of transactions in London which are more likely to be subject to a higher tax rate. We are currently looking into ways of reducing future forecast errors from the stamp duty land tax model.

- 3.30 Stamp duty on shares raised £3.0 billion in 2010-11, which was £0.2 billion lower than our forecast. Stronger equity prices were offset by a negative fiscal forecasting error of £0.3 billion, which mainly reflected a lower volume of taxable transactions.

### Tobacco duties

- 3.31 Tobacco receipts in 2010-11 were £0.3 billion below our forecast. With the duty rate for 2010-11 already announced the difference between forecast and outturn is entirely due to fiscal forecasting errors. The main driver of the forecast for 2010-11 was an assumption of an underlying 2 per cent decline in duty-paid cigarette clearances each year, which in 2010-11 proved too cautious as clearances fell by a greater amount. A new equation linking duty-paid cigarette clearances to real cigarette prices, the sterling/euro exchange rate and a declining trend was introduced in the November 2010 *EFO*.

### Alcohol duties

- 3.32 Alcohol duties in 2010-11 of £9.4 billion were only £0.1 billion below our forecast. Using outturn data for economic determinants would have increased our forecast at the time of the June 2010 Budget by £0.3 billion, mainly due to nominal consumer spending being higher than expected. This implies fiscal forecasting errors account for an over-forecast of £0.4 billion. In light of this fiscal forecasting error, the intention is to re-estimate the alcohol forecasting model for the November 2011 *EFO*.

### Bank payroll tax

- 3.33 The Bank payroll tax took effect from the time of announcement on 9 December 2009 until 5 April 2010 for all discretionary and contractual bonus entitlements.<sup>21</sup> It was levied at the rate of 50 per cent and payable by a bank on the amount of bonus to which a banking employee was entitled, to the extent that the bonus exceeded £25,000. Outturn receipts of £3.4 billion in 2010-11 exceeded our June 2010 Budget forecast by £0.9 billion. Our forecast was based on an estimate of total bonus payments derived from PAYE receipts earlier in 2010, and

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<sup>21</sup> There was an exemption for contractual bonus payments where the payer had no discretion as to the amount of the bonus because of an existing contractual obligation at the time of the Chancellor's announcement.

## Receipts

the forecast error is largely due to an underestimate of the proportion of bonuses subject to the bank payroll tax.

### Environmental taxes

**3.34** The environmental taxes collected by HMRC are the aggregates levy, the climate change levy and the landfill tax. The combined receipts from these three taxes were £2.0 billion in 2010-11 and in line with our forecasts made at the time of the June 2010 Budget.

### Other HMRC taxes

**3.35** As reported in Table 3.1 these include insurance premium tax, air passenger duty, custom duties and betting and gaming duty. There were small, partially offsetting, errors in each of these forecasts. Combined receipts in 2010-11 amounted to £9.1 billion, which was £0.2 billion above our June 2010 Budget forecast.

### Vehicle excise duty

**3.36** In 2010-11 outturn receipts of £5.9 billion were £0.1 billion below our forecast. This was mainly due to errors in forecasting the composition of the stock of cars, specifically a shift towards lower-rated bands based on fuel types and carbon dioxide emissions. This may also in part reflect the outcome of the vehicle scrappage scheme.

### Council tax

**3.37** Council tax rates for 2010-11 had already been announced by local authorities at the time of the June 2010 Budget. Therefore it is not surprising that outturn receipts of £25.3 billion were very close to our forecast.

### Business rates

**3.38** Business rates are charged on non-domestic property according to each non-exempt property's rateable value. At the June 2010 Budget we forecast business rates receipts of £24.9 billion in 2010-11 which turned out to be an over-forecast of £1.1 billion. This is due to fiscal forecasting errors and mainly reflects an underestimate of transitional relief claims which limit the percentage business rates bills can be increased or decreased each year following revaluation. The error may also reflect unanticipated changes in the timing of receipts following the introduction of the business rates deferral scheme in the March 2009 Budget. We intend to review our approach to forecasting business rates with the aim of reducing future errors.

## VAT refunds

- 3.39 The public sector is treated in the same way as the private sector with respect to VAT, meaning that it pays VAT on purchases but can reclaim it on inputs to production. VAT refunds to central government are intended to ensure that VAT payments are not a barrier to departments to contract out their non-core activities rather than rely on VAT-free in-house service provision. In the case of local government, VAT is refunded so that it does not become a burden on local taxation and the revenue support grant. VAT refunds to central and local government are fiscally neutral as receipts are offset by a positive AME adjustment.
- 3.40 In 2010-11 VAT refunds of £13.3 billion were £0.2 billion below our forecast made at the June 2010 Budget. This was more than accounted for by weaker economic determinants, specifically lower than expected central and local government procurement spending.

## Accruals adjustments

- 3.41 In 2010-11 accruals adjustments were £1.2 billion above forecast, most of which is accounted for by a stronger than expected combined accruals adjustment on income tax and NICs. Receipts of PAYE income tax and NICs in April 2011 were higher than assumed at the June 2010 Budget, and since these receipts relate mainly to March 2011 salaries, they were accrued back to 2010-11.

## Interest and dividends

- 3.42 Receipts are forecast using assumptions for the paths of short-term market interest rates and the government's stocks of financial assets.<sup>22</sup> In 2010-11, interest and dividend receipts were lower than our forecast by £2.1 billion, which constitutes a relatively large forecasting error both as a proportion of the forecast and compared to forecast errors made in other components of receipts. Most of the error is attributed to economic determinants, in particular short-term interest rates which were on average 40 basis points lower than expected over 2010-11 (see Table 2.4). This is estimated to have lowered interest and dividend receipts by £1.6 billion.

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<sup>22</sup> Note that this analysis excludes the Government's interventions in the financial sector so will not, for example, include dividends received from its equity holdings in RBS and Lloyds Banking Group.

