



HM TREASURY

Review of the monetary policy framework



Review of the monetary policy framework

Presented to Parliament by
the Chancellor of the Exchequer
by Command of Her Majesty

March 2013

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This publication is also available on <http://www.official-documents.gov.uk/>

ISBN: 9780101858823

PU1464

Printed in the UK by the Stationery Office Limited on behalf of the Controller of Her Majesty's Stationery Office

Printed on paper containing 75% recycled fibre content minimum

ID 2547373

03/13

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Executive summary

Monetary policy aims to maintain the value of money relative to the goods and services it is used to purchase. Through history, monetary policy has taken many forms, but more recently it has been framed in terms of price stability objectives, often within inflation targeting frameworks. Under inflation targeting, central banks aim, in the longer term, to support growth by maintaining price stability, while in the shorter term to minimise the variability of inflation and output. This has been based on the recognition that price stability in the long term is complementary with the efficient allocation of resources in the economy, while in the short term, the trade-off between output and inflation makes monetary policy the most nimble tool for macroeconomic stabilisation. Central banks therefore need to take a balanced approach to their objectives, while ensuring price stability retains primacy in the medium term.

Monetary policy in the UK has operated under flexible inflation targeting since 1992. The framework was updated in 1997 with central bank independence and more clearly-defined objectives. A similar approach has been adopted in many countries since the 1990s, as a response to previous high and volatile inflation that proved economically and socially costly. Inflation targeting has generally served economies well in delivering price stability, though the global financial crisis and recession of 2008-09 exposed serious gaps in the overall macroeconomic framework. The development of macro-prudential policy frameworks has been a common response. More recently, like all policy areas, inflation targeting has been subject to significant challenges as recoveries have been slower than originally expected.

The Government believes there are good reasons to review the monetary policy framework at this time:

- First, it is more than 20 years since inflation targeting was introduced. Understanding of the operation of monetary policy has evolved over that time, so there is value in assessing the performance of the framework against its objectives.
- Second, the Government recognises that the UK economy, like many advanced economies, currently faces exceptional challenges in securing sustained post-crisis recovery and rebalancing the economy after a decade of growth built on unsustainable levels of debt. Central banks' main conventional policy instrument, the short-term nominal interest rate, is currently at the effective lower bound in several advanced economies. This potentially puts a floor under real interest rates, which are critical for consumption and investment decisions and hence real activity in the economy. These challenges continue to test the consensus on macroeconomic policymaking.
- Third, it is useful to consider the approaches to monetary policy across advanced economies since the global financial crisis in 2008-09. Monetary policy has been forced to move beyond conventional instruments in order to support economies through exceptional challenges. Different central banks have used a range of unconventional instruments in order to deliver further policy easing. This provides a broad range of interventions against which to consider the operation of monetary policy in the UK.

The performance of flexible inflation targeting, over more than 20 years in many advanced economies, sets a high bar for change, as the Chancellor of the Exchequer explained at the Treasury Committee in December 2012.¹ This review examines some of the merits, drawbacks and risks of inflation targeting frameworks, including various elements of flexibility, relative to other monetary policy frameworks. The review draws on decades of theory, research and practical experience, both historically and internationally.

Based on the assessment in this review, the Government has concluded that further updating of the remit set for the independent Monetary Policy Committee (MPC) of the Bank of England is appropriate. The remit at Budget 2013 is consistent with the Bank of England Act 1998, which sets the statutory objectives for the MPC to maintain price stability, and subject to that, to support the economic policy of the Government. The remit takes effect from 20 March 2013.

The remit for the MPC at Budget 2013 is part of the Government's economic strategy, which consists of four key pillars:

- monetary activism and credit easing, stimulating demand, maintaining price stability and supporting the flow of credit in the economy;
- deficit reduction, returning the public finances to a sustainable position and ensuring that fiscal credibility underpins low long-term interest rates;
- reform of the financial system, improving the regulatory framework to reduce risks to the taxpayer and build the resilience of the system; and
- a comprehensive package of structural reforms, rebalancing and strengthening the economy for the future, including an ambitious housing package and programme of infrastructure investment.

The Government believes that low and stable medium-term inflation is a necessary, though not sufficient, pre-requisite for economic prosperity. This has been demonstrated by historical experience, and is backed by a large body of research over several decades.

After reviewing alternative approaches, the Government has retained a flexible inflation targeting framework in the remit for the MPC, with a continued commitment to medium-term price stability at the core of this framework. **The Government has reaffirmed the inflation target of 2 per cent, as measured by the 12-month increase in the Consumer Prices Index.** The target applies at all times. The target is critical for the anchoring of inflation expectations.

The Government has also updated the remit to clarify the trade-offs that are involved in setting monetary policy to meet a forward-looking inflation target. The remit continues to recognise that the actual inflation rate may depart from its target as a result of shocks and disturbances, and that the MPC may therefore wish to allow inflation to deviate from the target temporarily in order not to cause undesirable volatility in output. It clarifies the consideration that, in some circumstances, may be given to financial imbalances and requires that the MPC should have regard to the policy actions of the Financial Policy Committee (FPC). The remit goes further by clarifying that in exceptional circumstances, where shocks are particularly large and with persistent effects, the MPC is likely to be faced with more significant trade-offs between the speed with which it aims to bring inflation back to target and the consideration that should be placed on the variability of output. This therefore allows for a balanced approach to the objectives set out in the remit, while retaining the primacy of price stability and the inflation target. **The remit requires that in forming and communicating its judgements the MPC should**

¹ Oral evidence taken before the Treasury Committee, Autumn Statement, 13 December 2012

promote understanding of the trade-offs inherent in setting monetary policy to meet a forward-looking inflation target while giving due consideration to output volatility.

The remit continues to require an exchange of open letters between the Governor of the Bank of England and the Chancellor of the Exchequer if inflation moves away from the target by more than 1 percentage point in either direction. The Government believes that the open letter system, required in the remits for the MPC since 1997, provides a formal mechanism of transparency and accountability in the event of any appreciable deviations from target. **The remit now requires that the open letter from the Governor should be sent alongside the minutes of the MPC meeting that followed the publication of the CPI data and referring as necessary to the Bank's latest *Inflation Report* and forecasts, covering the MPC's judgements on the trade-offs inherent in setting monetary policy. The reason for publishing this letter alongside the minutes is to allow the MPC time to form and communicate its strategy towards returning inflation to the target after consideration of the trade-offs.** The Government believes that any future open letters will therefore result in a more meaningful exchange about the MPC's strategy than has been possible before now. As has been the case since 1997, the Governor is required to send a further letter after three months if inflation remains more than 1 percentage point above or below the target.

Within the UK's flexible inflation targeting framework, the operation of monetary policy using unconventional instruments raises new issues of governance and accountability that typically had not been explicitly addressed when the framework was put in place. Given ongoing economic challenges, the potential use of unconventional instruments is likely to remain important. Where those instruments have implications for credit risk or credit allocation, the remit ensures that appropriate governance arrangements are in place to ensure accountability. The MPC may also judge it to be appropriate to deploy explicit forward guidance including intermediate thresholds – policy commitments conditional on future economic developments – in order to influence expectations and thereby meet its objectives more effectively. The Government considers any use of intermediate thresholds to be a matter subject to the MPC's operational independence in setting policy, to be considered in these exceptional circumstances. As such, **the remit requests that the MPC provide in its August 2013 *Inflation Report* an assessment of the merits of using intermediate thresholds.**

The Government intends that the frameworks for monetary policy and macro-prudential policy, operated by the MPC and FPC of the Bank of England respectively, should be coordinated. This is reflected in the remit for the MPC and will be reflected in the Treasury's recommendations to the FPC.

The remit for the MPC set at Budget 2013, and the letter from the Chancellor of the Exchequer to the Governor of the Bank of England, is reproduced below. This remit was discussed and agreed with the Governor of the Bank of England, Mervyn King, and the next Governor of the Bank of England, Mark Carney.



HM Treasury, 1 Horse Guards Road, London, SW1A 2HQ

Sir Mervyn King
Governor
Bank of England
Threadneedle Street
London
EC2R 8AH

20 March 2013

REMIT FOR THE MONETARY POLICY COMMITTEE

The Bank of England Act (1998) requires that I specify what price stability is taken to consist of and the Government's economic policy objectives at least once in every period of 12 months beginning on the anniversary of the day the Act came into force.

I hereby re-confirm the inflation target as 2 per cent as measured by the 12-month increase in the Consumer Prices Index (CPI). The inflation target of 2 per cent applies at all times. This reflects the primacy of price stability and the inflation target in the UK monetary policy framework.

In accordance with the Act, I also confirm that the economic policy objective of Her Majesty's Government is to achieve strong, sustainable and balanced growth that is more evenly shared across the country and between industries.

The Government's commitment to medium-term price stability remains absolute. It represents an essential pre-requisite for economic prosperity.

The remit recognises that inflation will on occasion depart from its target as a result of shocks and disturbances. Attempts to keep inflation at the target in these circumstances may cause undesirable volatility in output. This reflects the short-term trade-offs that must be made between inflation and output variability in setting monetary policy. It therefore allows for a balanced approach to the objectives set out in the remit, while retaining the primacy of price stability and the inflation target.

In recent years, the economy has been hit by a series of shocks, some of which have been exceptionally large and with persistent effects. For example, the Office for Budget Responsibility and the International Monetary Fund forecast output in the UK to remain below its potential level for at least five years. Large shocks with persistent effects pose challenges for the setting and communicating of monetary policy and involve significant trade-offs. The remit clarifies the Government's expectations of the Committee in terms of the judgements it must make in setting and communicating policy in such exceptional circumstances.

As the Committee explained in its statement alongside its decision on 7 February 2013, CPI inflation is likely to rise further in the near term and may remain above the 2 per cent target for the next two years, in part reflecting a persistent inflationary impact from both administered and regulated prices and the recent decline in sterling. The Committee judged that as long as cost and price pressures remained consistent with inflation returning to the target in the medium

term, it was appropriate to look through the temporary, albeit protracted, period of above-target inflation.

I confirm that the Committee's interpretation of the flexibilities provided by the remit is correct, and that these flexibilities are conditional on the Committee's judgement that the risks to meeting the 2 per cent inflation target in the medium term remain balanced. The Committee should remain vigilant to those risks to ensure that medium-term inflation expectations remain anchored. This represents an appropriately balanced approach to the Committee's objectives, while retaining the primacy of medium-term price stability and the inflation target.

Transparency plays an important role in communicating the trade-offs inherent in setting monetary policy. I welcome the Bank of England's response to the independent Stockton Review into the Monetary Policy Committee's forecasting capability, which was published this month.

Over the past year, reflecting the exceptional challenge facing monetary policy makers, there has been ongoing innovation by central banks around the world. The Bank of England, with the Treasury, has launched the Funding for Lending Scheme; the European Central Bank has introduced Outright Monetary Transactions; the US Federal Reserve has developed its forward guidance such that it is currently using state-contingent intermediate thresholds to influence expectations. The Committee has discussed a range of instruments, communicating that discussion through its minutes and the speeches of Committee members.

Monetary activism has a vital role to play in the Government's economic strategy as the Government delivers on its commitment to fiscal consolidation. Given the ongoing exceptional challenges facing the UK economy, it is possible the Committee may judge it necessary to deploy new unconventional policy instruments or approaches in future, including some of those deployed by other central banks in recent years. The remit clarifies that the development of new unconventional instruments should include consideration with Government of appropriate governance and accountability arrangements. It also requests that the Committee provide in its August 2013 Inflation Report an assessment of the merits of intermediate thresholds. I will respond to the general approach outlined by the Committee in its August Inflation Report confirming whether it is consistent with the Monetary Policy Committee's remit.

The new Financial Policy Committee will be established on a statutory basis this April. As a result the remit clarifies how the two committees should interact, and states that the Monetary Policy Committee should have regard to the policy actions of the Financial Policy Committee. I will recommend that the Financial Policy Committee mirrors this.

In setting this remit, the Government has reviewed the monetary policy framework in historical and international context, and the operation of monetary policy in a number of economies in recent years. That review is being published alongside the Budget. It provides further background on the changes that have been made in this remit and the absolute commitment to medium-term price stability that remains at its core. To ensure the UK's monetary policy framework remains at the forefront of international best practice, the Government will undertake a further review before the end of 2019.

A copy of the remit is attached.

Finally, I also confirm that the Asset Purchase Facility, created on 29 January 2009, will remain in place for the financial year 2013-14.



GEORGE OSBORNE

REMIT FOR THE MONETARY POLICY COMMITTEE

The Bank of England Act came into effect on 1 June 1998. The Act states that in relation to monetary policy, the objectives of the Bank of England shall be:

- a to maintain price stability; and
- b subject to that, to support the economic policy of Her Majesty's Government, including its objectives for growth and employment.

In order to comply with the Act, this remit sets out what price stability shall be taken to consist of and what the economic policy of the Government shall be taken to be.

Price stability

I confirm that the operational target for monetary policy remains an inflation rate of 2 per cent, measured by the 12-month increase in the Consumer Prices Index. The inflation target of 2 per cent applies at all times. This reflects the primacy of price stability and the inflation target in the UK monetary policy framework.

The inflation target is forward-looking to ensure inflation expectations are firmly anchored in the medium term. The Government believes that low and stable medium-term inflation is an essential pre-requisite for economic prosperity.

The framework is based on the recognition that the actual inflation rate will on occasion depart from its target as a result of shocks and disturbances. Such factors will typically move inflation away from target temporarily. Attempts to keep inflation at the inflation target in these circumstances may cause undesirable volatility in output due to the short-term trade-offs involved, and the Committee may therefore wish to allow inflation to deviate from the target temporarily.

Circumstances may also arise in which attempts to keep inflation at the inflation target could exacerbate the development of imbalances that the Financial Policy Committee may judge to represent a potential risk to financial stability. The Financial Policy Committee's macro-prudential tools are the first line of defence against such risks, but in these circumstances the Committee may wish to allow inflation to deviate from the target temporarily, consistent with its need to have regard to the policy actions of the Financial Policy Committee.

In exceptional circumstances, shocks to the economy may be particularly large or the effects of shocks may persist over an extended period, or both. In such circumstances, the Committee is likely to be faced with more significant trade-offs between the speed with which it aims to bring inflation back to target and the consideration that should be placed on the variability of output.

In forming and communicating its judgements the Committee should promote understanding of the trade-offs inherent in setting monetary policy to meet a forward-looking inflation target while giving due consideration to output volatility. It should set out in its communication:

- the outlook for inflation and, if relevant, the reasons why inflation has moved away from the target or is expected to move away from the target;
- the policy action the Committee is taking in response;
- the horizon over which the Committee judges it is appropriate to return inflation to the target;

- the trade-off that has been made with regard to inflation and output variability in determining the scale and duration of any expected deviation of inflation from the target; and
- how this approach meets the Government's monetary policy objectives.

If inflation moves away from the target by more than 1 percentage point in either direction, I shall expect you to send an open letter to me, alongside the minutes of the Monetary Policy Committee meeting that followed the publication of the CPI data and referring as necessary to the Bank's latest Inflation Report and forecasts, covering the same considerations set out above. The reason for publishing this letter alongside the minutes is to allow the Committee time to form and communicate its strategy towards returning inflation to the target after consideration of the trade-offs. Given this, any future open letters should result in a more meaningful exchange between us about the Committee's strategy than has been possible before now.

You would send a further letter after three months, alongside the minutes of the third subsequent Monetary Policy Committee meeting, if inflation remained more than 1 percentage point above or below the target.

In keeping with the principles underpinning the monetary policy framework, and the practice followed in previous inflation open letter exchanges, I suggest that you copy your letters to the Chair of the Treasury Committee.

In responding to your letter and confirming whether an appropriate balance has been struck in the judgements the Committee has made, I shall, of course, have regard to the circumstances prevailing at the time.

The thresholds do not define a target range. Their function is to define the points at which I shall expect an explanatory letter from you because the actual inflation rate is appreciably away from its target.

Unconventional policy instruments

In the event of exceptional shocks that result in the Committee's conventional policy instrument having approached its effective lower bound, as has been the case since March 2009, the Committee may judge it necessary to deploy unconventional policy instruments in order to set monetary policy consistent with the requirements of this remit.

Where those instruments involve unconventional interventions in specific markets or activities, with implications for credit risk or credit allocation, I shall expect the Committee to work with the Government to ensure the appropriate governance arrangements are in place to ensure accountability in the deployment of such instruments. This was the case with the Bank of England and the Treasury in establishing the Asset Purchase Facility in 2009 and the Funding for Lending Scheme in 2012.

The Committee may also judge it to be appropriate to deploy explicit forward guidance including intermediate thresholds in order to influence expectations and thereby meet its objectives more effectively. This is likely to be most pertinent should the Committee judge spare capacity is likely to persist for a considerable period.

The Government considers any use of intermediate thresholds to be a matter subject to the Committee's operational independence in setting policy, to be considered in these exceptional circumstances. The Committee is requested to provide an assessment of such approaches to setting policy alongside its August 2013 Inflation Report. This assessment should consider the merits of the approach in general, and of specific indicators and thresholds.