### Other receipts

- 3.43 There were two other sources of current receipts where the outturn in 2010-11 differed significantly from the June 2010 Budget forecast. Public sector gross operating surplus was £0.4 billion higher than forecast. This was partly due to a higher than expected gross operating surplus from public corporations. This is typically a difficult series to forecast as it consists of a number of public corporations, some of which exhibit markedly different changes in profits from year to year.
- 3.44 Import duties received on goods and services from outside of the European Union were £0.5 billion higher than forecast in 2010-11, which accounts for nearly all of the £0.6 billion under-forecast in the 'other taxes and royalties' line in Table 3.1. However, this item is fiscally neutral as these receipts accrue to the European Union, and there is an entirely offsetting forecast error in the 'less VAT and own resources EU contributions' line in Table 3.1.

## 4 Public expenditure

- 4.1 This chapter provides a detailed analysis of public expenditure forecasting errors for 2010-11. In particular it compares the June 2010 Budget spending forecast against available outturn data.<sup>1</sup> The presentation is in line with the spending categories as published for the first time in the March 2011 *EFO*.
- 4.2 The measurement of total public sector expenditure is based on the National Accounts aggregate total managed expenditure (TME). TME is made up of public sector current expenditure (PSCE) and public sector gross Investment (PSGI).<sup>2</sup> For budgeting and control purposes, TME is split into:
- departmental expenditure limits (DEL), split into capital (CDEL) and current (RDEL), which consists of expenditure by government departments that is subject to fixed multi-year plans set at each Spending Review; and
  - annually managed expenditure (AME), split into capital and current, which is not subject to multi-year plans because it is affected by economic determinants and so is expected to be more volatile. Examples of AME spending includes social security, debt interest and locally financed expenditure.
- 4.3 Table 4.1 shows the latest outturn for key public spending aggregates for 2010-11, compared with the June 2010 Budget forecasts. TME was £8.3 billion below forecast, of which PSCE was £7.8 billion lower than forecast and PSGI £0.5 billion below forecast. The errors in respect of DEL spending were relatively small, and are explained in more detail in the next section. The majority of the error was accounted for in AME, where most notably locally financed expenditure was

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<sup>1</sup> Consistent with *Public Sector Finances August 2011*, released 21<sup>st</sup> September 2011.

<sup>2</sup> Our analyses of TME in this report only consider the items of spending within DEL and AME which contribute to PSCE and PSGI. This follows the improved presentation of TME which we introduced in the March 2011 *EFO*. The June 2010 Budget forecast used the Treasury's previous format for TME. In order to compare spending using our current definitions, we have converted the June 2010 Budget forecast onto the new basis. To help with understanding the relationship between the Treasury's total DEL aggregates, which they use to control and monitor spending, and the analyses of DEL that we use, we have included Table 4.2 which reconciles the two approaches.

significantly different from forecast. The changes in all AME lines are shown in more detail in Table 4.3, and are explained more fully in the AME section.

Table 4.1: Total managed expenditure in 2010-11

	£ billions			
	Forecast	Outturn	Error	Error (%)
<b>Public sector current expenditure (PSCE)</b>				
PSCE in RDEL	327.1	326.2	-0.8	-0.3
PSCE in AME	310.2	303.3	-7.0	-2.2
<b>Total PSCE</b>	<b>637.3</b>	<b>629.5</b>	<b>-7.8</b>	<b>-1.2</b>
<b>Public sector gross investment (PSGI)</b>				
PSGI in CDEL	44.3	43.8	-0.5	-1.1
PSGI in AME	15.2	15.2	0.0	0.1
<b>Total PSGI</b>	<b>59.5</b>	<b>59.0</b>	<b>-0.5</b>	<b>-0.8</b>
<b>Total managed expenditure</b>	<b>696.8</b>	<b>688.5</b>	<b>-8.3</b>	<b>-1.2</b>

4.4 Final outturn data on public spending can be subject to quite long time lags, so much of the outturn data shown here remains provisional. For example, whilst resource accounts for central government are usually laid before the summer recess some might not be finalised until 9 months after the year end. Local authority outturn data is produced over an even longer time scale, so some 2010-11 spending is based on provisional outturns and some still on budget estimates. However, the data shown is sufficiently robust to make the forecast and outturn comparisons meaningful and future changes are unlikely to change the main conclusions.

4.5 Over the remainder of this chapter, differences between forecast and outturn are categorised into the following:

- **economic determinants** – explained by errors in forecasting the underlying economic determinants provided by the OBR. For example, debt interest payments on index-linked gilts are affected by the accrued uplift, which is in turn dependent on inflation forecasts;
- **policy and classification changes** – differences either due to new policy measures announced after the June 2010 Budget forecast, including changes to DEL plans through supplementary estimates, or changes in classification within budgets or in the National Accounts; and
- **fiscal forecasting errors** – any difference between outturn and forecast that cannot be explained by economic determinants, policy announcements or classification changes, is attributed to fiscal forecasting error. Such errors can result from a number of factors, broadly due to:

- unexpected changes in the relationship between expenditure and specific economic determinants. In the cases where we use statistical models (principally for a number of benefits and debt interest), we attempt to forecast non-linear and complex relationships with simpler linear models; and
- inaccurate conditioning assumptions and judgements. Where such models are used, we often impose further judgements, for example where past trends are not expected to persist. For other spending categories, rather than explicit models, we may make a series of assumptions and judgements. For example, in the June 2010 Budget we assumed that departments would fully spend their DEL allocations.

## DEL forecasting errors

4.6 This section compares the planned DEL expenditure set out by HM Treasury and agreed by Parliament with the published outturn expenditure.<sup>3</sup> It also shows the reconciliation from the HM Treasury RDEL and CDEL budget and control aggregates to the National Accounts aggregates PSCE and PSGI that feed into our TME expenditure tables. The split of RDEL into PSCE and non-PSCE and CDEL into PSGI and non-PSGI is not part of the spending control framework used by HM Treasury.

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<sup>3</sup> PESA (July) 2011 National Statistics release by HM Treasury

Table 4.2: Derivation of PSCE in RDEL and PSGI in CDEL in 2010-11

	£ billions					
	Forecast	Outturn	Error	of which		
				Economic factors	Policy and classification changes	Fiscal forecasting error
<b>RDEL</b>	<b>342.7</b>	<b>346.0</b>	<b>3.3</b>	<b>0.0</b>	<b>7.0</b>	<b>-3.6</b>
Plus adjustments to remove items included in RDEL but which do not score in PSCE:						
Depreciation	-14.3	-16.5	-2.1	0.0	-2.4	0.3
Costs of subsidised interest on student loans	-1.7	-4.4	-2.7	0.0	-2.9	0.1
Other items in RDEL that do not score in PSCE	0.4	1.1	0.7	0.0	0.2	0.5
<b>Gives PSCE in RDEL</b>	<b>327.1</b>	<b>326.2</b>	<b>-0.8</b>	<b>0.0</b>	<b>1.9</b>	<b>-2.8</b>
<b>Capital DEL</b>	<b>51.6</b>	<b>50.0</b>	<b>-1.6</b>	<b>0.0</b>	<b>-0.2</b>	<b>-1.5</b>
Plus an adjustment to remove single use military expenditure that scores in PSCE rather than PSNI	-6.8	-5.6	1.3	0.0	0.4	0.9
Plus an adjustment to remove capital grants to public corporations (consolidated out within PSGI) and net lending to public corporations	-0.1	0.0	0.1	0.0	0.0	0.1
Plus adjustments to remove other items included in CDEL but which do not score in PSGI	-0.4	-0.6	-0.2	0.0	-0.7	0.5
<b>Gives PSGI in CDEL</b>	<b>44.3</b>	<b>43.8</b>	<b>-0.5</b>	<b>0.0</b>	<b>-0.4</b>	<b>-0.1</b>

4.7 Table 4.2 shows that outturn for PSCE in RDEL was £0.8 billion lower than in the June 2010 Budget forecast. Outturn for PSGI in CDEL came in £0.5 billion below forecast. These errors are assigned to either policy changes or fiscal forecasting errors:

- policy changes – includes increases to the level of resources voted in-year by Parliament in the Spring and Winter supplementary estimates. These are funded through DEL reserve claims (which transfer money out of the central DEL reserve, leaving total DEL unchanged) or by using the end-year flexibility (EYF) arrangements, which allow departments to carry forward unspent budgetary allocations from previous years into the current or future years. The EYF facility has now been replaced by the budget exchange mechanism; and
- fiscal forecasting errors – in this case as a result of departments underspending their DEL plans.

4.8 In the June 2010 Budget forecast for 2010-11, we assumed that departmental spending would equal plans, i.e. that any policy changes such as spending increases in supplementary estimates will be balanced by underspends. In the Autumn EFO forecast, when in-year data had become available, we made

judgements on the likely net impact of these offsetting factors and adjusted the departmental spending forecast away from the plans total.

- 4.9 In 2010-11, PSCE in RDEL was £0.8 billion lower than forecast. There was a £1.9 billion addition voted in the supplementary estimates, of which the most significant component was a £0.8 billion EYF drawdown for education. This policy change was more than offset by underspending by departments of £2.8 billion against the final provision.
- 4.10 PSGI in CDEL was over-forecast by £0.5 billion, which consisted of a £0.4 billion reduction in provisions set out in the supplementary estimates, and a further £0.1 billion underspend by departments.
- 4.11 There was a significant under-forecast of non-PSCE items in RDEL, which do not impact TME. This was because of an additional £2.3 billion for Ministry of Defence impairments connected to the Strategic Defence and Security Review and £2.9 billion extra funds for the provision of student loans. The most significant item of non-PSGI in CDEL is single use military equipment, which is explained in more detail in the AME section below.

## AME forecasting errors

- 4.12 AME projections are based on forecasts for individual components provided by various central government departments, which are based on specific and detailed models, along with assumptions and judgements agreed by us.
- 4.13 Table 4.3 presents a breakdown of forecasting errors in AME for 2010-11 into one of the three categories defined above. It shows that current expenditure in AME was £7.0 billion lower than forecast, a 2.2 per cent error, and that capital expenditure in AME was in line with forecast. The majority of these errors are due to fiscal forecasting errors rather than errors in the economic determinants.
- 4.14 The most significant element of this error relates to locally financed expenditure, which was some £3.1 billion lower than forecast, consisting of a £4.4 billion reduction in current spending partially offset by a £1.2 billion addition to capital. A detailed explanation about what has caused this, and our plans to improve this in future forecasts, is set out further below.