Government's economic policy objectives

The Government's economic policy objective is to achieve strong, sustainable and balanced growth that is more evenly shared across the country and between industries. This objective recognises that over a number of years preceding the recent financial crisis, economic growth in the UK was driven by unsustainable levels of private sector debt and rising public sector debt. This pattern of unbalanced growth and excessive debt helped to create exceptional economic challenges in the UK.

The Government's economic strategy consists of four key pillars:

- monetary activism and credit easing, stimulating demand, maintaining price stability and supporting the flow of credit in the economy;
- deficit reduction, returning the public finances to a sustainable position and ensuring that fiscal credibility underpins low long-term interest rates;
- reform of the financial system, improving the regulatory framework to reduce risks to the taxpayer and build the resilience of the system; and
- a comprehensive package of structural reforms, rebalancing and strengthening the economy for the future, including an ambitious housing package and programme of infrastructure investment.

Accountability

The Monetary Policy Committee is accountable to the Government for the remit set out in this letter. The Committee's performance and procedures will be reviewed by the Oversight Committee of the Court on an ongoing basis (with particular regard to ensuring the Bank is collecting proper regional and sectoral information). The Bank will be accountable to Parliament through regular reports and evidence given to the Treasury Committee. Finally, through the publication of the minutes of the Monetary Policy Committee meetings and the Inflation Report, the Bank will be accountable to the public at large.

Restatement of the Remit

The inflation target will be confirmed in each Budget. There is a value in continuity and I will have proper regard to that. But I will also need to consider the case for a revised target at these times on its merits. Any changes to this remit will be set out in the Budget. The Budget will also contain a statement of the Government's economic policy objectives.

Coordination between monetary policy and macro-prudential policy

In order to foster coordination between monetary and macro-prudential policy, there is overlap between the membership of the Monetary Policy Committee and the Financial Policy Committee. To enhance that coordination, where appropriate, the Monetary Policy Committee should reflect, in any statements on its decisions, the minutes of its meetings and its Inflation Reports, how it has had regard to the policy actions of the Financial Policy Committee. In the same way, the Government will also ask the Financial Policy Committee to note in the records of its meetings, its policy statements and its Financial Stability Reports how it has had regard to the policy settings and forecasts of the Monetary Policy Committee.

1

Historical and international context

1.1 This chapter:

- reviews past monetary policy frameworks in the UK and the lessons learned from their operation;
- outlines the consensus on the appropriate focus for monetary policy, which has emerged from decades of theory, research and practical experience;
- describes the UK's current monetary policy framework, which can be characterised as flexible inflation targeting,¹ including its objectives and performance; and
- concludes by considering some of the critiques of inflation targeting prior to the global financial crisis and recession of 2008-09, and since.

History of UK monetary policy frameworks

1.2 The UK has operated five broad monetary policy regimes in the post-war period, including inflation targeting, which was introduced in 1992 and updated in 1997 with central bank independence. Each of these regimes has had different institutional constraints and external environments.

- **Fixed exchange rate (Bretton Woods), 1948-71.** Following the end of the Second World War the UK operated monetary policy through a regime of fixed exchange rates under the Bretton Woods system, which established set values between the US dollar and the currencies of 32 member countries. Such a system required direct controls on credit creation as well as strong foreign capital controls. The prevalent view at the time was that fiscal policy was more effective at managing demand in the economy, as monetary policy was constrained by the exchange rate and the current account. The UK experienced recurring balance of payments crises and sterling devaluations, including in 1949 and 1967.
- **Floating exchange rate, no monetary anchor, 1971-76.** In 1971, the US ended the convertibility of the US dollar into gold, which brought an end to the Bretton Woods system. For most of the following five years the UK had a floating exchange rate but with no monetary anchor. During this period *"the framework for monetary policy was, at best, opaque"*.² The oil crisis of 1973 and the sterling crisis of 1976 meant that this period saw very high and volatile inflation coupled with weak output growth.
- **Monetary targets, 1976-87.** During this period, monetary policy aimed to control various monetary aggregates in order to keep inflation down. This approach

¹ As defined in *Inflation Targeting, Lessons from the International Experience*, Bernanke et al, 2001, "inflation targeting is a framework for monetary policy characterised by the public announcement of official quantitative targets (or target ranges) for the inflation rate over one or more time horizons, and by explicit acknowledgement that low, stable inflation is monetary policy's primary long-run goal".

² *The Inflation Target Five Years On*. King, 1997.

required there to be a degree of stability in the velocity of money, or the speed with which money circulates in the economy, which would have meant that there was a direct relationship between money supply and inflation. However, this period was characterised by significant global financial deregulation, including in the UK, which saw, for example, a relaxation of exchange and credit controls in 1979. Financial liberalisation and innovation made it more difficult to monitor aggregate measures of money supply and reduced the stability of the relationship between money and the wider economy. Inflation was successfully reduced during this period, but the monetary framework itself remained unstable.

- **Exchange rate targeting, 1987-92.** During this period policy makers, both in the UK and elsewhere in Europe, directed monetary policy to targeting the exchange rate. The UK entered the Exchange Rate Mechanism in 1989. UK interest rates were set in order to keep the value of sterling within a certain band relative to the German currency, which provided the nominal anchor. In the face of large international capital flows and speculation, the monetary authorities could not maintain the exchange rate target indefinitely. This resulted in some instability of both output and prices, as well as a sharp depreciation of sterling in 1992.
- **Inflation targeting, pre-independence: 1992-97.** Following the exit from the Exchange Rate Mechanism, sterling was allowed to float freely and a target for inflation was introduced for the first time. The details of the arrangements were set out in a letter from the then Chancellor to the Chair of the Treasury and Civil Service Committee.³ The intention was to achieve a rate of inflation, as measured by the Retail Prices Index excluding mortgage interest payments (RPIX), *“in the long term of 2 per cent or less”*, but for the remainder of the Parliament, to keep *“underlying inflation within the range 1-4 per cent”*. The target range was not intended to be symmetrical over time. The aim instead was *“to be in the lower part of the range”* by the end of the Parliament. At Budget 1995, the target was specified to be 2½ per cent or below by the end of that Parliament. Monetary policy decisions were still controlled by the Chancellor. Inflation fell in this period, but inflation expectations remained above the official target.
- **Inflation targeting, independent MPC: 1997-present.** Under the Bank of England Act 1998, the Monetary Policy Committee of the Bank of England was given operational independence over monetary policy. The MPC operated in this form from May 1997. The new institutional arrangements helped improve credibility and accountability, leading to stable inflation and anchored inflation expectations. Initially the target was for inflation of 2½ per cent as measured by the RPIX.⁴ The target was changed in December 2003 to inflation of 2 per cent as measured by the Consumer Prices Index.⁵ **In the remit for the MPC set at Budget 2013, the Government has reaffirmed the 2 per cent inflation target, which applies at all times. The remit has been updated to clarify the trade-offs that are involved in setting monetary policy to meet a forward-looking inflation target.**⁶ The trade-offs inherent in setting monetary policy with a flexible inflation targeting framework are discussed further below.

³ A copy of the letter is available at the following link: http://www.hm-treasury.gov.uk/d/foi_dis_7_john_watts_081092.pdf

⁴ A copy of the June 1997 remit is available at the following link: http://webarchive.nationalarchives.gov.uk/20100407010852/http://www.hm-treasury.gov.uk/press_64_97.htm

⁵ A copy of the December 2003 remit is available at the following link:

http://webarchive.nationalarchives.gov.uk/20100407010852/http://www.hm-treasury.gov.uk/d/monetarypolicy_mpc_boenit.pdf

⁶ A copy of the March 2013 remit is available at the following link: http://www.hm-treasury.gov.uk/ukecon_mon_index.htm

The consensus on objectives of monetary policy

Key lessons

1.3 Practical experience, backed by the large body of empirical and theoretical research that developed from the 1970s, led to the establishment of a broad consensus on monetary policy from the early 1990s.⁷ The central principle was that policy makers should provide a credible commitment to a nominal anchor, typically consumer price inflation, as the most effective way to achieve price stability.

1.4 Price stability is given paramount importance due to the recognition that high inflation can lower society's welfare by creating uncertainty and generating other costs. If households and businesses are unsure about how the general level of prices will evolve in the future, or whether individual price changes reflect relative or general movements, they will make suboptimal economic decisions, including about saving and investment. This in turn will lower economic growth. In other words, they will not be able to make efficient decisions about investment and consumption today if they are unsure about the prices that they will face tomorrow. High inflation can also reduce welfare through a number of other channels. For example, unanticipated inflation can cause unexpected redistribution of wealth from creditors to debtors.

1.5 In this context, price stability has been defined as inflation that is stable and low, but above zero. The main reason why zero inflation is not pursued as a policy goal is because, in the event of shocks, it can result in deflation, or negative inflation, which is highly undesirable. For example, deflation can impose large economic costs, in the form of low growth and high unemployment, as experienced during the Great Depression of the 1930s.⁸ In addition, deflationary expectations can limit how effective monetary policy is in accommodating large negative shocks.⁹

1.6 An important lesson was that private sector expectations strongly influence economic activity and inflation outcomes. Expectations matter for individuals in respect of their future income, and for firms in setting prices for the goods and services they produce. For example, for many wage agreements, set on an annual basis, the purchasing power of the agreed wage over the year ahead will depend on inflation. Without inflation expectations being well anchored, there is a risk that wage-price spirals could develop as employees seek to maintain their living standards, and employers judge that the outlook for inflation will enable them to pass wage increases through to prices. This occurred in the 1970s in the UK.

1.7 This crucial importance of inflation expectations in reducing uncertainty is widely recognised in contemporary central banking practice. Mervyn King, the Governor of the Bank of England, noted in 2005 that *"one can argue that the real influence of monetary policy is less the effect of any individual monthly decision on interest rates and more the ability of the framework of policy to condition inflation expectations."*¹⁰ More recently, Mark Carney, the Governor of the Bank of Canada and the next Governor of the Bank of England, has highlighted that a strong anchor for inflation expectations *"allows households and firms to make longer-term plans with greater*

⁷ See *Monetary Policy Strategy: Lessons from the Crisis*, Mishkin, 2011, on nine basic principles in the understanding of monetary policy before the crisis.

⁸ As analysed, among others, by *The Debt-Deflation Theory of Great Depressions*, Fisher, 1933; *A Monetary History of the United States, 1867-1960*, Friedman and Schwartz, 1963; and *Deflation: Making Sure 'It' Doesn't Happen Here*, Bernanke, 2002.

⁹ When nominal interest rates reach the zero lower bound then real interest rates, which influence consumption and investment, cannot easily be lowered further. *Renewal of the Inflation-Control Target*, Bank of Canada, 2011, highlights that any assessment of the economic benefits of lower inflation need to be balanced with the costs and risks of hitting the zero lower bound. These issues have similarly been discussed in the UK context in *Some Costs and Benefits of Price Stability in the United Kingdom*, Bank of England, 1997 and *Deflation*, Bank of England Quarterly Bulletin, 2009 Q1.

¹⁰ *Monetary Policy: Practice Ahead of Theory*, King, Mais Lecture, 2005.

certainty, aligning their savings, investment and spending decisions with a common inflation-control objective. These actions collectively serve to make the inflation target self-reinforcing.”¹¹

1.8 There is also a consensus that while there is a short run trade-off between inflation and growth or unemployment, there is no such trade-off in the long run, when price stability, not higher inflation, supports growth. In the short run, the pressure of demand for goods and services on the economy’s supply potential is the primary determinant of inflationary pressure. Monetary policy can ease (or tighten) to boost (or restrain) total demand in order to meet longer-run price stability. In the long run, policy makers discovered in the 1960s and 1970s that keeping unemployment below its natural rate, or output above its potential, can only be achieved by allowing inflation to rise above expectations for a prolonged period, which in turn makes people expect higher inflation in the future.¹² Essentially, policy makers at the time did not recognise that there was no exploitable longer-run trade-off and that the natural rate of unemployment had risen.

1.9 This previous high-inflation experience was partly an example of time inconsistency, where the public does not believe government’s commitments but instead expects it to renege on the commitment when the time comes.¹³ This concept provided the economic rationale for governments to delegate the achievement of a price stability objective to independent central banks, so as to ensure the adoption of appropriate policy settings credibly through time.¹⁴

1.10 These lessons underpinned the design of monetary policy frameworks across many advanced economies. Monetary policy took a central role as the most flexible tool for stabilising demand in the economy in the face of shocks. Charles Bean, Deputy Governor of the Bank of England, described the respective roles of monetary and fiscal policy as follows: *“the fiscal authority would set fiscal policy in light of circumstances, knowing that the central bank would then maintain nominal demand at its desired level”*.¹⁵ Bean also noted that monetary policy should offset demand shocks and accommodate the first-round effects of supply shocks. This is because demand shocks will tend to alter the underlying rate of inflation, whereas the first-round effects of supply shocks do not. Accommodating supply shocks implies that policy makers should be prepared to accept a temporary change in inflation rather than countering it by adjusting policy, as this would exacerbate the effects of the shock on output and employment. Monetary policy should, however, guard against second-round effects of supply shocks, where the underlying rate of inflation is influenced by price- and wage-setters’ responses to the initial shock. This can happen when the medium-term commitment to price stability is not considered credible.

The balance of objectives

1.11 While the objective of price stability is typically the primary objective of monetary policy, this is not designed to be achieved at an unacceptable cost in terms of growth. The theory underpinning the practice of contemporary monetary policy states that optimal policy involves an objective function which maximises social welfare by minimising the variability of inflation around an inflation target and the variability of output around its potential level, represented by the output gap. Policy makers should place some weight on both inflation variability and output variability, also defined in research as a ‘loss function’. A significant body of academic research,

¹¹ *Written answers to the Treasury Committee’s questionnaire*, Carney, 2013.

¹² *Monetary stability: rhyme or reason*, King, 1997

¹³ As highlighted in the work of *Rules rather than discretion*, Kydland and Prescott, 1977; *On the time consistency of optimal policy in a monetary economy*, Calvo 1978; and *A positive theory of monetary policy in a natural rate model*, Barro and Gordon, 1983

¹⁴ *The optimal degree of commitment to an intermediate monetary target*, Rogoff, 1985.

¹⁵ *‘The Meaning of Internal Balance’ Thirty Years On*, Bean, 2009.

for example by Lars Svensson, Deputy Governor of the Swedish Riksbank, explains this loss function.¹⁶ John Vickers, former Chief Economist at the Bank of England and member of the MPC, and Charles Bean, have described how the remit for the MPC is drawn from this academic research on loss functions.¹⁷ How policy makers go about achieving these objectives in response to economic conditions is referred to as the 'policy reaction function'.

1.12 The central bank's ability to reduce output variability depends on the credibility of its commitment to price stability. The more credible a central bank's commitment to price stability, the greater its scope to offset output variability by allowing temporary deviations of inflation from target, since its credibility implies that inflation expectations will remain well-anchored.

1.13 Today's flexible inflation targeting frameworks embody these trade-offs. They provide scope for policy makers to react to developments in the economy to maintain price stability in the longer term while minimising output variability in the short term. The primacy of maintaining price stability is underlined by their focus on inflation targets. Most frameworks allow some weight to be placed on maintaining output close to potential, provided that the required policy stance does not compromise the central bank's commitment to price stability.

1.14 The Federal Reserve's dual mandate, which was added to the Federal Reserve Act in 1977, is perhaps the most explicit among advanced economies about the importance attached to both objectives of price stability and full employment, a proxy for output equal to its potential.¹⁸ In the UK, the MPC's remit recognises that shocks can move inflation away from target and that the period over which the MPC aims to return it to target should pay due consideration to output volatility.¹⁹ It is these considerations that make inflation targeting frameworks 'flexible'.

1.15 One way in which central banks can signal how they trade off inflation and output variability is via their forecasts. For example, some central banks publish their forecasts for the output gap or unemployment, as shown in Table 2.A in Chapter 2.

1.16 There is broad agreement on a number of important principles that underpin macroeconomic frameworks. For the purpose of this review, the principles of efficiency, credibility and accountability are considered. Other principles such as transparency and flexibility are embodied in, and support, these three principles. For example, transparency promotes the public's understanding of the central bank's policy reaction function, enabling it to be more credible, accountable, and more successful in reaching its objectives, and therefore efficient. Similarly, short-term flexibility can help to deliver efficient policy responses, but only to the extent that there is trust, or credibility, in the medium-term commitment to price stability.

The UK's current monetary policy framework

Design

1.17 Inflation targeting in the UK was adopted in 1992, with a target range for inflation of 1-4 per cent for RPIX inflation,²⁰ later specified at Budget 1995 to be 2½ per cent or below. In 1997,

¹⁶ See *Inflation Targeting: some extensions*, Svensson, 1997 and *Inflation forecast targeting: Implementing and monitoring inflation targets*, Svensson, 1997.

¹⁷ *Inflation targeting in practice: the UK experience*, Vickers, 1998, and *The new UK monetary arrangements: a view from the literature*, Bean, 1998.