Table 4.3: Total managed expenditure breakdown for 2010-11

	£ billions						
	Forecast	Outturn	Error	of which			Total error (%)
				Economic factors	Policy and classification changes	Fiscal forecasting error	
<b>Public sector current expenditure (PSCE)</b>							
<b>PSCE in RDEL</b>	<b>327.1</b>	<b>326.2</b>	<b>-0.8</b>	<b>0.0</b>	<b>1.9</b>	<b>-2.8</b>	<b>-0.3</b>
<b>PSCE in Annually Managed Expenditure</b>	<b>310.2</b>	<b>303.3</b>	<b>-7.0</b>	<b>-0.4</b>	<b>-0.1</b>	<b>-6.4</b>	<b>-2.2</b>
<i>of which:</i>							
Social security benefits <sup>1</sup>	168.5	168.6	0.1	-0.2	0.3	0.0	0.0
Tax credits <sup>1</sup>	24.8	25.2	0.4	0.0	0.0	0.4	1.6
Net public service pension payments	5.1	5.6	0.5	0.0	0.0	0.5	10.3
<i>of which: CG unfunded pension schemes</i>	<i>4.0</i>	<i>4.5</i>	<i>0.4</i>	<i>0.0</i>	<i>0.0</i>	<i>0.4</i>	<i>10.4</i>
<i>LG police &amp; fire pension schemes</i>	<i>1.0</i>	<i>1.1</i>	<i>0.1</i>	<i>0.0</i>	<i>0.0</i>	<i>0.1</i>	<i>9.9</i>
National lottery current grants	0.8	0.9	0.2	0.0	0.0	0.2	21.9
BBC domestic services current expenditure	3.7	3.4	-0.3	0.0	0.0	-0.3	-9.2
Fees associated with financial interventions	-2.5	-2.5	0.1	0.0	0.0	0.1	-2.1
Other PSCE items in departmental AME	0.6	0.3	-0.3	0.0	0.0	-0.3	-56.0
Expenditure transfers to EU institutions	6.8	6.8	0.0	0.0	0.0	0.0	-0.3
Locally-financed current expenditure	27.0	22.6	-4.4	0.0	0.0	-4.4	-16.2
Central government gross debt interest	43.3	42.8	-0.5	0.2	0.0	-0.7	-1.2
Depreciation	15.2	15.2	0.1	0.0	0.0	0.1	0.4
Current VAT refunds	11.5	11.2	-0.3	-0.4	0.0	0.1	-2.7
Single use military expenditure	6.8	5.6	-1.3	0.0	-0.4	-0.9	-18.5
Environmental levies	0.7	0.5	-0.2	0.0	0.0	-0.2	-31.1
Other National Accounts adjustments	-1.9	-2.8	-0.9	0.0	0.0	-0.9	46.3
<b>Total public sector current expenditure</b>	<b>637.3</b>	<b>629.5</b>	<b>-7.8</b>	<b>-0.4</b>	<b>1.8</b>	<b>-9.1</b>	<b>-1.2</b>
<b>Public sector gross investment (PSGI)</b>							
<b>PSGI in CDEL</b>	<b>44.3</b>	<b>43.8</b>	<b>-0.5</b>	<b>0.0</b>	<b>-0.4</b>	<b>-0.1</b>	<b>-1.1</b>
<b>PSGI in Annually Managed Expenditure</b>	<b>15.2</b>	<b>15.2</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.1</b>
<i>of which:</i>							
National lottery capital grants	0.6	0.5	-0.2	0.0	0.0	-0.2	-24.3
Other PSGI items in departmental AME	0.5	0.5	0.0	0.0	0.0	0.0	-1.7
Locally-financed capital expenditure	5.4	6.6	1.2	0.0	0.0	1.2	23.0
Public corporations capital expenditure	8.1	7.8	-0.4	0.0	0.0	-0.4	-4.7
Other National Accounts adjustments	0.6	-0.1	-0.7	0.0	0.0	-0.7	-
<b>Total public sector gross investment</b>	<b>59.5</b>	<b>59.0</b>	<b>-0.5</b>	<b>0.0</b>	<b>-0.4</b>	<b>-0.1</b>	<b>-0.8</b>
<i>Less depreciation</i>	<i>-20.6</i>	<i>-20.4</i>	<i>0.2</i>	<i>0.0</i>	<i>0.0</i>	<i>0.2</i>	<i>-1.1</i>
<b>Public sector net investment</b>	<b>38.9</b>	<b>38.6</b>	<b>-0.3</b>	<b>0.0</b>	<b>-0.4</b>	<b>0.2</b>	<b>-0.6</b>
<b>Total managed expenditure</b>	<b>696.8</b>	<b>688.5</b>	<b>-8.3</b>	<b>-0.4</b>	<b>1.4</b>	<b>-9.2</b>	<b>-1.2</b>

<sup>1</sup> Child allowances in income support and jobseeker's allowance have been included in tax credits and excluded from social security benefits

## Social security

4.15 Social security payments in 2010-11 were only £0.1 billion (less than 0.1 per cent) higher than in the June 2010 Budget forecast.

Table 4.4: Social security benefits breakdown for 2010-11

	£ billions							Total error (%)
	Forecast	Outturn	Error	of which			Total error (%)	
				Economic factors	Policy and classification changes	Fiscal forecasting error		
Employment and support allowance	2.7	2.2	-0.5	0.0	0.0	-0.5	-18.4	
Statutory maternity pay	1.8	2.1	0.2	0.0	0.0	0.2	13.7	
Income support <sup>1</sup>	6.8	7.1	0.3	0.0	0.0	0.3	4.8	
Jobseeker's allowance <sup>1</sup>	3.8	3.7	-0.2	-0.2	0.0	0.0	-4.0	
Cold weather payments	0.0	0.4	0.4	0.0	0.3	0.1	154.4	
State pension	69.6	69.8	0.2	0.0	0.0	0.2	0.3	
Pension credit	8.0	8.3	0.4	0.0	0.0	0.4	4.6	
Disability living allowance	12.1	11.9	-0.2	0.0	0.0	-0.2	-2.0	
Housing benefit	21.1	21.0	-0.1	-0.1	0.0	0.0	-0.5	
Other social security benefits <sup>2</sup>	42.6	42.1	-0.5	0.0	0.0	-0.4	-1.1	
<b>Total social security benefits</b>	<b>168.5</b>	<b>168.6</b>	<b>0.1</b>	<b>-0.2</b>	<b>0.3</b>	<b>0.0</b>	<b>0.0</b>	

<sup>1</sup> Child allowances in income support and jobseeker's allowance have been included in tax credits and excluded from social security benefits

<sup>2</sup> Includes all Northern Ireland benefit payments, child benefit, war pensions, attendance allowance, council tax benefit