¹⁸ Despite the Federal Reserve's explicit 'balanced approach' to its two objectives, *How Flexible Can Inflation Targeting Be and Still Work?*, Kuttner and Posen, 2011, finds that it had not, in the period reviewed, evidently placed greater weight on growth than the Bank of England, which has price stability as a primary objective.

¹⁹ *What should monetary policy do?* Miles, 2013, quantifies an optimal objective within the MPC's remit and places a weight on both fluctuations in output from trend and inflation from target.

²⁰ The RPI is the most long-standing general purpose measure of inflation in the UK. The RPIX is the same as the RPI but excludes mortgage interest payments. In January 2013 the National Statistician found that a formula used in the construction of the RPI does not meet international standards.

the framework was updated, consistent with two key conclusions of monetary policy research and experience since the early 1990s. The first was the importance of central bank independence to overcome time inconsistency. The second was that objectives should be as clearly defined as possible. To varying degrees, and with some differences of detail, all advanced economy monetary policy frameworks now exhibit these features, as shown in Table 1.A.

Table 1.A: Central bank monetary policy frameworks

Central Bank	Statutory monetary policy objectives	Inflation targeting adoption date	Target (in)dependence	Current inflation target (per cent)
Reserve Bank of New Zealand	Stability in the general level of prices	1990	Agreed bilaterally with government	Midpoint of 2 in range of 1-3
Bank of Canada	Price stability ^a	1991	Agreed bilaterally with government	Midpoint of 2 in range of 1-3
Bank of England	Price stability and, subject to that, to support the economic policy of the government, including for growth and employment	1992	Set by government	2
Reserve Bank of Australia	Stability of the currency, full employment, economic prosperity and welfare	1993	Agreed bilaterally with government	2-3
Sweden Riksbank	Price stability	1993	Set by central bank	2
European Central Bank	Price stability	2000	Set by central bank	Below but close to 2
Federal Reserve	Maximum employment, stable prices and moderate long-term interest rates	2012	Set by central bank	2
Bank of Japan	Price stability, thereby contributing to the sound development of the national economy	2013	Set by central bank	2

Source: Respective central bank websites

^a From the *Bank of Canada Review*, 1991. The statutory objective in the Bank of Canada Act is broader: “to regulate credit and currency in the best interests of the economic life of the nation, to control and protect the external value of the national monetary unit and to mitigate by its influence fluctuations in the general level of production, trade, prices and employment, so far as may be possible within the scope of monetary action”. More recently, the 2011 *Joint Statement of the Government of Canada and the Bank of Canada on the Renewal of the Inflation-Control Target*, states that the primary objective of monetary policy is “to enhance the well-being of Canadians by contributing to sustained economic growth, rising levels of employment and improved living standards... by...giving Canadian households and businesses confidence in the value of their money”.

1.18 As in most countries, price stability objectives in the UK are set in statute. The Bank of England Act 1998 sets the objectives for the Monetary Policy Committee of the Bank of England, which are “to maintain price stability”, and “subject to that, to support the economic policy of the Government including its objectives for growth and employment.”²¹ Price stability is therefore the primary objective. The MPC is responsible for monetary policy over the entire UK and is accountable to all parts of the UK through the UK Parliament.

²¹ Section 11(a) and (b), Part 2.

1.19 In the UK's framework, the MPC has *operational* independence but not *goal* or *target* independence. That is, the Treasury is required by the Bank of England Act 1998 to specify the MPC's objectives,²² while the MPC is independent in setting policy to meet those objectives. The specification of monetary objectives is set out in the Chancellor's annual remit for the MPC, usually published at the time of the Budget.

1.20 The remit for the MPC specifies the MPC's price stability objective as an inflation target of 2 per cent, measured by the 12-month increase in the Consumer Prices Index.²³ The CPI replaced the RPIX as a basis for the inflation target in December 2003, and has been retained since, including in Budget 2013. The remit also specifies the Government's economic policy objective as "to achieve strong, sustainable and balanced growth that is more evenly shared across the country and between industries." This objective was specified by the Government in March 2011 and is retained in Budget 2013. One of the key accountability channels of the MPC is therefore to the Government and Parliament for meeting the remit. In specifying these objectives, the Government is able to set out its preferences over the MPC's objective function, which the MPC is required to operationalise through its judgements about the economy and the appropriate policy-setting.

1.21 Related to the specification of the objectives required by legislation, the remits for the MPC set between 1997 and 2012 provided important flexibilities, or 'constrained discretions', for the MPC in meeting these objectives:

- First, while the inflation target has been "*at all times*", the interpretation of the policy horizon is at the discretion of the MPC. Since independence, the MPC has viewed the horizon to be the medium term, defined as two to three years. This is informed by its assessment that it takes around two years for the maximum impact of interest rate changes to be felt on inflation, and that there are transparency benefits from an additional year in the forecast horizon²⁴; and
- Second, and related, the remits have allowed for deviations from the inflation target caused by "*shocks and disturbances*" outside the MPC's control. This has enabled the MPC to look through one-off shocks to the price level, for example from global commodity price increases or an indirect tax change, and to focus on more persistent pressures on price stability for example from wage settlements or inflation expectations. For any appreciable deviations of inflation by more than 1 percentage point in either direction from the target, the remit has required an exchange of open letters between the Governor of the Bank of England and Chancellor of the Exchequer. This has provided a formal mechanism of transparency and accountability.

1.22 The remit, by leaving it to the MPC's discretion to decide how quickly inflation should be returned to target, was described by Charles Bean in 1998 as having the nature of an 'incomplete contract'. He argued that little is lost from the lack of explicit preference on how quickly deviations of inflation from target should be corrected and hence to what degree to

²² Section 12, Part 2.

²³ The CPI is the main UK domestic measure of consumer price inflation for macroeconomic purposes. The CPI is compiled using the same underlying price data as the RPI, based on a large and representative selection of almost 700 individual goods and services for which price movements are measured in around 150 randomly selected areas throughout the UK. Around 180,000 separate price quotations are used every month to compile the indices. The CPI differs from the RPI in population base, item coverage, index methodology and item coding.

²⁴ See *The transmission mechanism of monetary policy*, Monetary Policy Committee. The forecast horizon in the Bank of England's *Inflation Report* fan charts shifted from 9 to 13 quarters in August 2004. As explained in that *Report*, this shift was because: "Some developments may have their full implications for inflation only after two years. When this has been material in the past, attention has been drawn to the slope of the projection at the two-year horizon. The Committee believes that transparency will be enhanced by showing a projection for the third year."

minimise output variability, as long as central banks know that the policy preferences implicit in their objective function are not extreme.²⁵

1.23 In the remit set at Budget 2013, the Government has reaffirmed the specification of the Government's monetary policy objectives, and updated the remit to clarify the trade-offs that are involved in setting monetary policy to meet a forward-looking inflation target. This is discussed further in Chapters 2 and 3.

Performance

1.24 Relative to much of the post-war period, inflation has remained low and stable since 1992. Inflation expectations fell after 1992, and again after the MPC was granted operational independence in 1997.

1.25 Chart 1.A shows long-term inflation expectations in financial markets have remained anchored since the introduction of inflation targeting. This is true for different gilt maturities as well as different financial market measures. It is also true of survey measures of shorter-run expectations. For example, inflation swaps suggest expectations have remained anchored and the one year ahead measure in the Bank's inflation attitudes survey has averaged 2.7 per cent since the survey began in 1999.^{26 27}

1.26 Wage settlements provide a further indicator of inflation expectations and have been stable since 1992, averaging 3.0 per cent between October 1992 and May 1997; 3.7 per cent between May 1997 and December 2003; and 2.5 per cent between December 2003 and February 2013.²⁸ Given fluctuations in productivity growth, which should also be reflected in wage settlements, these averages are broadly consistent with the inflation targets prevailing in these periods.

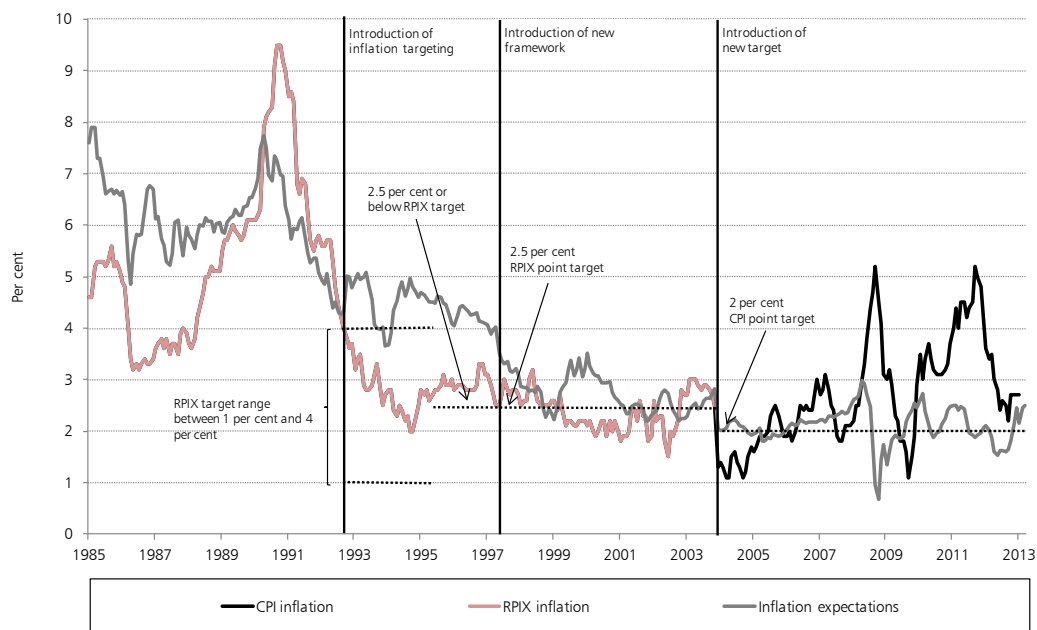
²⁵ *The new UK monetary arrangements: a view from the literature*, Bean, 1998.

²⁶ *Inflation Attitudes Survey*, Bank of England/GfK NOP, February 2013.

²⁷ An article by the Bank of England in its *Quarterly Bulletin*, 2012 Q2, *How has the risk to inflation from inflation expectations evolved*, Harlmohan, 2012, concluded that the near-term element of upside risk to inflation from expectations feeding into wage and price-setting behaviour appears to have receded a little, while most longer-term measures of inflation expectations are at, or just above, their historical averages despite the elevated level of longer-term uncertainty.

²⁸ Incomes Data Services.

Chart 1.A: Market inflation expectations and inflation outturns, 1985-2013



Source: Office for National Statistics (Code D7G7 and CDKQ), Bank of England (Code IUMAMIZC) and HM Treasury calculations.^a

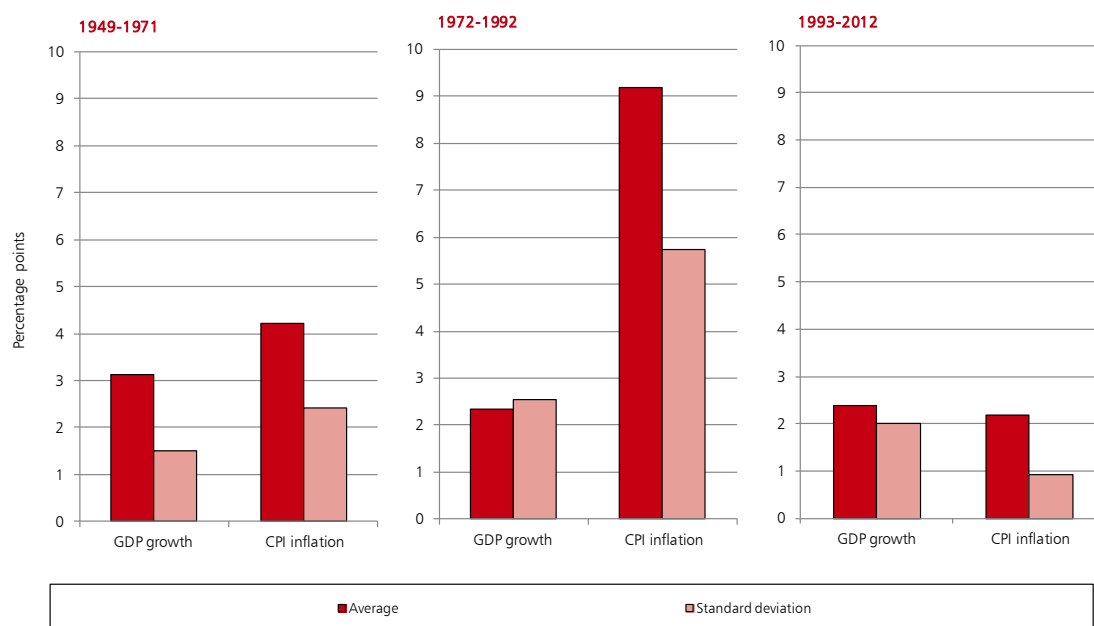
^a The measure of inflation expectations shown is the rate implied by the gilt yield curve. This has been adjusted by -0.8 percentage points during the period of CPI inflation targeting to show approximate expectations of CPI inflation. The size of the adjustment corresponds to the average difference between RPIX and CPI inflation over the period January 1997-January 2013. The last data points are January 2013 for CPI inflation and March 2013 for inflation expectations. Inflation expectations data is the monthly average rate except for March 2013, which is the average of daily rates between 1 and 14 March.

1.27 During the inflation targeting period, like most advanced economies, the UK also saw a marked decrease in the average variability of both inflation and output from the early 1990s until 2008, as shown in Chart 1.B. This period, sometimes described as the ‘Great Moderation’, was the most stable in the post-war period, and also in recorded UK history.²⁹ Mervyn King described the 10 years after the mid-1990s as the ‘nice’ decade – standing for ‘non-inflationary, consistently expansionary’.³⁰ However, that stability came to an abrupt end with the global financial crisis and recession of 2008-09, which demonstrated that inflation targeting and consumer price stability were not sufficient to ensure broader macroeconomic stability.

²⁹ *UK monetary regimes and macroeconomic stylised facts*, Benati, 2006, Bank of England Working Paper.

³⁰ Speech given to the East Midlands Development Agency, Leicester, King, 2003.

Chart 1.B: UK average and standard deviation for GDP growth and CPI inflation across post-war policy frameworks



Source: Office for National Statistics and Bank of England.

For both GDP and CPI inflation, average and standard deviation calculations have been applied to calendar year growth rates. CPI inflation: Data from 1949-1975 has been taken from ONS (O'Donoghue et al, 2004), data from 1975-2012 has been taken from ONS (Code D7G7) and Bank of England. GDP: Chained volume measure, 2009 reference year (Code ABMI), Second Estimate of GDP Q4 2012.

Critiques of inflation targeting

1.28 As with any monetary policy framework, there have been debates about whether inflation targeting is the optimal framework to allow central banks to provide economic stability. Key critiques have been whether concurrent global factors were more important in bringing about stability during the 'Great Moderation' and whether inflation targeting frameworks were a contributory factor in policy makers not identifying or addressing the imbalances that built up during the pre-crisis decade. The period of above-target inflation in the UK since 2009 has provided another challenge.

Global factors and the 'Great Moderation'

1.29 The causal link between inflation targeting and low inflation is not universally accepted. Concurrent with the widespread adoption of inflation targeting, the integration of a number of large emerging markets into the world economy during the 1990s, particularly China, India and the former Soviet Union, represented a large positive supply shock that put downward pressure on prices.³¹ There were also structural changes to advanced economies that could have supported greater macroeconomic stability, including better inventory management and the transition to a more services-dominated economy.

1.30 While it is difficult to disentangle the influence of global or structural factors, there is consensus that inflation targeting over the past 20 years has succeeded in achieving its main

³¹ *Doubling the global workforce: The challenge of integrating China, India and the former Soviet bloc into the world economy*, Freeman 2004.

objective of delivering low and stable inflation and anchored inflation expectations. It is also notable that the shocks from global commodity price increases since the 2000s have not had as large an inflationary impact under inflation targeting regimes as compared with the oil price shocks in the 1970s. For example, the International Monetary Fund (IMF), in a review across countries, concluded that “countries adopting inflation targeting have, on average, outperformed countries with other monetary policy frameworks.”³² The more fundamental critique, discussed below, is that successful delivery of consumer price stability was ultimately not sufficient to prevent the global financial crisis, deep recession and slow recovery of the past five years.

Monetary policy and financial stability

1.31 Perhaps the greatest criticism of inflation targeting is that it failed to address the financial imbalances resulting from strong credit growth and asset price inflation in the pre-crisis period, which contributed to the severity of the crisis that followed. This was despite lessons of past financial crises. Economists and historians have highlighted that a pattern of increased investor optimism, declining risk-aversion and leveraged investment has been common to crises over centuries.³³ The recent crisis also occurred despite more recent practical lessons, for example the US credit crunch in the early 1990s, which led to significant research on the importance of credit in the economy.³⁴ This is probably better characterised as a challenge to broader macroeconomic policy frameworks than inflation targeting in particular.

1.32 In the pre-crisis period, the so-called ‘lean or clean’ debate discussed the role of monetary policy in relation to asset prices. On the ‘lean against the wind’ side, it was argued that monetary policy should be tightened in the face of asset price rises, even if consumer price stability was not considered a threat. Research from the Bank of International Settlements suggested that by taking asset prices into account monetary policy could help identify imbalances and guard against unsustainable credit bubbles.³⁵ It has been argued by some that had central banks targeted asset prices more actively, raising interest rates earlier and more aggressively, the worst of the recent financial crisis could have been avoided. Others argue that tighter monetary policy would not have had a major impact on the probability of a crisis materialising.³⁶

1.33 The pre-crisis consensus was that central banks should ‘clean up after the bubble has burst’. Proponents argued that central banks were unable to correctly identify bubbles and lacked the instruments to contain asset price movements: a small rise in interest rates would not be sufficient to stop a bubble forming, whereas significant easing of policy would be sufficient to offset the consequences of a bubble bursting. In addition, because of the lags in the monetary transmission mechanism, raising interest rates would be counterproductive if the asset-price bubble subsequently burst and the lagged impact of policy tightening further reinforced the deflationary impact of asset-price falls. This could mean, in practice, that there is only a narrow window of opportunity during which activist policy is desirable. As former US

³² *Inflation Targeting and the IMF*, IMF 2006.

³³ *Manias, panics and crashes*, Kindleberger, 1978 and *The Financial Instability Hypothesis*, Minsky, 1992, highlighted that the financial structure of an economy becomes more and more fragile during the period of stability, which ultimately leads to a financial crisis. Others such as in *This time is different: eight centuries of financial folly*, Reinhart and Rogoff, 2009, have found that increases in the levels of private sector debt typically precede financial crises.

³⁴ *Review of the Monetary Policy Committee’s Forecasting Capability*, Stockton, 2012.

³⁵ See *Asset Prices and Central Bank Policy*, Cecchetti et al, 2000; *Asset Prices, Financial and Monetary Stability: Exploring the Nexus*, Borio and Lowe, 2002, BIS Working Paper; and *Making Macroprudential Concerns Operational*, Speech, White, 2004.

³⁶ *Monetary Policy after the Fall*, Bean, Paustian, Penalver and Taylor, Federal Reserve Bank of Kansas City Annual Conference, Jackson Hole, Wyoming, 2010.

Federal Reserve Chairman, Alan Greenspan has argued: *“No low-risk, low-cost, incremental monetary tightening exists that can reliably deflate a bubble.”*³⁷

1.34 Analysis published by the Bank of England highlights that some of the signs of growing fragilities during the period of the ‘Great Moderation’ were missed.³⁸ The research finds that while real activity and consumer prices were stable, asset prices, financing flows and balance sheets were not. These signs of fragility between the real economy and financial sector are more evident by assessing the evolution of financing flows and balance sheets. In fact, as early as 1972 the Bank had noted: *“The merit of this system [a closed accounting framework that encompassed both national income flows and flow of funds data] is that each element can be tested by the plausibility of its counterparts...The whole is reasonable only if the parts are.”*³⁹ Moreover, policy makers could use this approach to test central forecasts: if the balance sheet consequences of a GDP forecast look unsustainable it may be a signal that the GDP performance will not be sustained.

1.35 Post-crisis, the consensus has shifted to how macro-prudential policy, rather than monetary policy, should focus on financial stability. For economic policy to be efficient, it has long been argued that at least one independent policy instrument is needed for each policy objective.⁴⁰ This avoids conflicts between the two objectives of price stability and financial stability by adopting frameworks that can deploy separate sets of instruments.

1.36 The UK has been at the forefront of post-crisis institutional development in this area, establishing the Financial Policy Committee (FPC) at the Bank of England, to identify and address systemic risks to financial stability.⁴¹ The FPC’s primary objective will be to contribute to the Bank’s objective to protect and enhance the stability of the UK financial system and, subject to that, as with the MPC, to support the economic policy of the Government, including its objectives for growth and employment.⁴² Having operated in interim form since February 2011, the FPC will operate on a permanent statutory basis from April 2013 under the Financial Services Act 2012.

1.37 Although price stability and financial stability are separate objectives, there will be overlap between them. For example, there could be short-term trade-offs if rapid credit growth was to fuel asset price inflation, but not consumer price inflation. In addition, the instruments through which monetary policy and macro-prudential regulation are pursued are likely to interact with each other in influencing macroeconomic outcomes, particularly in relation to their impact on the price and availability of credit. Lorenzo Bini Smaghi, former member of the European Central Bank (ECB), has noted that the likely *“dynamic interaction”* between the two sets of instruments will need constant assessment.⁴³ Similarly, Paul Tucker, Deputy Governor of the Bank of England, has noted the *“two-way”* interactions, in particular, if the *“FPC requires lenders to carry higher capital, liquidity or collateral, that will affect credit conditions and so the outlook for aggregate demand and inflation. In the other direction, monetary policy settings plainly affect asset prices, and so influence credit conditions through the net worth of borrowers and lenders.”*⁴⁴

³⁷ For more on this debate, see *Lessons from the crisis*, IMF working paper, Mishkin, 2011; *Opening Remarks*, Greenspan, Federal Reserve Bank of Kansas City Economic Symposium Rethinking Stabilization Policy, 2002; and *Should Central Banks Respond to Movements in Asset Prices?* Bernanke and Gertler, 2001.

³⁸ *Growing fragilities? Balance sheets in the Great Moderation*, Barwell and Burrows, Bank of England, Financial Stability paper, 2011.

³⁹ *An introduction to flow of funds accounting: 1952–1970*, Bank of England, 1972, cited in Barwell and Burrows, 2011.

⁴⁰ *On the Theory of Economic Policy*, Tinbergen, 1952.

⁴¹ *A new approach to financial regulation: building a stronger system*, HM Treasury, 2011.

⁴² Section 9B of the Bank of England Act 1998, as amended by Section 4 of the Financial Services Act 2012.

⁴³ *Macro-prudential supervision and monetary policy – linkages and demarcation lines*, Bini Smaghi, 2011.

⁴⁴ *Macroprudential policy: building financial stability institutions*, Tucker, 2011.

1.38 Given such overlap, coordination between the two Committees will be essential. The secondary objectives of both Committees match. The Government has ensured significant executive cross-membership between the MPC and FPC, with a non-voting Treasury representative on the MPC and a non-voting Treasury member of the FPC. The Financial Services Act makes provision for joint meetings of the two Committees if required. **In addition, the remit for the MPC requires it to have regard to the policy actions of the FPC. The Government will also ask the FPC to have regard to the policy settings and forecasts of the MPC.** Such an approach will help to frame the decisions of both Committees on a consistent basis. The IMF, in a recent paper, has set out the benefits of such shared information and analysis in separate decision-making structures, as in the UK.⁴⁵

1.39 The need for consistent forecasts that incorporate financial sector linkages is recognised in an independent review of the MPC's forecasting practices, published in 2012 – the Stockton Review.⁴⁶ This notes that all of the major models used in forecasting and policy analysis inside and outside central banks have proved inadequate to the task of anticipating financial disturbances and projecting their propagation into activity and inflation. Stockton suggests that the Bank should increase the detail with which the financial sector is incorporated into its forecasts.

1.40 The Stockton Review also suggests that the Bank's forecasts should allow the consideration of the development and likely unwinding of major economic and financial imbalances by extending the horizon beyond the current three-year period. The review notes that unless the forecast horizon is long enough, questions surrounding those imbalances and their policy consequences are less likely to get serious consideration. The Bank of England's response to the Stockton Review was published in March 2013.⁴⁷

1.41 **The remit for the MPC set at Budget 2013 recognises that circumstances may arise in which attempts to keep inflation at the inflation target could exacerbate the development of imbalances that the FPC may judge to represent a potential risk to financial stability. The FPC's macro-prudential tools are the first line of defence against such risks, but in these circumstances the MPC may wish to allow inflation to deviate from the target temporarily, consistent with its need to have regard to the policy actions of the FPC.**

Above-target inflation in the UK

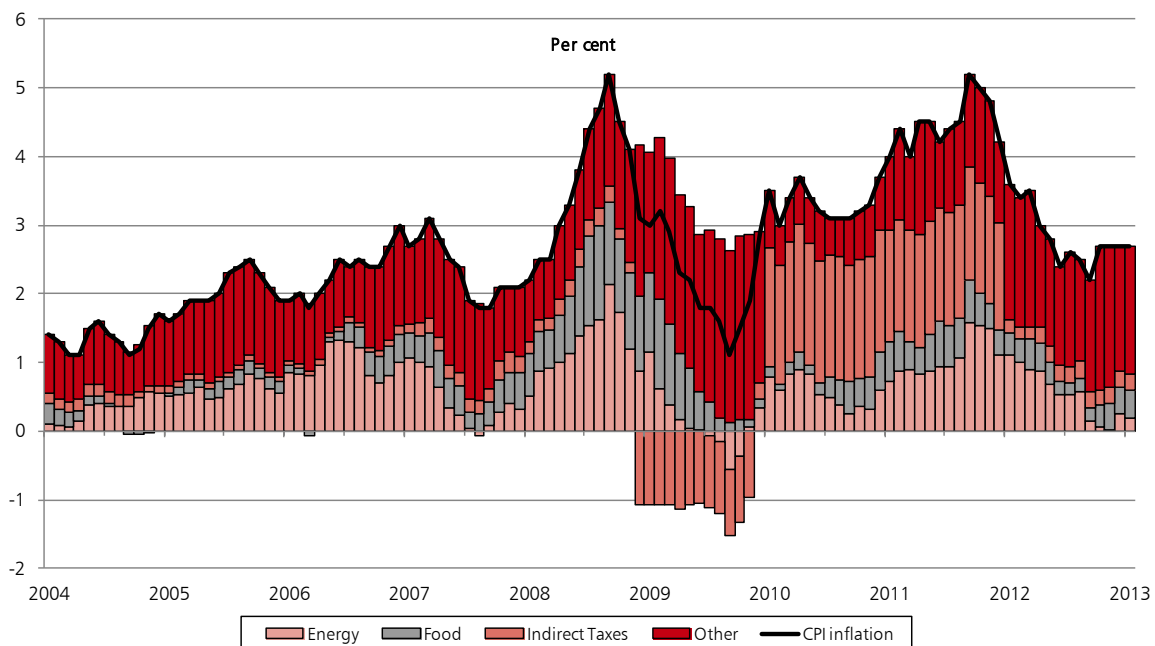
1.42 An additional challenge to the performance of the flexible inflation targeting framework in the UK is that since the 2008-09 crisis and recession, inflation has been above target more than it has been at or below target. This has been due to a series of price level shocks, each of which in isolation could be considered a one-off shock. These have included supply-side shocks to the prices of oil and other commodities, changes in indirect taxes and the impact of sterling depreciation on import prices. The shocks over this period also include rises in some administered and regulated prices related to the Government's commitment to necessary fiscal consolidation. Chart 1.C shows a breakdown of the contributions to inflation in recent years.

⁴⁵ *The Interaction of Monetary and Macprudential Policies*, IMF, 2013.

⁴⁶ *Review of the Monetary Policy Committee's Forecasting Capability*, Stockton, 2012.

⁴⁷ *Response of the Bank of England to the Three Court-Commissioned Reviews*, Presented to the Court of the Bank of England, March 2013

Chart 1.C: Contributions to CPI inflation^a



Source: Office for National Statistics (Code D7G7), Consumer Prices index, January 2013.

^a The energy contribution in each month is an aggregate of two categories within the CPI: 'electricity, gas and other fuels' (D7VG*(CJVF/1000)) and 'fuels and lubricants' (D7IO*(CJXR/1000)). The indirect taxes contribution is produced by the ONS and derived from the difference between CPI and CPI at constant tax rates (Code EAF4). Included in the measure are the impacts of changes in VAT and excise duties on tobacco, alcohol and fuel. Excluded are the impacts of changes in vehicle excise duty and television licence fees. The contribution from 'food' is defined as (D7GK*(CJUX/1000))

1.43 These factors have constituted temporary shocks to the price level. Mervyn King noted in a speech in 2011 that *“those three factors [the fall in sterling, the rise in world energy prices and the rise in VAT] by themselves would account for a remarkable 12 per cent addition to the price level over four years”*, which implied a contribution from domestically-generated inflation *“close to zero”*.⁴⁸ The first-round effects of these temporary price-level shocks do not reflect underlying inflationary pressure. Accordingly, the impact on inflation from temporary shocks has been accommodated by monetary policy. Signs of second-round effects on inflation expectations and wage settlements have not been evident in the recent UK context.

1.44 Such an approach is reflected in the MPC’s decision on 7 February 2013, where it judged that:

“as long as domestic cost and price pressures remained consistent with inflation returning to the target in the medium term, it was appropriate to look through the temporary, albeit protracted, period of above-target inflation. Attempting to bring inflation back to target sooner by removing the current policy stimulus more quickly than currently anticipated by financial markets would risk derailing the recovery and undershooting the inflation target in the medium term.”⁴⁹

1.45 This approach has been possible due to the flexibility in the MPC’s remit to allow inflation to move away from target due to temporary shocks, as discussed above, as well as the MPC’s credibility to pursue medium-term price stability, reflected in anchored inflation expectations.

⁴⁸ Speech at the Civic Centre, Newcastle, King, 2011.

⁴⁹ Bank of England maintains Bank Rate at 0.5% and the size of the Asset Purchase Programme at £375 billion, News release, 7 February 2013.

1.46 Recent above-target inflation has been associated with errors in inflation forecasts made by official and private sector institutions. The Stockton Review examines the explanations for these errors in relation to the Bank of England's forecasts, which include, for example, the use of financial market futures curves to forecast commodity prices. The Bank of England has previously explained that commodity futures curves offer a simple, transparent and market-based measure that help the MPC to communicate the underlying assumptions in its forecasts, and that it is not clear that there are better alternatives in terms of forecast performance.⁵⁰ Forecast errors can also arise in relation to the contribution to inflation from administered prices, where forecasts are predicated on current policy at the time the forecast is made; subsequent policy changes therefore necessitate updated forecasts.

1.47 Despite above-target inflation and repeated upward price-level shocks, inflation expectations have remained anchored, suggesting that inflation targeting has guarded against second-round inflationary effects in wages.

Conclusion

1.48 This chapter has looked at how the practical experience of operating different monetary policy frameworks, and a wealth of research, led to the emergence of a new monetary policy consensus. This consensus was based on the importance of price stability as an objective, the crucial role of inflation expectations, the need to overcome time inconsistency and the absence of a long-run trade-off between inflation and output. Flexible inflation targeting in the UK has reflected these lessons in its design and objectives. **The Government has retained these core features of an absolute commitment to medium-term price stability and flexibility in the remit for the MPC set at Budget 2013.**

1.49 This chapter has also reviewed the performance of the UK's flexible inflation targeting framework. The two decades since inflation targeting was introduced in the UK have seen low and stable inflation and anchored inflation expectations. Output growth was also relatively stable in the 15 years to 2008, but this proved to be unsustainable, and stability was brought to an abrupt end by the global financial crisis and recession of 2008-09. The main criticism of the pre-crisis period is that policy makers failed to take into account financial imbalances that were building in the economy, although this was not a failure in inflation targeting frameworks themselves. The Government has addressed this issue by introducing a new framework for macro-prudential regulation. **The remit for the MPC set at Budget 2013 clarifies the consideration that, in some circumstances, may be given to financial imbalances and requires that the MPC should have regard to the policy actions of the FPC.**

⁵⁰ *What can the oil futures curve tell us about the outlook for oil prices?* Bank of England, Quarterly Bulletin, 2012 Q1.

2

Monetary policy frameworks

2.1 The challenges posed by slower-than-forecast recovery from the deep recession of 2008-09 have led to a debate about monetary policy frameworks and the instruments used to meet monetary policy objectives. This chapter considers frameworks and Chapter 3 discusses instruments.

2.2 A key question has been how to deliver sufficient monetary stimulus when conventional interest rate tools have reached their effective lower bound. In the UK context, above-target inflation has also prompted some to question not whether there is sufficient stimulus, but whether monetary policy has been too flexible in looking through temporary shocks to inflation and whether a stricter interpretation of the inflation target should be adopted. Given the widespread operation of flexible inflation targeting, others have focused on the operation and flexibilities permitted by such frameworks. Some have argued flexible inflation targeting may be too restrictive given the challenges posed by the post-crisis recovery period and have advocated shifting to alternative monetary frameworks. This chapter discusses strict inflation targeting, flexible inflation targeting and the main alternatives, including those related to the use of nominal GDP in frameworks.

Temporary or permanent frameworks

2.3 Before turning to a more detailed discussion of framework options, it is worth briefly considering questions around temporary or permanent frameworks. Given the exceptional nature, magnitude and persistence of shocks currently being experienced by advanced economies, some have argued there may be a case for a temporary change to monetary policy frameworks until sustained recovery has taken hold, or balance sheet adjustment has advanced further. Former MPC member Kate Barker has argued that in extreme circumstances, to respond to the present challenges faced by the UK economy, there could be benefits of a two-step approach: a temporary “exceptional” policy framework followed by a longer-term remit once those exceptional circumstances are judged to have passed.¹

2.4 Temporary changes could include use of more flexibility than would be consistent with current inflation targeting frameworks, for example raising inflation targets² or introducing other temporary targets designed to raise inflation expectations for a period.