4.16 Within the headline total there were errors in individual benefit lines which broadly cancelled out. Notably, the 2010 Spending Review announcement to permanently increase the rate of the cold weather payment to £25 increased spending on this by £0.3 billion. Partly offsetting that, lower than expected unemployment reduced JSA expenditure by £0.2 billion. Table 4.4 sets these out in more detail, benefit by benefit. The main fiscal forecasting errors can be explained as follows:

- Employment and support allowance (ESA) – over-forecast by approximately £0.5 billion (18.4 per cent) as a result of higher than expected exits during the assessment phase and following work capability assessments (WCAs), and cases staying in the assessment phase for longer than forecast before moving to higher rates (post-WCA);
- Statutory maternity pay – under-forecast by £0.2 billion (13.7 per cent), in the light of updated HMRC data used in DWP modelling, which suggested that upward revisions were necessary to a number of earlier years, including 2010-11;

## Public expenditure

- Income support – under-forecast by £0.3 billion (4.8 per cent) as a result of fewer than expected exits from the disabled group, more lone parents with a child aged 0 to 4, and more carers than expected on income support;
- Cold weather payments – the Spending Review rate change mentioned above contributed £0.3 billion to policy change while unusually cold weather resulted in a fiscal forecasting error of £0.1 billion;
- State pension – under-forecast by £0.2 billion (0.3 per cent) as both caseloads and lump-sum payments were marginally higher than expected;
- Pension credit – under-forecast by £0.4 billion (0.2 per cent) as the reduction in caseloads following the equalisation of the state pension age was slightly less than forecast; and
- Other social security benefits – an over-forecast by £0.5 billion includes small errors in child benefit payments and Northern Ireland benefits.

## Tax credits

4.17 Tax credit expenditure in 2010-11 was £0.4 billion (1.6 per cent) higher than forecast. The personal tax credit element of this was only £0.1 billion above expectations, significantly lower than the error in previous years. The remainder of the error was in company tax credits. There was £0.1 billion of film tax credit expenditure incorrectly excluded from the initial forecast, and a significant upward revision of £0.2 billion to R&D tax credit and Land Remediation Relief, following an increase in tax returns for 2008-09, which are used to estimate 2010-11 outturns.

## Net public service pensions

4.18 Net public service pensions were £0.5 billion (10.3 per cent) higher than forecast. CG unfunded schemes accounted for £0.4 billion of this, mainly caused by higher than expected lump sum payments in the NHS and teachers pension schemes. This partly reflects an increase in early retirements, which may be caused by an earlier than expected response to the 2010 Spending Review settlements.

## National Lottery

4.19 The total national lottery provisional outturn was very close to forecast. There was however an approximate £0.2 billion switch from capital to current, as a result of improvements to the methodology for allocating expenditure between the capital

and current in forecast and provisional outturn. The allocation is now based on evidence from the previous 3 years of outturn data.

## BBC

- 4.20 BBC domestic services expenditure in 2010-11 was £0.3 billion lower than forecast. BBC expenditure is funded by licence fee receipts and these were lower than expected as a result of slower household growth. The BBC also delivered savings on the digital switchover schemes.

## Fees associated with financial interventions

- 4.21 Expenditure on fees associated with financial interventions was very close to forecast.

## Other PSCE and PSGI items in departmental AME

- 4.22 Other current expenditure in PSCE includes smaller areas of expenditure such as the redundancy payments service, housing revenue account (HRA) subsidy, and the expenditure of levy funded bodies. Expenditure on these areas was some £0.3 billion higher than forecast.
- 4.23 The expected cost of the HRA subsidy was £0.2 billion higher than forecast as a result of the consolidated rate of interest faced by local authorities being lower than forecast and a delay in PFI allowance payments.
- 4.24 The most significant items of other capital expenditure in PSGI are the BBC and the Child Trust Fund, which has now been closed to new born children. Expenditure on these items was extremely close to forecast.

## Expenditure transfers to EU institutions

- 4.25 Expenditure transfers to EU institutions were very close to forecast.

## Locally-financed expenditure

- 4.26 Locally financed expenditure consists mainly of local authority self financed expenditure (LASFE) and Scottish Government spending financed by local taxation. LASFE is forecast by aggregating forecasts for the various local sources of local authorities' own finance – that is, excluding finance from central government. The largest source of finance for LASFE is council tax receipts, however local authorities also finance their total current spending from other sources including net changes in their reserves and interest receipts. Their own sources of finance for their capital spending include additional borrowing, the

use of capital receipts from asset sales, and transfers from their revenue accounts (which increase capital LASFE and reduce current LASFE).

- 4.27 When the forecast was finalised for the June 2010 Budget, we knew the overall level of increase in council tax, based on figures collected and published by CIPFA, but we did not have any information on the aggregate level of local authorities' current or capital budgets. This information became available when the statistics for local authorities budgets were released as usual in July 2010.
- 4.28 The latest view of outturn reflects the provisional outturn statistics that CLG have recently released, which show that English local authorities reduced current spending on their services by £2 billion compared to their budgets. This underspending is unusual; local authorities have spent more than their budgets in each of the last five years.
- 4.29 Overall, the estimated outturn for LASFE is some £3.1 billion lower than forecast in June 2010. Nearly £2 billion of this is because the forecast assumed that financial pressures on local authorities would lead them to draw down their reserves by £0.6 billion to finance spending, whereas provisional outturn figures indicate that they actually increased their reserves by some £1.2 billion. No single authority added more than £50m to reserves.
- 4.30 Of the £3.1 billion error, £0.5 billion was as a result of higher than anticipated repayments of debt principal by local authorities, which has the impact of reducing the amount of money available to finance spending. The majority of the remaining £0.8 billion was caused by the forecast methodology not being fully aligned with components of LASFE in outturn. This has now been corrected for.
- 4.31 The other significant change in outturn compared with the forecast is an additional £1.6 billion of capital expenditure financed from the revenue account (CERA). The forecast error in CERA has no effect on overall spending as it reduced current LASFE and increased capital LASFE by the same amount. The Greater London Authority alone showed an increase in CERA from 2009-10 levels of around £0.9 billion.
- 4.32 We are concerned to improve the accuracy of these forecasts in future, for instance by ensuring that we have considered any wider sources of information. This year, the department for Communities and Local Government have begun collecting in-year current expenditure data through the introduction of quarterly revenue outturn forms for all English local authorities. We expect this new data will help inform the key judgements we make in-year, for example, our forecasts of LASFE for 2011-12 (and later years) in the Autumn *EFO*, and the 2012 Spring *EFO*. We are also discussing other improvements that can be made to our forecasting approach with relevant government departments.