2.5 The Government believes that temporary changes which depart from inflation targeting and adopt alternative targets could risk being interpreted by financial markets or the public as a permanent relaxation of the Government’s commitment to price stability, which could be costly to future growth and prosperity. For example, a temporarily higher inflation target may generate expectations that it would be raised again in future, undermining the credibility of the commitment to medium-term price stability. As Mark Carney has highlighted, “moving

¹ *Monetary policy regime change*, Credit Suisse Economics Research, 2013.

² There have been calls for this for example by *Rethinking Macroeconomic Policy*, Blanchard, IMF Staff Position note, 2010; and *US needs more inflation to speed recovery*, Rogoff, Bloomberg article, 2009.

opportunistically to a higher inflation target would risk de-anchoring inflation expectations...if inflation is both higher and more uncertain, a higher inflation risk premium might result".³

2.6 In the assessment of frameworks that follows, the three key principles of efficiency, credibility and accountability, outlined in Chapter 1, are relevant.

Strict inflation targeting

2.7 One option for a monetary policy framework would be to adopt strict inflation targeting. This would imply central banks would have no regard for minimising output variability or the growth consequences in their pursuit of price stability. In terms of their 'objective function', they would place zero weight on output variability. They would only be tasked with minimising the variability of inflation around the target. The Government believes strict inflation targeting would not be consistent with the MPC's statutory responsibilities, set out in the Bank of England Act 1998, to meet two objectives: to maintain price stability and, subject to that, to support the economic policy of the Government, including its objectives for growth and employment.

2.8 In recent UK context, strict inflation targeting would require a significant tightening of monetary policy to bring inflation back to target more quickly. As a number of MPC members have argued, that tightening would imply weaker growth and higher unemployment.⁴ Such tightening has not been undertaken as it would have been inconsistent with the balanced remit the Government has set the MPC, in line with the statutory objectives.

2.9 While a strict inflation targeting approach would make accountability simpler, it would not be efficient in achieving both objectives and, because of that, would ultimately not be credible. In particular, strict inflation targeting would lead to inefficient policy responses when the economy is hit by the types of shocks that require a short run trade-off between inflation and output stabilisation. A monetary policy framework that required policy to be tightened, perhaps sharply, when output was below potential and unemployment high would not retain public support and credibility. As such, while retaining a clear commitment to the medium-term price stability of a 2 per cent inflation target, the Government considers it appropriate that the UK's monetary policy framework should recognise the trade-offs that are necessary to ensure the economy can adjust efficiently to the significant ongoing post-crisis challenges.

Flexible inflation targeting

2.10 As set out above, optimal monetary policy involves trading off inflation variability around target with output variability around potential, with most central banks giving primacy to price stability. Flexible inflation targeting, unlike strict inflation targeting, provides a framework in which policy makers can make judgements about the appropriate balance of these trade-offs. This flexibility can take many forms, depending on the economic context facing policy makers at a given time. In order for this flexibility to be used effectively, it is essential to anchor medium-term expectations credibly to a low and stable rate of inflation.

2.11 The flexibilities that the discussion below focuses on include:

- policy horizon and deviations of inflation from target;

³ *Written answers to the Treasury Committee's questionnaire*, Carney, 2013.

⁴ For example, Mervyn King in oral evidence taken before the Treasury Committee, November 2011 *Inflation Report*, highlighted that taking action to bring down inflation "quickly to 2 per cent...would undoubtedly have meant rising unemployment and a deep recession." Charles Bean noted in a speech, *Quantitative easing and the economic outlook*, 2012 that "if we had chosen to run a substantially tighter monetary policy, then that would only have served to depress activity and raise unemployment even further." Paul Tucker has pointed out to the Treasury Committee, in oral evidence on the February 2012 *Inflation Report*, that "if we were not, and had not been, running an easing monetary policy for the last three years or so now, this economy would have been destroyed. We could be in ruination and we are not there, because of the measures that have been taken."

- target ranges; and
- alternative target measures of inflation.

2.12 An additional flexibility, also consistent with inflation targeting frameworks, includes the potential use of forward guidance, or future policy commitments, in order to affect private sector activity by conditioning expectations of future monetary policy. In particular, forward guidance could take the form of state-contingent intermediate thresholds, using quantitative measures of economic performance, or indicators. Because thresholds relate to the interpretation and achievement of the balance of inflation and output objectives in the short run, it could be a matter for consideration in a framework context, and, in the UK, specifically with respect to the remit for the MPC. However, as a form of communication, forward guidance is an instrument already at the disposal of inflation targeting central banks. The use of forward guidance by some central banks as an instrument of monetary policy is discussed in Chapter 3. Any potential use of explicit forward guidance including intermediate thresholds in the UK, which the Government believes to be a matter subject to the MPC's operational independence in setting policy, is also discussed in Chapter 3.

Policy horizon and deviations of inflation from target

2.13 A key flexibility in inflation targeting frameworks is the allowance for deviations from the inflation target in recognition of the trade-off with output variability in bringing inflation back to target. One source of flexibility available to central banks is the length of the policy horizon over which they aim to return inflation to target, which can be varied depending on the nature and persistence of shocks to the economy. The Bank of Canada has been active in using this flexibility. It typically aims to bring inflation back to target over a timeframe of six to eight quarters, but has varied this horizon between two and eleven quarters. Pertinent to some of the current challenges across advanced economies, it views the following circumstances as justification for a longer period to return inflation to target:⁵

- to address large and persistent shocks, for example an unusually large and persistent increase in oil prices, or the disinflationary consequences of a severe global slowdown, including the possible constraints of the effective lower bound on interest rates;
- to promote adjustments to financial excesses or credit crunches, for example to pre-emptively counteract the build up of financial imbalances or to facilitate broad-based deleveraging forces; and
- to accommodate evolving risks to the outlook given uncertainty about both those that have materialised and those that may yet occur.

2.14 The Reserve Bank of New Zealand has identified specific shocks that may result in deviations from the target, including: exceptional movements in global commodity prices; changes in indirect tax rates; and natural disasters.⁶

2.15 The US Federal Reserve's recent announcement of state-contingent forward guidance, discussed further in Chapter 3, provides an example of the trade-off between inflation and real economy objectives involving not just flexibility over the horizon, but also the possibility of overshooting within the trade-off. Specifically, with inflation in the US below target, the Federal Reserve signalled its willingness to trade off inflation moving slightly above target within its

⁵ *Renewal of the Inflation-Control Target*, Bank of Canada, 2011.

⁶ *Policy Targets Agreement*, Reserve Bank of New Zealand, 2012.

policy horizon in order to secure a greater reduction in unemployment. It has done so without altering its longer run inflation target of 2 per cent, which was adopted in January 2012.⁷

2.16 In the case of the MPC, the remit since 1997 has set the inflation target “at all times”, reflecting the primacy of the inflation target in the monetary policy framework. However, an important feature of the remit has been that the pursuit of the inflation target in the short run is not to be undertaken without regard for output variability. The remit has recognised that attempting to meet the inflation target at all times may cause “undesirable volatility in output”. This has enabled the MPC to make judgments on trading off inflation and output variability in the short term, while also ensuring price stability consistent with the inflation target in the medium term. One of the requirements of the open letters triggered by appreciable deviations of inflation from target, set out in remits between 1997 and 2012, has been that the MPC should set out the period over which inflation is expected to return to target.⁸ The MPC demonstrated use of the flexibility over the policy horizon in its decision and statement on 7 February 2013, as detailed more fully in the February 2013 *Inflation Report*.

2.17 The remit for the MPC set at Budget 2013 has been updated to clarify the trade-offs that are involved in setting monetary policy to meet a forward-looking inflation target. For clarity, the target “applies at all times”, as distinct from a requirement to be *met* at all times, because the latter could be mis-interpreted as strict inflation targeting with zero weight on the secondary objective, contradicting the flexibility to respond efficiently to shocks and disturbances that move inflation away from target. The MPC’s forward-looking policy decisions must be consistent with ensuring price stability in the medium term. The appropriate policy horizon is subject to the operational independence of the MPC.

2.18 The remit at Budget 2013 continues to be based on the recognition that the actual inflation rate will on occasion depart from its target as a result of shocks and disturbances. Such factors will typically move inflation away from target temporarily. Attempts to keep inflation at the inflation target in these circumstances may cause undesirable volatility in output due to the short-term trade-offs involved, and the MPC may therefore wish to allow inflation to deviate from the target temporarily.

2.19 Circumstances may also arise in which attempts to keep inflation at the inflation target could exacerbate the development of imbalances that the FPC may judge to represent a potential risk to financial stability. The FPC’s macro-prudential tools are the first line of defence against such risks, but in these circumstances the MPC may wish to allow inflation to deviate from the target temporarily, consistent with its need to have regard to the policy actions of the FPC.

2.20 The remit also clarifies the Government’s expectations of the MPC in respect to persistent as well as temporary “shocks and disturbances”. This is relevant at present since, for example, the Office for Budget Responsibility (OBR) and the IMF forecast output in the UK to remain below its potential level for at least five years.⁹ **The remit states that in exceptional circumstances, shocks to the economy may be particularly large or the effects of shocks may persist over an extended period, or both. In such circumstances, the MPC is likely to be faced with more significant trade-offs between the speed with which it aims to bring inflation back to target and the consideration that should be placed on the variability of output.**

⁷ *Statement of longer-run goals and policy strategy*, Federal Open Market Committee, 25 January 2012.

⁸ The first exchange of open letters was in April 2007. This and subsequent letters are published on HM Treasury and Bank of England websites.

⁹ *Economic and Fiscal Outlook*, Office for Budget Responsibility, March 2013 and *World Economic Outlook*, IMF, October 2012.

2.21 In the current exceptional circumstances that the remit recognises, efficiency of monetary policy requires greater flexibility as well as transparency and clear communication about the trade-offs involved. Central banks vary in their approach, including via forecast transparency. Table 2.A provides a summary of the features of the forecasts of a range of central banks. As the Stockton review notes *“there are as many differences as similarities in the forecast setups of the major central banks...that of course does not imply that those frameworks can or should be grafted onto different institutional and committee structures, which may offer other compelling advantages of their own...there is not one single model for forecast development and presentation that prevails among the major central banks”*. The Bank of England’s response to the Stockton Review was published in March 2013.¹⁰

Table 2.A: Central bank forecast variables

	CPI inflation	GDP growth	Components of growth	Unemployment	Output gap/Potential output	Narrower measure of inflation	Wages/Labour cost
Bank of England	Yes	Yes	No	No	No	No	No
Bank of Canada	Yes	Yes	Yes	No	Yes	Yes	No
European Central Bank	Yes	Yes	Yes	No	No	No	No
Norway Norges Bank	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Reserve Bank of New Zealand	Yes	Yes	Yes	Yes	Yes	No	Yes
Reserve Bank of Australia	Yes	Yes	No	No	No	Yes	No
Sweden Riksbank	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Swiss National Bank	Yes	No	No	No	No	No	No
Bank of Japan	No	Yes	No	No	No	Yes	No
US Federal Reserve	Yes	Yes	No	Yes	No	Yes	No

Source: Review of the Monetary Policy Committee’s Forecasting Capability, Stockton, 2012

2.22 The remit set at Budget 2013 also requires that in forming and communicating its judgements, the MPC should promote understanding of the trade-offs inherent in setting monetary policy to meet a forward-looking inflation target while giving due consideration to output volatility. The MPC should set out in its communication:

- the outlook for inflation and, if relevant, the reasons why inflation has moved away from the target or is expected to move away from the target;
- the policy action the Committee is taking in response;
- the horizon over which the Committee judges it is appropriate to return inflation to the target;

¹⁰ Response of the Bank of England to the Three Court-Commissioned Reviews, Presented to the Court of the Bank of England, March 2013

- the trade-off that has been made with regard to inflation and output variability in determining the scale and duration of any expected deviation of inflation from the target; and
- how this approach meets the Government's monetary policy objectives.

2.23 The Government believes that the open letter system established in 1997 provides a formal mechanism of transparency and accountability in the event of any appreciable deviations from target. The open letter system has therefore been retained in the remit set at Budget 2013, with the continued requirement for an exchange of open letters between the Governor of the Bank of England and the Chancellor of the Exchequer if inflation moves away from the target by more than 1 percentage point in either direction. **The remit now requires that the open letter from the Governor should be sent alongside the minutes of the MPC meeting that followed the publication of the CPI data and referring as necessary to the Bank's latest *Inflation Report* and forecasts, covering the same considerations set out above. The reason for publishing this letter alongside the minutes is to allow the MPC time to form and communicate its strategy towards returning inflation to the target after consideration of the trade-offs.** The Government believes that any future open letters will therefore result in a more meaningful exchange about the Committee's strategy than has been possible before now. As has been the case since 1997, the Governor is required to send a further letter after three months if inflation remains more than 1 percentage point above or below the target.

Target ranges

2.24 Some have argued that additional flexibility could be provided by adopting a target range for inflation, as operated in the UK in the early years of inflation targeting. Kate Barker has argued that a target range affords greater credibility in central bank communication. She highlights that in the current circumstances, if the MPC were to declare that it was targeting the top of a 1-3 per cent range it would maintain credibility whilst dampening any fears of a premature tightening in policy.¹¹ Determining the width of the target range would need careful judgment, factoring in how shocks or uncertainties might cause inflation to vary and how these might affect the monetary transmission mechanism. However a bigger question is what benefits a range would add over flexible inflation targeting that already recognises there will be deviations from a point target. The Reserve Bank of New Zealand used a 1-3 per cent target range for inflation before it also moved towards a point target in the middle of this range in September 2012. The Bank of Canada has also targeted the mid-point of a 1-3 per cent range since 1993. In the case of the UK, the Government believes the remit for the MPC has provided sufficient flexibility for deviations around the 2 per cent inflation target, with transparency and accountability promoted through the open letter system, as explained above.

Alternative target measures of inflation

2.25 Flexible inflation targeting can also permit flexibility over the target measures of inflation, either in terms of the target or the information considered in setting policy.

2.26 Central banks that target headline inflation measures also take into account the information provided by other measures of inflationary pressure, including narrower or core inflation measures and wage growth. Table 2.A above shows which central banks publish forecasts of such indicators.

¹¹ *Macroeconomic policy: too much autonomy and too little coordination*, Barker, New Centre Forum Research, 2012.

2.27 It would also be possible to express price stability targets to give primacy to such measures. There are a number of factors that research and experience have identified as potentially important in selecting an appropriate target measure to underpin price and broader macroeconomic stability:

- the degree to which a measure reflects changes in the cost of living and so the degree to which the measure of price stability reflects the public's experience and understanding of price stability;
- the sensitivity of the measure to the domestic business cycle and domestic sources of future inflationary pressure, in order that the measure sends an appropriate signal on risks to price stability;
- the susceptibility of the measure to idiosyncratic shocks, such as external price shocks or indirect tax or other policy changes, again in order to reduce the degree of noise in the signal on risks to price stability; and
- the speed with which the measure responds to changing economic circumstances, where prices that are adjusted infrequently can be associated with greater economic costs of adjustment to shocks.

Core inflation

2.28 Since the main impact of domestic monetary policy is on domestic inflationary pressures, and inflation driven by other factors might send misleading signals about underlying risks to price stability, some argue it could be appropriate to target a 'core' measure of inflation.

2.29 Most central banks do consider core inflation, but as one measure of underlying domestically-generated inflation to inform their broader assessment of inflationary pressures. It is not clear that when assessed relative to an appropriately flexible inflation targeting framework, a core inflation target would alter the ability of monetary policy makers to take a balanced approach to shocks that affect headline inflation but not core inflation. It is therefore not clear that such a change would improve the efficiency of monetary policy.

2.30 From a credibility perspective, headline inflation represents a better measure of the cost of living, which, at a time when 'non-core' prices such as food and energy have been rising in relative terms, could discredit a core measure of price stability, since a core inflation target could be met without households considering price stability to have been delivered.

2.31 Moreover, the split between prices that do or do not present a risk to medium-term price stability is not simple. In reality, the degree to which an oil price increase should be accommodated or offset by monetary policy depends on how well anchored medium-term inflation expectations are. This determines the extent to which the initial impact on prices feeds through to second-round effects on the prices of other goods and services and to wage-setting behaviour.

2.32 A practical challenge with targeting a core measure of inflation is the selection of the measure. There are a variety of statistical, econometric and subjective approaches available, all of which would potentially be subject to challenge. Even where a methodology aimed to be objective in weighting the prices to be included in the target, the choice of methodology itself would be subjective. Such questions may influence the credibility of the target, while accountability may be undermined if factors outside the core measure lead to adverse economic outcomes that policy makers could argue were beyond their responsibility.

2.33 The case for excluding certain items may also evolve over time. For example, in the UK at present, the effect of changing the balance between public spending and student loans in the

funding of university tuition will have a persistent impact on measured CPI inflation. A core inflation target might want to take that into account for the period of the temporary effect, but not exclude education-related prices permanently.

2.34 The Government does not consider there to be value in switching the inflation target to a narrower measure as the current framework allows the MPC to respond flexibly to all available information as appropriate. As highlighted in Chapter 1, the MPC has made clear, including in its decision on 7 February 2013, that, subject to domestic price and cost pressures remaining consistent with medium term price stability, it will look through the temporary, albeit protracted, period of above-target inflation. **The Government has confirmed in the remit set at Budget 2013 that the MPC's interpretation of the flexibilities provided by the remit is correct, and that these flexibilities are conditional on the MPC's judgement that the risks to meeting the 2 per cent inflation target in the medium term remain balanced.**

Nominal wage inflation

2.35 Some academics have advocated placing a greater emphasis on nominal wages when assessing price stability. As with core inflation, one of the key arguments is that it focuses more directly on domestically-generated inflation. In addition, wage inflation tends to be more persistent than price inflation, since price changes are typically more frequent. This is an argument in favour of targeting wage inflation, since it is the persistence of inflation that generates economic costs.¹²

2.36 One potential consequence of targeting wage inflation is that a credible target could inhibit the flexibility of nominal wages when the economy is hit by supply shocks. As a result, real wage adjustment could rely more heavily on the flexibility of prices. This would present at least two sources of risk. First, if it led to greater inflation volatility, it could generate higher inflation risk premia, which could have detrimental effects on investment decisions and growth. Second, if prices were insufficiently flexible, a greater burden of adjustment would be borne by employment. Furthermore, although inflation has recently been above target in the UK, largely due to supply shocks, wage growth has been muted, and below the pre-crisis trend. If policy makers had been tasked with targeting nominal wage inflation consistent with its pre-crisis trend, this would, other things equal, have resulted in higher inflation.

2.37 As with core inflation measures, the Government does not consider that a wage inflation target would add value over the current flexible inflation targeting framework, where the MPC is able to factor in developments in wage inflation when taking a balanced approach to setting policy.

Asset price inflation

2.38 Asset prices do not feature in CPI inflation measures as internationally-agreed principles require CPI measures to include only goods and services.¹³ Nonetheless, their role in macroeconomic stability is important, particularly alongside credit growth, as experience of the past decade has shown. Some have therefore called for target measures of inflation to include

¹² *What measure of inflation should a central bank target*, Mankiw and Reis, 2003, suggests that if a central bank wants to achieve maximum stability of economic activity then it should give substantial weight to the growth in nominal wages when monitoring inflation. *Optimal monetary policy with staggered wage and price contracts*, Erceg, Henderson & Levin, 2000, found that optimal monetary policy can be closely approximated by targeting the nominal wage. In a blog, *But which inflation*, Wren-Lewis, 2012, concludes that because wages are sticky, wage inflation will generate higher costs. For example if inflation occurs in commodities where prices are changed frequently, then it is much less costly than wage inflation, therefore wage inflation deserves more attention from policy makers.

¹³ *ILO consumer price index technical manual: theory and practice*, International Labour Organisation, 2004, explains that purchases of financial assets, such as bonds or shares, are excluded because financial assets are not goods or services of any kind and are not used to satisfy the personal needs or wants of household members. Financial transactions do not change wealth as one type of financial asset is simply exchanged for another type of financial asset.

asset prices, particularly house prices. Some research suggests that by taking asset prices into account, monetary policy can help identify imbalances and guard against unsustainable credit bubbles.¹⁴ However, as discussed in Chapter 1, the emerging international consensus is that macro-prudential policy is the most efficient means of managing the risks from fluctuations in asset prices and credit growth. This has reduced the calls for asset prices to feature in monetary policy targets.

2.39 Nevertheless, the case for monetary policy makers to take asset price movements into account, as opposed to formally including asset prices in their price stability objective, continues to be made. For example, the Bank of International Settlements has published research arguing that monetary policy in the current context should take into account the risks to asset prices associated with sustained policy easing. The MPC already takes asset prices into account when setting monetary policy, which can be seen in the assessments in its meeting minutes and *Inflation Reports*. It does so consistent with the implications of asset prices for medium-term price stability.

2.40 Central banks also take credit growth into account to varying degrees. For example, the ECB's two-pillar approach explicitly takes into account the development of both money and credit as sources of risk to price stability.¹⁵ The Bank of Canada has also issued a number of statements linking its monetary and macro-prudential policy stance to the evolution of credit growth and imbalances in the Canadian household sector.¹⁶

2.41 In the UK, the Office for National Statistics has introduced a measure of CPI inflation that includes housing costs, the CPIH, which was first published on 19 March 2013. CPIH includes a measure of the cost of housing services. This is a 'use-based' measure of the price of owning, living in and maintaining a property, appropriate to an index of consumer prices.¹⁷ It does not introduce asset price inflation into the CPI. The interim FPC, which is tasked with identifying and addressing wider economic imbalances, has indicated in its published 'core indicators', that it will monitor an index of residential and commercial property prices to rents.¹⁸ This is a measure for capturing the underlying value of assets.

Alternative frameworks

2.42 As set out in the preceding discussion, the practice of flexible inflation targeting over the past two decades has converged on headline consumer price inflation targets that allow independent central banks a degree of discretion in interpreting and responding to shocks affecting inflation and output. A number of alternative frameworks are possible and have been the subject of debate among commentators. This debate reflects the extended period over which monetary policy has been operating with conventional instruments – short-term policy interest rates – at the effective lower bound. Those frameworks include:

- a price level target;
- a nominal GDP growth target; and
- a nominal GDP level target.

¹⁴ *Asset Prices, Financial and Monetary Stability: Exploring the Nexus*, Borio and Lowe, Bank for International Settlements Working Paper, 2002.

¹⁵ *Monetary Policy in the Euro Area*, Issing et al, 2001.

¹⁶ See for example *Bank of Canada maintains overnight rate target at 1 per cent*, Press release, 6 March 2013

¹⁷ The ONS has stated that the CPIH is the most commonly used approach to measuring owner-occupied housing across OECD countries in a consumer price index, and is also more consistent with the UK's national accounts concept of imputed rents, which measures the value of dwelling services. See 'Consultation on: the recommended method of reflecting owner occupiers' housing costs in a new additional measure of consumer price inflation; and the strategy for Consumer Price statistics', ONS, June 2012.

¹⁸ Interim FPC draft Policy Statement, January 2013.

Price-level targeting

2.43 Unlike inflation targeting, price-level targeting would set a target path for a particular price index, for example the CPI. This path could be consistent with inflation averaging 2 per cent over time. The principal difference between inflation targeting and price-level targeting relates to the impact that past deviations from target have in setting policy.

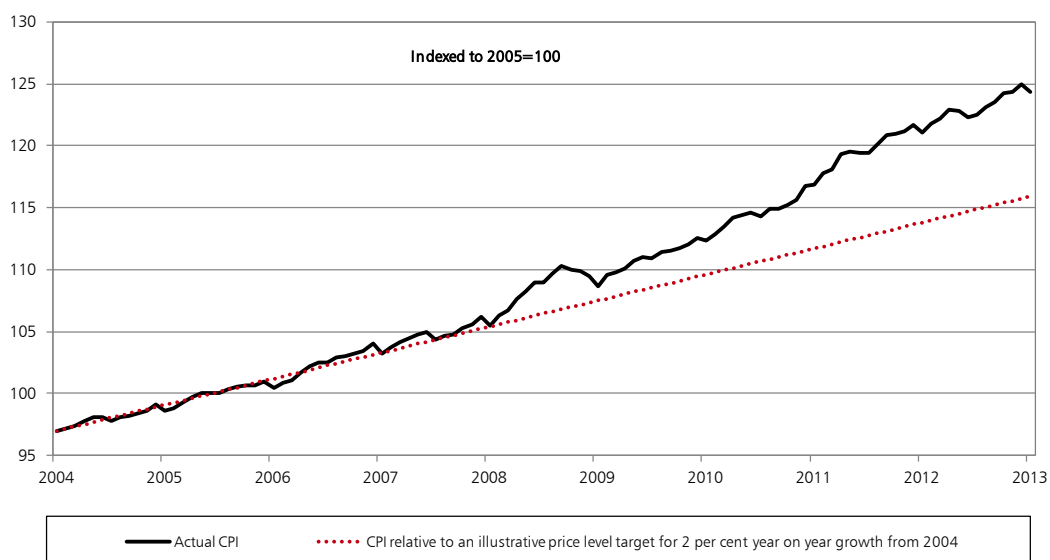
2.44 This is often described in terms of the treatment of 'bygones'. With inflation targeting, bygones are bygones and policy is set in a forward-looking manner to ensure that inflation remains at or returns to target. In contrast, with price-level targeting, bygones are relevant, as past deviations from the target path must be made up in the future. In an example where the target path rises at 2 per cent a year, if actual inflation in a given year were above 2 per cent, the policy maker would have to compensate for this with lower inflation in the future to bring the price index back to the target path (Chart 2.A). This is also known as 'history dependence' in the policy makers' policy decisions, which will affect inflation expectations in the wider economy as a form of forward guidance.

2.45 In terms of efficiency of monetary policy, there are both merits and drawbacks to price-level targets. One theoretical advantage is that history dependence could affect inflation expectations pre-emptively, such that real interest rates adjust automatically to offset the impact of demand shocks. This is considered particularly important at the effective lower bound and featured in the debate about Japan's attempts to overcome consumer price deflation.¹⁹

2.46 However, the same mechanism would amplify the impact of supply shocks. For example, a negative supply shock would push the price level above target at the same time as output is pushed below potential. Real interest rates would rise, tightening monetary conditions to bring the price index back to the target path, placing further downward pressure on output. This is particularly relevant to the UK's experience in recent years, where the combined effect of higher global oil prices, exchange rate depreciation, indirect tax changes and administered prices have pushed inflation above target for a sustained period. If the UK were currently operating a price-level target, monetary policy would need to be tightened at a time when output is judged by most forecasters, including the OBR, the Bank of England and the IMF, to be significantly below potential.

¹⁹ Studies that highlight these benefits at the zero lower bound include: *The Intertemporal Nature of Information Conveyed by the Price System*, Coulombe, 1998; *Pioneering Price Level Targeting: The Swedish Experience 1931–1937*, Berg & Jonung, 1998; *The Inflation-Targeting Debate. In: Issues in Inflation Targeting*, Mishkin, 2006; and *Price-level targeting and risk management in a low-inflation economy*, Billi, 2008. Studies that discuss price-level targeting in the context of Japan include *Escaping from a Liquidity Trap and Deflation: The Foolproof Way and Others*, Svensson, 2003, and *Deflation: Making Sure 'It' Doesn't Happen Here*, Bernanke, 2002.

Chart 2.A: CPI relative to an illustrative target allowing 2 per cent year on year growth



Source: Office for National Statistics (D7BT), Consumer Prices Index, January 2013 and HM Treasury

2.47 Research has suggested that another advantage of price-level targets could accrue from greater certainty over the path of prices.²⁰ The Bank of Canada developed a quantitative estimate of the potential benefit in terms of reduced price variability.²¹ The theoretical merits of price-level targeting depend on key assumptions about the determination of inflation expectations. For benefits to accrue, households and businesses must be forward-looking, must fully understand the regime and must consider it credible. A number of studies have suggested communicating price-level targeting may be more difficult than inflation targeting, and that this could affect whether these assumptions hold.²² Many households and businesses are likely to follow simple heuristics in forming their expectations.²³ The Bank of Canada concluded that *“realising the theoretical net benefits of price-level targeting would likely be challenging in practice.”* In particular, *“for price-level targeting to improve on inflation targeting, expectations must move in the ‘right’ way....if, for example, agents doubted the central bank’s willingness to cause substantial losses in output by tightening policy in order to reverse an upside surprise to the price level, expectations will not move as needed to produce the automatic stabilizing benefits of price-level targeting.”*²⁴

2.48 One practical consideration is that no central bank has explicitly used price-level targeting in the post-war period. Sweden briefly deployed a price-level target during the 1930s, which was introduced during a period of price deflation and was considered broadly successful in its operation.²⁵ Nicholas Crafts has argued that UK monetary policy during 1932 to 1935 effectively followed a price level target. Crafts highlights that the key to recovery both in the UK and the US

²⁰ Price Level Targeting vs. Inflation Targeting: A Free Lunch? Svensson, 1999 ; Price level versus inflation targeting, Vestin, 2006.

²¹ Price-level targeting and inflation expectations: experimental evidence, Bank of Canada , Working Paper, 2011.

²² Price-level targeting a real alternative to inflation targeting? Filacek et al, 2012; Price level targeting and inflation targeting: A review, Bauducco & Caputo, 2012.

²³ Monetary policy: Practice ahead of theory, King, Bank of England Quarterly Bulletin, 2005.

²⁴ Renewal of the Inflation-Control Target: Background Information, Bank of Canada, 2011

²⁵ Pioneering Price Level Targeting: The Swedish Experience 1931-1937, Berg and Jonung, 1998.

in the 1930s was the adoption of credible policies to raise the price level and in so doing to reduce real interest rates.²⁶ The relevance of these experiences is limited though as the 1930s was a period of falling prices in the UK and many advanced economies, unlike the current period.

2.49 For both theoretical and practical reasons, the Government does not believe price-level targeting would offer an improved monetary policy framework for the UK.

Nominal GDP targeting

2.50 Nominal income or GDP (NGDP) targeting goes a step further than inflation or price level targeting by capturing real activity as well as prices in the target measure itself. As such, it is likely to require a greater weight on output developments in the policy-setting process.

2.51 The concept of a nominal income targeting framework is an old one, with early advocates such as economist James Meade in 1978.²⁷ Since then, many other prominent economists have assessed the case for NGDP targeting.²⁸

2.52 As with inflation or price-level targeting, targets based on NGDP can also be set in either growth rate or levels terms, with the latter adding history dependence to the policy-setting process. Each is discussed in turn.

Nominal GDP growth targeting

2.53 It is argued that a key benefit of an NGDP growth target is that, while inflation and NGDP growth targets will tend to lead to the same policy response to demand shocks, NGDP growth targets could permit greater flexibility in the face of supply shocks. This is because supply shocks tend to move inflation and output in opposite directions. As NGDP approximates to the sum of inflation and output growth, the target would be consistent with allowing such temporary disturbances to work through in an efficient manner. If the second-round effects of the initial supply-shock threatened price stability, inflation and output growth would begin to move in the same direction as with demand shocks, requiring policy to be adjusted.

2.54 One drawback of an NGDP growth target is that if the real growth rate of the economy changes then prices must move by an equal amount but in the opposite direction to meet the target. If the change reflected a shift in the economy's growth potential, that would imply a permanent change in the steady-state rate of inflation. Such an arbitrary trade-off might present significant communication and credibility challenges, as the public would need to assess whether the split between output and inflation had changed, and whether the target would change in response if it were judged the potential growth rate had changed.²⁹ Some have argued that because a policy shock impacts output before inflation, targeting nominal income could generate instability.³⁰

2.55 Given the uncertainty about the precise split between inflation and output growth, it is likely that inflation expectations would be less well anchored by an NGDP growth target than by

²⁶ *Delivering growth while reducing deficits*, Crafts, 2011.

²⁷ *The Meaning of Internal Balance*, Meade, 1978.

²⁸ For example, *Targeting nominal income: An appraisal*, Bean, 1983; *The Use of a Monetary Aggregate to Target Nominal GDP*, Feldstein and Stock, 1994; *Nominal inflation targeting*, Hall and Mankiw, 1994; *Nominal Income Targeting in an Open-Economy Optimizing Model*, McCallum and Nelson, 1998; *Stabilization policy ten years after*, Tobin, 1980; *Stagflation: Demand Management*, Meade et al, 1983; *Macroeconomic Policy: Inflation, Wealth and the Exchange Rate*, Weale et al, 1989.

²⁹ Oral evidence taken before the Treasury Committee, Carney, 2013. *Nominal income targets: an old wine in a new bottle*, Bean, 2013, also notes that the NGDP target should change if potential output growth changes.

³⁰ *Time to Move to Nominal Income Targeting?* Chadha, 2013, Written evidence submitted to Treasury Committee, Appointment of Dr Mark Carney as Governor of the Bank of England.

an inflation target. As discussed below, any move to a different monetary framework would carry the risk of de-anchoring inflation expectations. Some have argued that, if phased in gradually, central banks can move to an NGDP target without de-anchoring inflation expectations,³¹ though this is untested.

2.56 Charles Goodhart, a former member of the MPC, has highlighted that it is possible there could be overestimation of the sustainable rate of real growth, which could force the MPC to have to aim for a significantly higher rate of inflation.³²

2.57 A further challenge is that the GDP deflator component of the target is a broad measure of inflation in the economy and is therefore not fully aligned with the expenditure patterns of households. As such even if the target is met, it is unclear how it will impact households' experience of price stability.