## Central Government debt interest

- 4.33 Central Government debt interest in 2010-11 was some £0.5 billion (1.2 per cent) lower than forecast. This can be split between an error in forecasting the underlying economic determinants, largely in this case RPI (£0.2 billion), and general fiscal forecasting errors (-£0.7 billion).
- 4.34 Although the interest rate path differed from the June Budget 2010 assumption, the effects of lower short-term rates and higher medium-term rates were broadly offsetting. The fiscal forecasting error is largely explained by the recent introduction of a new methodology ONS have adopted to measure debt interest, which more accurately accounts for the accrued profit and loss from the auction of gilts. Beyond that, errors are largely due to various simplifying assumptions in the model that are currently hard to quantify. We intend to implement a new modelling approach for the Autumn *EFO*, based on a more transparent model which should provide better diagnostics.

## Depreciation

- 4.35 Expenditure on depreciation was extremely close to forecast.

## VAT refunds

- 4.36 The outturn for current VAT refunds in 2010-11 was £0.3 billion lower than forecast. This is mostly attributed to economic determinants and is caused by central and local government procurement being lower than forecast.

## Single use military equipment

- 4.37 Spending by the Ministry of Defence (MOD) on single use military equipment (SUME) was £1.3 billion lower than forecast. SUME is identified as a separate element of AME in our tables because it is part of MOD's capital DEL, but it is classified as current spending in the National Accounts, and we therefore need to account for it as part of the forecast error on current spending. It is completely at the discretion of MOD as to how much capital spending is on SUME and how much is on ordinary capital spending – they can adjust their plans to switch between the two.
- 4.38 Of the £1.3 billion SUME forecast error, £0.4 billion represents a voted transfer to current spending within the MOD's budget, which is categorised as a policy change. The remaining £0.9 billion underspend formed part of the total net underspend on capital DEL.

### Environmental levies

- 4.39 Expenditure on environmental levies in 2010-11 was £0.2 billion below forecast as a result of general fiscal forecasting errors.

### Public corporations capital expenditure

- 4.40 Public corporations capital expenditure was £0.4 billion (4.7 per cent) lower than forecast. Such expenditure is often lumpy and the headline figure can generally be affected by the actions of one or two public corporations. This is therefore a difficult spending stream to predict.

### Accounting adjustments

- 4.41 The accounting adjustments are necessary to reconcile between spending components, which are sourced from departments' spending data, and the National Accounts definition of TME. They replace some data where National Accounts uses an alternative source and they add in some items that should be included in TME but are not included in the budgeting aggregates.
- 4.42 Accounting adjustments were some £0.9 billion lower than forecast in current spending, and £0.7 billion lower on the capital side. This is mostly caused by errors in local authority accounting adjustments. On the current side, there was a £0.5 billion addition caused by the ONS removing a current to capital DfID grant switch, which also impacts negatively on the capital accounting adjustments. This was partly offset by the removal of other adjustments to capital grants abroad.
- 4.43 Our new, simpler, presentation of spending, as set out in Table 4.2 above, has reduced the size and complexity of the accounting adjustments that we have to forecast. The Treasury and ONS have also been reviewing the rationale for the remaining accounting adjustments, with a view to minimising them and ensuring that they are measured accurately. We hope that all this work will further improve the accuracy of our future forecasts.

## 5 Fiscal aggregates

- 5.1 This chapter brings together the above analyses on receipts and spending, to assess the forecast for the overall fiscal position. The arithmetic for the key fiscal aggregates presented in Table 5.1 is set out in an annex to our Briefing paper No1: *Forecasting the public finances*.

### Public sector net borrowing

- 5.2 Public sector net borrowing (PSNB) represents the difference between total public sector receipts and expenditure. These are both very large aggregates and so small errors in either of these can result in big errors when forecasting PSNB. So, although receipts were only 0.7 per cent (£4.1 billion) above forecast and expenditure was only 1.2 per cent (£8.3 billion) below, both errors reduced borrowing and PSNB in 2010-11 came in 8.3 per cent (£12.4 billion) lower than expected at the time of the June 2010 Budget. This was also £9.2 billion (0.6 per cent of GDP) lower than assumed at the time of the March 2011 *EFO*.
- 5.3 Chart 5.1 further below highlights some of the uncertainty around the original forecast. It shows the probability of a range of outcomes for PSNB around the June 2010 Budget central projections, based solely on past Treasury forecast errors. Only 80 per cent of this distribution is shown, and in 10 per cent probability bands around our central forecast. Based on this analysis, an error of the scale witnessed may have been expected once every two years. However, this did not represent our subjective view at the time of the June 2010 Budget.