2.58 Data revisions and timeliness represent significant challenges to NGDP targeting that could reduce the efficiency, credibility and accountability of its practical application. The lags in data publication mean that an initial estimate of NGDP growth in a quarter is only available around eight weeks after the quarter has ended. For example, the 2012 Q4 estimate was first published on 27 February 2013. When first published, the estimate would be based on around 60 per cent actual data with ONS estimates and forecasts completing the picture.³³ Over time, estimates are subject to frequent and sometimes substantial revisions. From the perspective of ensuring accountability, having a target measure that is both relatively timely and unlikely to be revised holds considerable advantages. Between 1993Q1 and 2009Q4, the absolute average revision to four-quarter growth of nominal GDP was 1 percentage point.³⁴

2.59 To date, no central bank has formally pursued an NGDP growth target, which means there is no precedent to follow. Choosing an appropriate NGDP growth target would require selecting the appropriate growth rate. An obvious starting point would be an estimate of trend real output growth plus existing inflation targets. The OBR's latest estimates of potential output in the UK are set out in the March 2013 *Economic and Fiscal Outlook*.

2.60 The lack of historical precedent may reflect the relatively small differences between such a target and the flexible approach to inflation targeting that has evolved over the past two decades. On occasion, the benefits of NGDP growth targets are set out relative to strict inflation targeting, setting up a false dichotomy. Charles Bean has argued that *"the Bank of England and many other central banks pursue an inflation target rather than a nominal income target but in a flexible fashion so as to avoid generating undue volatility in output in the face of cost shocks. But in doing so, they come closer to what Meade was aiming for [in his 1978 paper] in his advocacy of a target for nominal income."*³⁵

2.61 To be credible, any target needs to be easily understood by the public. Charles Goodhart has argued that an NGDP target is far less transparent than prices for the public to understand.³⁶ This relates to the importance of any nominal anchor in forming the basis of private sector expectations, and therefore efficient, credible and accountable monetary policy, as explained in Chapter 1.

³¹ *Nominal GDP targeting*, Frankel, VoxEU blog, 2012.

³² *Monetary targetry: possible changes under Carney*, Goodhart, Morgan Stanley, 2013.

³³ *Early estimates of GDP: information content and forecasting methods*, Skipper, 2005.

³⁴ Revisions to nominal GDP growth (quarter on corresponding quarter of previous year) from the preliminary estimate to the estimate at the time of Blue Book 2012. The data is available from the Bank of England's Gross Domestic Product Real-Time Database.

³⁵ *'The Meaning of Internal Balance' thirty years on*, Bean, 2009.

³⁶ *Monetary targetry: possible changes under Carney*, Goodhart Morgan Stanley, 2013.

2.62 The Government believes that appropriately flexible inflation targeting provides sufficient scope for monetary policy to respond efficiently to demand and supply shocks, including the large shocks with persistent effects that the UK economy has experienced since the global financial crisis. As such, it does not consider the potential practical drawbacks of NGDP growth rate targeting to be worth risking in the current environment.

Nominal GDP level targeting

2.63 In response to post-crisis economic challenges, a number of academics and commentators have argued that central banks should be tasked with restoring the level of NGDP to its pre-crisis trend. In theory, committing to do so could raise expected inflation over the short and medium term. As explained by US academic Michael Woodford, where the policy intention is signalled through the expected path of short-term interest rates, this is linked by arbitrage relations to other variables that affect peoples' spending, investment, hiring and price-setting decisions, including longer-term interest rates, the exchange rate and asset prices. If the private sector expects higher real income or inflation in the future, this would create incentives for greater real expenditure and larger price increases now.³⁷

2.64 As discussed above, it is crucial that the public understand and believe in an NGDP level targeting framework for its theoretical advantages to accrue in practice. Some, such as Woodford, have argued that in circumstances with large gaps of economic variables from a desired level, such a policy could be more credible and easier to understand, but this is untested.

2.65 In the current post-crisis period, some argue that an NGDP level target set in terms of the pre-crisis trend in NGDP could better facilitate post-crisis deleveraging if it were successful in returning nominal incomes to the level expected when the liabilities were incurred. It is argued this could also help to bring spare capacity back into productive use more quickly.

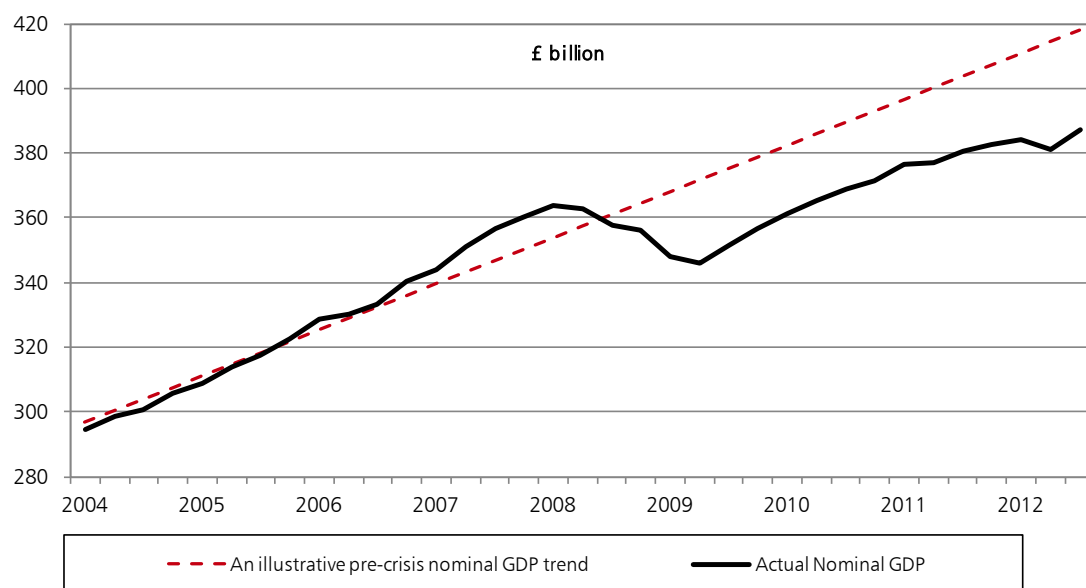
2.66 Against this, a number of commentators have argued that since the shortfall in NGDP relative to its pre-crisis trend is largely due to output having fallen below its pre-crisis trend, not inflation, an NGDP level target that aims to catch up could generate high inflation and a permanently higher price level (Chart 2.B). That could bring a number of risks, including to medium-term inflation expectations and price stability. Unanticipated inflation would lead to an unexpected redistribution of wealth from creditors to debtors. It could lead to an increase in the inflation risk component of longer term interest rates, as creditors would want to protect themselves against the risk that future shortfalls in NGDP would be eroded by higher inflation.³⁸

2.67 As noted above, data timeliness and revisions represent a practical challenge to NGDP targeting. For a level target, that challenge could be greater since major methodological changes to the National Accounts can lead to substantial revisions to the level of NGDP. Setting a levels target introduces an additional challenge of deciding when in history the level was appropriate to provide a starting point for the target path. One option would be a point in history at which the economy was judged to be operating close to its trend level, but that is not simple to estimate. Given the unsustainable trends exposed in the UK economy as the crisis hit, it is very unlikely that a continuation of the pre-crisis trend for the end-2007 peak would be appropriate.

³⁷ *Methods of Policy Accommodation at the Interest-Rate Lower Bound*, Woodford, 2012.

³⁸ For example, see *Professor Woodford and the Fed*, Davies et al, Fulcrum Research Papers, 2012.

Chart 2.B: Nominal GDP relative to an illustrative pre-crisis trend



Source: Office for National Statistics (YBHA), Second Estimate of GDP Q4 2012. Pre-crisis trend taken from 1997Q1 to 2007Q4.

2.68 An additional drawback is the potential for limited public understanding as outlined above, which could be even more acute for a level target. As Mark Carney has noted, “if a significant proportion of agents in the economy do not follow the rule, do not understand what the central bank is doing, effectively the main benefits of nominal level GDP targeting go away”.³⁹

2.69 The Government recognises that in a theoretical setting, NGDP level targeting can be shown to have merits as a monetary policy framework in exceptional circumstances such as at the effective lower bound, but considers the uncertainty over the real-world applicability of the assumptions underpinning these theoretical arguments to be significant drawbacks. In particular, the risks around the formation of expectations represent a major concern with inflation in the UK having been above target for much of the last four years. Given the UK’s historical challenges with high inflation, the implications of a level target set with respect to the pre-crisis trend – a trend the Government judges to have been clearly unsustainable – would be particularly risky. As such, the Government does not consider an NGDP level targeting framework would be appropriate for the UK.

Risks

2.70 The Government and the MPC are vigilant in guarding against potential risks to inflation expectations. Such risks are relevant to the discussion of alternative monetary policy frameworks. Frameworks that were perceived as being consistent with permanently higher inflation could lead to sharp changes in asset prices, particularly in the price of conventional bonds, and would risk inflation expectations overshooting.

2.71 These risks can be managed if credibility is maintained. The US Federal Reserve’s move in December 2012 to a numerical threshold on unemployment of 6.5 per cent (discussed further in

³⁹ Oral evidence taken before the Treasury Committee, Carney, 2013.

Chapter 3) did not destabilise financial markets, perhaps because it was consistent with its existing dual mandate, subject to its longer run target of 2 per cent inflation. It was also consistent with its existing published projection for unemployment.

2.72 Over the longer term, the credibility of monetary policy rests on the credibility of fiscal policy. This is because monetary policy is set taking fiscal policy as given, as highlighted by Charles Bean in 2009 and outlined in Chapter 1, and also because the credibility from sustainable government finances enables monetary policy to focus on price stability. In the UK, the credibility of the Government's fiscal strategy and its commitment to reducing the deficit, allows the MPC to keep Bank Rate lower than it would otherwise have been and to deliver additional monetary stimulus through 'quantitative easing' (QE).

2.73 An additional risk, under any monetary policy framework, is to financial stability. Both the UK's flexible inflation targeting framework and a number of alternatives imply that sustained periods of very loose monetary policy may be needed to support demand after a debt-driven crisis. In such circumstances, monetary policy will delay balance sheet adjustment to reduce the output costs of the adjustment, but could delay adjustment excessively and might also fuel asset price bubbles in some sectors or markets. This could present risks to future financial stability. The Government believes that macro-prudential policy, operated by the FPC, represents the first line of defence against such risks.⁴⁰ **To enhance coordination between monetary and macro-prudential policy, the remit for the MPC set at Budget 2013 requires it to, where appropriate, reflect, in any statements on its decisions, the minutes of its meetings and its *Inflation Reports*, how it has had regard to the policy actions of the FPC. In the same way, the Government will also ask the FPC to note in the records of its meetings, its policy statements and its *Financial Stability Reports* how it has had regard to the policy settings and forecasts of the MPC.**

Conclusion

2.74 This chapter has considered how different monetary policy frameworks can be used to achieve price stability. Most advanced economies currently follow different forms of flexible inflation targeting. This involves setting policy in order to minimise the variability of inflation around target and the variability of output around potential, requiring a balanced approach while preserving the primacy of medium-term price stability. The nature and degree of flexibility varies across countries. In certain circumstances, there can be some theoretical advantages to alternative monetary frameworks. But these alternatives also carry potentially significant drawbacks and risks in their practical operation.

2.75 An efficient monetary policy framework allows policy makers to achieve their goals in order to maximise social welfare. Flexible inflation targeting meets the principle of efficiency, since it allows policy makers to deliver price stability while also taking output into account. A similar approach could be taken with a price level target, for example by providing the MPC with some discretion over the horizon at which the price level is expected to be brought back to target. However, price level targets would imply that the MPC had less scope to accommodate supply shocks, and hence could lead to greater output variability than under a flexible inflation target. In considering the efficiency of alternative frameworks, it is important to note the role of instruments which are discussed in Chapter 3.

2.76 In terms of credibility, flexible inflation targeting provides a strong anchor that is maintained in the face of short-term or long-term shocks. Price level targeting could provide an even stronger long-term anchor in principle. However, it could face communication, and hence

⁴⁰ *The financial cycle and macroeconomics*, Borio, BIS working paper, 2013.

credibility, challenges surrounding the path for eliminating the gap to the level target. This is because the central bank would need to target inflation above or below its medium-term target for a period. NGDP based targets are likely to provide weaker anchors for inflation expectations, as the central bank and the public would need to take a view on the growth of potential output in order to estimate the implicit target rate of inflation. This would be likely to vary over time.

2.77 The principle of accountability can be delivered through a combination of the mandates or remits given to central banks and the institutional set-up for monitoring performance against their remit. In the UK, MPC minutes, policy statements, *Inflation Reports*, open letters and Treasury Committee appearances ensure the MPC is accountable to the public and to Parliament. These mechanisms would also apply to a framework that was based on nominal GDP or to a price level target as they have done for inflation targeting. However, in the case of nominal GDP based frameworks, monitoring performance could be complicated by data revisions.

2.78 In sum, an assessment of the framework options against important principles for policy making, suggests flexible inflation targeting allows for an appropriately balanced approach to setting monetary policy, while preserving the primacy of medium-term price stability. In doing so, it affords the benefits of certainty over medium-term inflation and flexibility to respond to short-term shocks while limiting some of the practical costs associated with NGDP-related framework options.

2.79 The Government believes that a flexible inflation targeting framework has served and will continue to serve the UK economy well. As such, **Budget 2013 sets a remit for the MPC which reaffirms an absolute commitment to price stability in the medium term, defined by a 2 per cent inflation target which applies at all times.** In line with other countries that conduct regular reviews,⁴¹ and **to ensure the UK monetary policy framework remains at the forefront of international best practice, the Government will undertake a further review before the end of 2019.** The Treasury will continue to set the remit for the MPC at least once every 12 months, as required by the Bank of England Act 1998.

⁴¹ For example, the Bank of Canada has conducted several reviews of its monetary policy framework, the most recent in 2011 when the Canadian Government and the Bank of Canada renewed the inflation targeting framework. See <http://www.bankofcanada.ca/monetary-policy-introduction/framework/inflation-control-target/>. In addition, the Reserve Bank of New Zealand also conducts periodic reviews when renewing its *Policy Targets Agreements*. See <http://www.rbnz.govt.nz/monpol/pta/index.html>.

3

Monetary policy instruments

3.1 For any monetary policy framework to be credible, policy makers must have effective instruments to meet their objectives. This chapter reviews the scope for central bank action, drawing on the wide variety of instruments deployed in the UK and internationally since the 2008-09 financial crisis. It also considers the governance issues that arise from the use of unconventional instruments, particularly the need for coordination between fiscal and monetary authorities where interventions involve credit risk for the central bank, and ultimately the taxpayer, or distributional choices over credit allocation.

Context

3.2 Monetary policy affects the real economy and inflation through several channels of a 'transmission mechanism'. In normal times, conventional monetary policy operates through changes in the policy short-term interest rate. Operationally, central banks conduct open market operations which influence money market interest rates and liquidity. These changes feed through to interest rates faced by households and firms, including rates on bank lending and deposits, affecting spending decisions and real activity. This is known as the interest rate channel of the mechanism. Other channels through which monetary policy can affect real activity and inflation include the exchange rate channel and the asset price channel.¹ Money markets, in which banks borrow short-term funds, are an important part of this transmission process. However, in the 2008-09 financial crisis, interbank money markets became severely impaired.

3.3 Since the crisis, many central banks have used conventional instruments to their full extent, lowering policy rates to their effective lower bound.² In the height of the crisis and in the subsequent slower-than-forecast recovery, central banks have needed to fill the policy gap between the effective lower bound and the desired looser policy setting by using unconventional monetary policy and other instruments.³

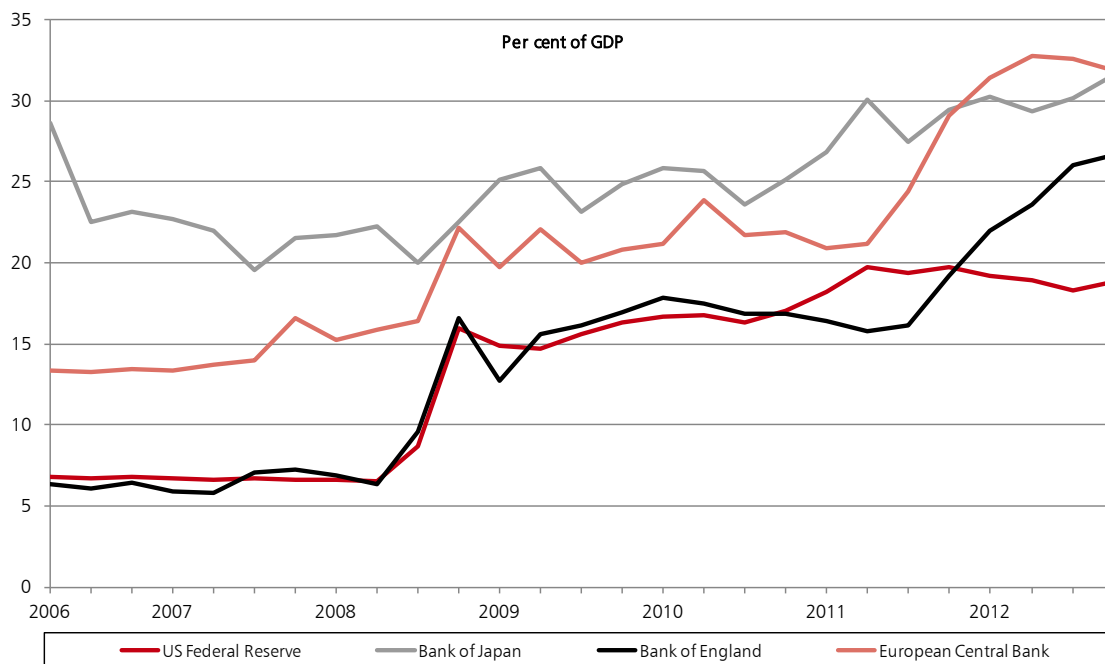
3.4 In line with lessons learnt from the monetary policy response to the Great Depression in the 1930s, and to a lesser extent the Japanese experience of the 1990s and 2000s, these conventional and unconventional monetary policy instruments have been deployed to prevent the risk of materially undershooting inflation targets and to support growth objectives. Monetary policy instruments have been implemented alongside other central bank interventions, including liquidity provision, and have remained exceptionally supportive for a considerable time. As a result, the balance sheets of major central banks have expanded significantly as shown in Chart 3.A.