Table 5.1: Fiscal aggregates, 2010-11

	Per cent of GDP						
	Forecast	Outturn	Error	of which			Historic error <sup>1</sup>
				Economic factors	Policy and classification changes	Fiscal forecasting errors	
<b>Receipts and expenditure</b>							
Public sector current receipts (a)	37.2	37.5	0.3	-0.1	0.0	0.4	1.1
Total managed expenditure (b)	47.3	46.8	-0.5	0.0	0.1	-0.6	1.0
<i>of which:</i> PSCE (c)	43.2	42.8	-0.5	0.0	0.1	-0.6	0.8
PSNI (d)	2.6	2.6	0.0	0.0	0.0	0.0	0.3
Depreciation (e)	1.4	1.4	0.0	0.0	0.0	0.0	0.1
<b>Deficit</b>							
Public sector net borrowing (b-a)	10.1	9.3	-0.8	0.1	0.1	-1.0	1.0
Surplus on current budget (a-c-e)	-7.5	-6.7	0.8	-0.1	-0.1	1.0	1.0
Cyclically-adjusted net borrowing	7.4	6.8	-0.7	0.3	0.1	-1.0	1.0
Primary balance	-7.4	-6.5	0.9	0.0	-0.1	1.0	1.0
<b>Fiscal mandate and supplementary target</b>							
Cyclically-adjusted surplus on current budget	-4.8	-4.1	0.7	-0.3	-0.1	1.0	1.0
Public sector net debt <sup>2</sup>	61.9	60.2	-1.7	0.1	0.0	-1.9	1.6
<b>Financing</b>							
Central government net cash requirement	9.9	9.5	-0.4	0.1	0.1	-0.6	1.5
Public sector net cash requirement	10.3	9.4	-0.8	0.1	0.1	-1.0	1.7
<b>Stability and Growth Pact</b>							
Treaty deficit <sup>3</sup>	10.1	9.5	-0.6	0.1	0.1	-0.8	1.4
Cyclically-adjusted Treaty deficit <sup>3</sup>	7.5	7.0	-0.5	0.3	0.1	-0.8	1.4
Treaty debt ratio <sup>4</sup>	78.9	76.7	-2.1	0.1	0.0	-2.3	1.7
£ billion							
Surplus on current budget	-110	-98	12	-1	-2	15	14
Net investment	39	39	0	0	0	0	4
Public sector net borrowing	149	137	-12	1	1	-15	14
Central government net cash requirement	146	140	-6	1	1	-9	20
Public sector net debt	932	905	-27	1	0	-28	19
Memo: Output gap (per cent of GDP) <sup>5</sup>	-3.7	-3.4	0.3	0.3	0.0	0.0	

<sup>1</sup> The historical forecasting errors are 10 year rolling averages of absolute errors. Errors quoted as a per cent of GDP have been adjusted to account for the ONS' inclusion of FISIM in August 2008 (not anticipated in earlier forecasts). Historic £ billion errors have been inflated to 2010-11 prices, using the GDP deflator. Errors for cyclically-adjusted fiscal aggregates are based on Treasury estimates for the output gap prior to 2009-10 and the Treasury's approach to cyclical adjustment.

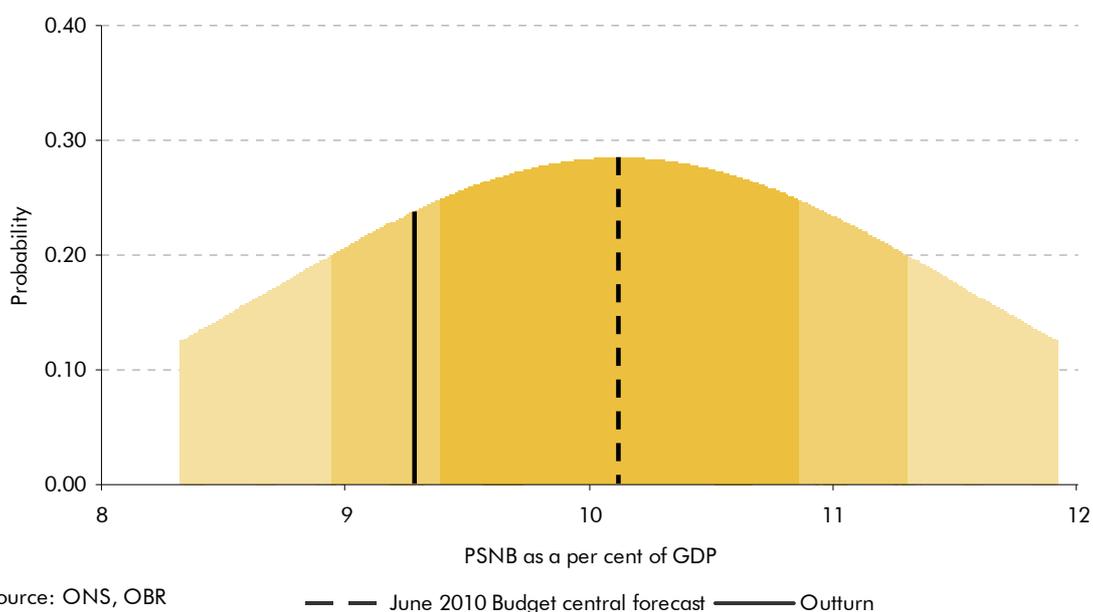
<sup>2</sup> Debt at end March; GDP centred on end March

<sup>3</sup> General government net borrowing on a Maastricht basis

<sup>4</sup> General government gross debt on a Maastricht basis

<sup>5</sup> There is no ONS outturn for the output gap, so the error is relative to subsequent estimates

Chart 5.1: Probability projections for PSNB in 2010-11



## Current budget

**5.4** The surplus on the current budget is the difference between public sector current expenditure and receipts. In other words, it is public sector net borrowing excluding borrowing to finance investment. Investment spending was close to expectations at the time of the June 2010 Budget, and so the error in forecasting the current budget surplus was of a similar magnitude to the PSNB forecast error. Relative to our latest March 2011 *EFO*, the current budget surplus was £6.7 billion (0.5 per cent of GDP) better than assumed.

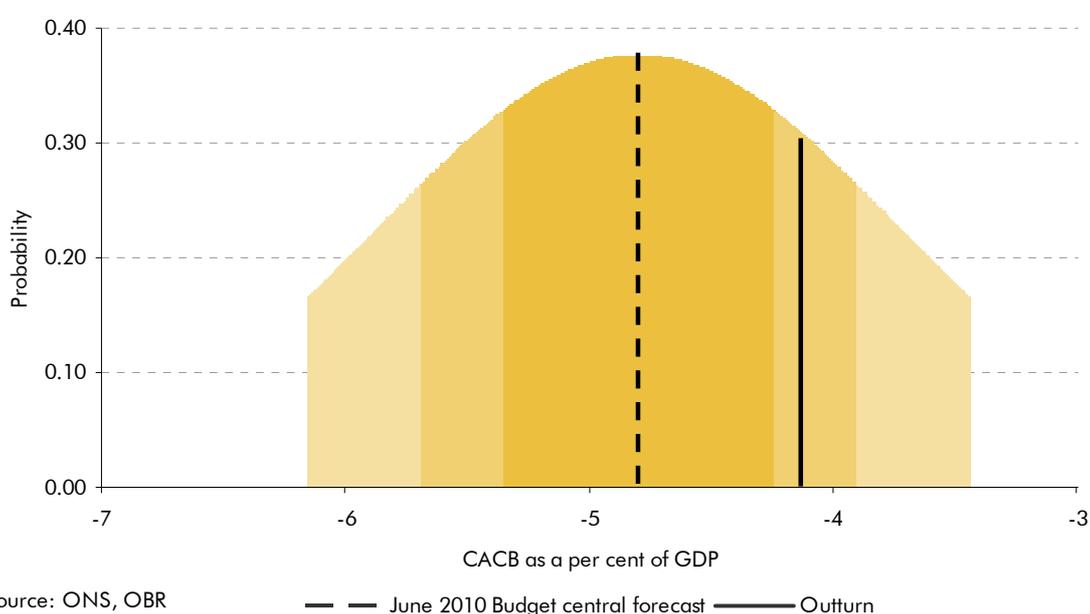
## Cyclically-adjusted current budget

**5.5** The cyclically-adjusted current budget (CACB) is the surplus on the current budget adjusted to remove the estimated effect of the economic cycle. It therefore represents an estimate of the underlying or 'structural' surplus on the current budget. The Government's fiscal mandate is to balance the CACB by the end of a rolling five-year period. Hence an error in forecasting the CACB just one year ahead does not directly affect an assessment of whether the Government is on course to meet its mandate.

**5.6** Our latest assessment set out in the March 2011 *EFO* implied that the output gap, a measure of the amount of spare capacity in the economy, was narrower over 2010-11 than anticipated in the June 2010 Budget. All else equal, this means that the degree to which the current budget can be expected to improve over time, simply as the economy recovers, is more limited, with a corresponding

deterioration in the structural position. However, in this case this is more than offset by the headline current budget, which was better than forecast. This means that overall, the CACB was around 0.7 per cent of GDP better than forecast in the June 2010 Budget and 0.5 per cent of GDP better than assumed in the March 2011 *EFO*. Chart 5.2 illustrates that the margin of error in forecasting the CACB was comparable to that for PSNB (see Chart 5.1).

Chart 5.2: Probability projections for the CACB in 2010-11



## Public sector net debt

**5.7** The public sector net cash requirement (PSNCR) is the cash equivalent of public sector net borrowing. The difference between the two is represented by financial transactions, which arise either due to timing differences known as 'accruals adjustments' or from exchanges of financial assets. Over 2010-11, financial transactions were relatively close to forecast (£0.2 billion above) and so the error in PSNCR can largely be explained by the same factors that affected PSNB.

**5.8** PSNCR is a key determinant of public sector net debt (PSND), which is a stock measure of the public sector's net liability position i.e. its liabilities minus liquid assets. As a predominantly cash measure, PSND is broadly equal to the previous year's stock plus PSNCR. The error in forecasting PSND at the end of 2010-11, equal to 1.7 per cent of GDP, reflects not only the error in PSNCR (0.8 per cent of GDP), but also a large downward revision to net debt in 2009-10. This mainly reflects a reassessment by the ONS of the treatment in PSND of some of the interventions made by the previous Government to stabilise the financial sector.

## 6 Conclusions: lessons to learn

- 6.1 The *FER* is designed in part for us to lay out transparently how our forecasts have performed, so that people can understand them better and can be confident that they are based on (inevitably fallible) professional judgement rather than politically motivated wishful thinking. But a second key objective is to learn lessons that can be used to improve our future forecasts.
- 6.2 We continually review our forecasting models, to ensure they remain fit for purpose. In light of this year's report, there are a number of areas that we will be considering further. And even where forecasts appear to perform reasonably well, there is often scope for further development. Progress has been or is due to be made in the following areas:
- representing household and external balance sheets in more detail. We have already improved the enumeration of the household and external balance sheets in our model since the June Budget 2010 forecast, and we continue to monitor our forecast performance in these areas;
  - reviewing the models used to forecast receipts from stamp duty land tax, alcohol duties and business rates, where there were significant fiscal forecasting errors that were to some extent difficult to explain;
  - locally-financed expenditure was significantly weaker than expected. We are keen to improve the accuracy of these forecasts in future. One important development is that data on quarterly in-year spending by local authorities will be produced for the first time this year by the Department for Communities and Local Government. We are also looking at the scope for further improvements to our forecast approach; and
  - errors in central government debt interest forecast are largely due to various simplifying assumptions in the model that are currently hard to quantify. We intend to implement a new modelling approach for the Autumn *EFO*, based on a more transparent model which should provide better diagnostics.





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