¹ For more detail, see *How monetary policy works* on the Bank of England's website: <http://www.bankofengland.co.uk/monetarypolicy/Pages/how.aspx>

² The effective lower bound can be higher than the technical lower bound of zero due to financial stability concerns such as the potential profit margin squeeze for money markets or financial institutions (see *Methods of Policy Accommodation at the Interest-Rate Lower Bound*, Woodford, 2012; FOMC statement, August 2012, and MPC minutes of March 2009, September 2011 and November 2012.)

³ As explained in *A Painfully Slow Recovery for America's Workers: Causes, Implications, and the Federal Reserve's Response*, Janet Yellen, 2013, in the case of the FOMC: "Both of these approaches [asset purchases and forward guidance] are intended to address a gap caused by the effective lower bound. This gap is the shortfall between what the FOMC likely would do in current economic circumstances, were it able to reduce the federal funds rate below zero, and the reality that the rate can't be cut further."

Chart 3.A: Central bank balance sheet size

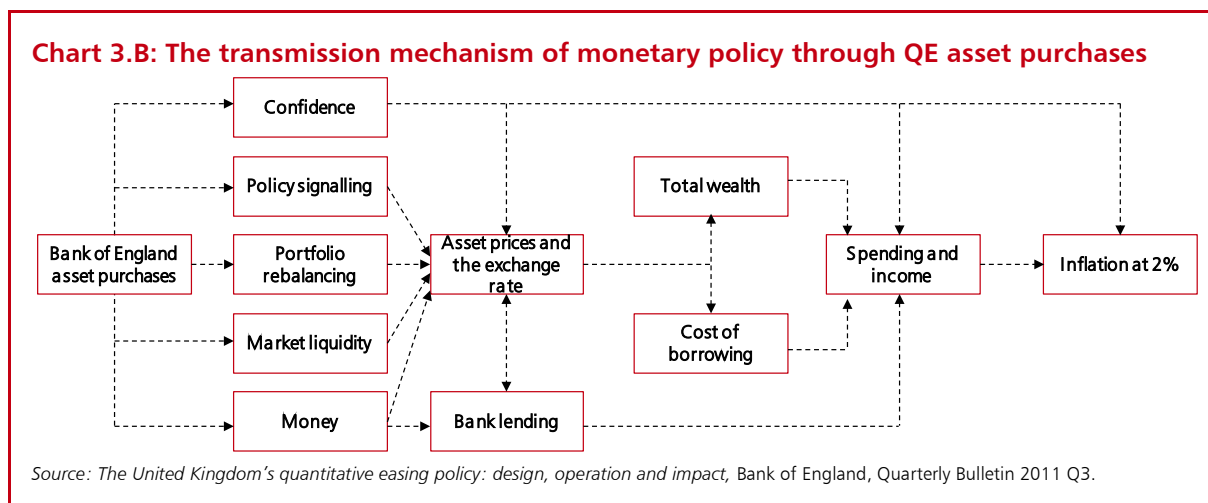


Source: Balance sheets expressed as a percentage of the rolling four-quarter sum of quarterly GDP, current market prices, national currency. Balance sheet data sourced from Bloomberg for the Federal Reserve (US.BNKBAL.22588 FED Index), Bank of Japan (JP.BNKBAL BOJ Index), Bank of England (GB.BNKBAL.10804 BOE Index) and the European Central Bank (EBBSTOTA Index). Nominal GDP data for the United States, Japan and the UK sourced from OECD (Quarterly National Accounts), Euro Area GDP data sourced from Eurostat.

3.5 In principle, central banks have unlimited scope to expand their balance sheets, creating central bank reserves with which to purchase assets or otherwise support nominal spending in pursuit of domestic monetary policy objectives. The choice of which unconventional instrument to deploy reflects an assessment of the costs and benefits associated with different instruments in different circumstances, particularly given any perceived impairment in the transmission mechanism. This mechanism is depicted in Chart 3.B using the example of the Bank of England's QE asset purchases.

3.6 The effects of unconventional instruments can be thought of as acting on three components of the financial conditions faced by households and firms: the risk-free interest rate (for example, gilt yields in the UK); the spread between the risk-free rate and effective rates paid or received (for example, corporate bond spreads); and, any quantity rationing that means for some borrowers credit is unavailable at any price (for example, the recent limited supply of high-LTV mortgages in the UK).⁴

⁴ This third factor reflects the spread between the observed interest rate and the 'shadow' interest rate, a price which takes into account the effect of quantity rationing when markets do not clear.



Central bank interventions since the 2008-09 financial crisis

3.7 Central banks have introduced a number of measures in response to the global financial crisis and the sovereign debt crisis in the euro area. The size, scope and focus of unconventional measures have differed across regions. This reflects in part the diverse nature of financial systems in which different central banks operate and the challenges faced by different economies. It also reflects central banks' own institutional structures and objectives. Table 3.A at the end of this section provides a summary of the main instruments that have been deployed by central banks in recent years.

Short-term interest rates

3.8 Instruments that have directly influenced market interest rates include the conventional short-term policy rate. Central banks have overnight facilities in which banks can borrow or deposit funds at rates linked to the main policy rate. The rates on these lending and deposit facilities act as upper and lower bounds, respectively, on overnight interest rates.⁵ Since central banks have lowered policy rates significantly, this has meant in some cases the interest rate banks receive for depositing funds overnight with the central bank has fallen to zero or below. For example, the ECB's overnight deposit rate has been zero since July 2012 and Sweden's Riksbank, after lowering the policy rate in 2009, set a negative overnight deposit rate for a period.⁶ In the ECB's case, this 'corridor' between the main policy rate and the lower deposit rate has operated in tandem with provision of essentially unlimited liquidity (see below). This has allowed market overnight interest rates to fall further than would normally be implied by the policy rate, to close to zero in the second half of 2012. Denmark's Nationalbank also lowered its main deposit rate for banks below zero in July 2012, with the aim of preserving its strict currency peg to the euro.⁷ These instruments aim to reduce the short-term risk-free interest rate.

Government bond purchases and long-term interest rates

3.9 Some interventions have been aimed at directly lowering longer-term risk-free interest rates in the economy. Examples include the Bank of England's gilt purchases via the Asset Purchase Facility (APF) and the Federal Reserve's large-scale asset purchases, in which it expanded its

⁵ The overnight rate will be within the lending and deposit rate since a bank in need of liquidity can always borrow funds from the central bank at the lending rate while a bank with surplus liquidity can always deposit this surplus at the central bank at the deposit rate.

⁶ The reduction in the policy rate in July 2009 to 0.25 per cent automatically resulted in a lowering of the overnight standing deposit rate to -0.25 per cent since the Riksbank maintains a corridor above and below its official rate on its overnight standing lending and deposit facilities respectively.

⁷ On July 5 2012, the Nationalbank cut its lending rate to 0.20 percent from 0.45 percent and lowered its certificates of deposit rate to negative 0.20 percent from 0.05 percent in order to curb the strength in the Danish currency.

holding of longer-term securities, and more recently the Maturity Extension Program (MEP) in which it sold shorter-term Treasury securities in the market and used the proceeds to buy longer-term securities. These measures have played the role of driving up longer-term bond prices and lowering longer-term yields. In putting downward pressure on longer-term risk-free interest rates, these actions are designed to contribute to a broad easing in financial market conditions and provide support for the economic recovery in the context of price stability objectives.

3.10 Government bond and other asset purchases financed by central bank reserves have worked through channels other than the banking system, by stimulating activity in the capital markets, including through the so-called 'portfolio rebalancing' channel. For example the Bank of England's gilt purchases have largely been from non-bank private sector institutions, including insurance companies and pension funds. These institutions have used the funds they receive when selling gilts to the Bank to invest in other, riskier assets such as corporate bonds and equities. Hence the Bank's demand for government bonds has a knock-on effect on the demand for other assets, which raises asset prices more generally. This increases the wealth of asset holders and reduces the cost of obtaining funding, thus boosting spending and increasing nominal demand.

3.11 The ECB has purchased assets through the Securities Markets Programme (SMP) to ensure depth and liquidity in those market segments which are dysfunctional.⁸ The ECB's more recent Outright Monetary Transactions (OMTs) programme provides a framework for intervening in secondary sovereign bond markets to safeguard appropriate monetary policy transmission.⁹ A necessary condition for the activation of OMTs includes the presence of an appropriate macroeconomic adjustment programme in the Member State in question.¹⁰

Private sector asset purchases and risk spreads

3.12 In some cases central banks have also concentrated on asset purchases targeted at certain sectors, based on an assessment of what would be most effective in stimulating the real economy. These purchases tend to reduce the spread between the yield on the purchased assets and the risk-free interest rate.

3.13 For example, the Federal Reserve's agency mortgage-backed securities purchases were aimed at providing support to mortgage and housing markets by putting downward pressure on long-term interest rates, in turn reducing the interest rate paid on long-term mortgages and making broader financial conditions more accommodative.¹¹ The Bank of Japan's Asset Purchase Program was introduced with the aim of encouraging a decline in longer-term market interest rates and a reduction in various risk spreads to further enhance monetary easing. It has purchased a wide range of private sector assets including commercial paper, corporate bonds, Exchange Traded Funds, and Japanese real estate investment trusts.¹² The Bank of England has purchased a small amount of private sector assets. Such purchases via the APF were intended to reinvigorate capital markets so they would function normally, thereby reducing liquidity risk

⁸ *Establishing a securities purchase programme*, Decision of the European Central Bank, 14 May 2010.

⁹ *Technical features of Outright Monetary Transactions*, European Central Bank press release, 6 September 2012.

¹⁰ With a view to leaving liquidity conditions unaffected by the SMP and OMT, the ECB re-absorbs the liquidity provided through measures. The impact of covered bond purchases is also fully taken into account for the calculation of the main refinancing operations benchmark allotment amount.

¹¹ *The Economic Recovery and Economic Policy*, Bernanke, 2012.

¹² *Toward Sustainable Growth with Price Stability*, Shirakawa, 2012.

premia in those markets.¹³ The ECB also adopted purchases of covered bonds to revive a market that serves as a key source of funding for euro area banks.¹⁴

Credit easing and the price and quantity of bank lending

3.14 Complementary interventions have been adopted to deliver stimulus through the banking system. For example, in the UK, the Bank of England, with the Treasury, launched the Funding for Lending Scheme (FLS) in July 2012 in order to reduce bank funding costs directly and provide a strong incentive to increase the availability of credit.¹⁵ By providing cheap access to funding for banks and building societies, the FLS reduces the cost of bank lending for the real economy as a whole. Moreover, as both the cost and quantity of available funding is a function of net lending, this provides a strong incentive for banks to increase net lending to UK households and non-financial businesses. UK banks' funding costs have fallen significantly, aided by the improved financial environment and the FLS. There is growing evidence that this is feeding into private sector credit conditions, particularly on the cost and availability of mortgage lending. The Bank of England expects there to be a gradual improvement in the flow of credit to businesses and households in the first half of the year.¹⁶ The Treasury and the Bank of England are now actively considering whether there are potential extensions to the scheme that will boost lending further.

3.15 The Bank of Japan launched a scheme in October 2012, broadly similar to the FLS, to incentivise banks directly to lend to the private sector. It announced that it will provide unlimited funding for up to four years corresponding to the net increase in banks' lending to businesses and households during one year from the start of the scheme. The scheme was launched with the view to promoting aggressive action by financial institutions and helping to increase proactive credit demand of firms and households.¹⁷

Liquidity provision

3.16 Liquidity tools have also been an important part of central bank responses. Central banks have always been able to provide liquidity insurance to the banking sector as the supplier of central bank money and the 'lender of last resort'. Liquidity tools have traditionally ensured financial institutions have the liquidity they need to operate within the monetary framework through open market operations. The crisis saw the use of liquidity tools expand to provide broader support to the banking system. The term and the collateral requirements of central bank lending operations became important determinants of monetary conditions and central banks expanded their permanent liquidity tools and introduced new temporary facilities.

3.17 In the UK, the Bank of England's Special Liquidity Scheme (SLS) was introduced in 2008 as an exceptional measure to reduce uncertainty about liquidity of the UK banking system when markets were impaired.¹⁸ The SLS has since closed. The Bank's permanent framework for liquidity insurance operates through its regular Indexed Long-Term Repos (ILTR), where participants are able to borrow against a wide and narrow set of collateral, and its bilateral Discount Window Facility (DWF) for idiosyncratic shocks. The Extended Collateral Term Repo (ECTR) facility is a contingency liquidity facility that the Bank activated in response to market-wide stress of an

¹³ This was outlined in the then Chancellor, Alistair Darling's, letter to the Governor of the Bank of England on 29 January 2009. Eligible sterling assets for purchase include: paper issued under the Credit Guarantee Scheme, corporate bonds, commercial paper, syndicated loans and asset-backed securities created in viable securitisation structures.

¹⁴ See *Purchase Programme for Covered Bonds*, ECB Press Release, 4 June 2009; and *ECB announces details of its new covered bond purchase programme (CBPP2)*, ECB Press Release, 3 November 2011.

¹⁵ *Bank of England and HM Treasury announce launch of Funding for Lending Scheme*, News Release, 13 July 2012.

¹⁶ *Bank of England February 2013 Inflation Report*

¹⁷ *Enhancement of monetary easing*, Bank of Japan, 30 October 2012.

¹⁸ *The Bank of England announces the Special Liquidity Scheme*, News Release, 21 April 2008.

exceptional nature. The ECTR facility enables the Bank to undertake operations against a much wider range of collateral than is eligible in the ILTR operations.¹⁹

3.18 The ECB also introduced a range of measures described as Enhanced Credit Support to “enhance the flow of credit above and beyond what could be achieved through policy interest rate reductions alone.”²⁰ These included a change in its approach to its regular refinancing operations in order to offer unlimited liquidity at a fixed rate against eligible collateral. This has enabled banks to maintain access to liquidity at a time when normal bank funding markets had become impaired. The ECB also widened the collateral eligible for use in these operations, and lengthened maturities on offer, initially via three 1-year ‘Longer-Term Refinancing Operations’ (LTROs) in June, September and December 2009, and then in two separate three-year operations taking place in December 2011 and February 2012.²¹

Exchange rates

3.19 Domestic monetary policy decisions taken in pursuit of domestic price stability objectives can, as a by-product, affect the value of currencies, which are determined by financial markets. But some central banks have intervened in currency markets with the express objective of influencing exchange rates. The Swiss National Bank (SNB) announced in September 2011 that it would maintain a minimum exchange rate of 1.20 Swiss francs per euro through unlimited foreign currency purchases. This was because the SNB considered the “massive overvaluation of the Swiss Franc poses an acute threat to the Swiss economy and carries the risk of a deflationary development”.²²

3.20 In addition, a number of central banks have communicated a willingness to intervene in currency markets should they consider it necessary. For example, the Reserve Bank of New Zealand (RBNZ) indicated in October 2012 and again in February 2013 that it would use foreign currency intervention to lower its exchange rate, provided that certain criteria, including whether the exchange rate is exceptional relative to historical values, are met and that it could be done without damaging price and financial stability. Graeme Wheeler, Governor of the Reserve Bank of New Zealand has said that the RBNZ “is prepared to intervene to influence the [New Zealand dollar]. But given the strength of recent capital flows, we can only attempt to smooth the peaks of the exchange rate; we cannot determine the level”. This announcement recognised that foreign currency intervention is unlikely to have a sustainable effect on the New Zealand dollar, and that it can only attempt to “smooth the peaks”.²³

3.21 Major central banks have committed not to target exchange rates. The G7 Finance Ministers and Central Bank Governors stated on 12 February 2013 that “fiscal and monetary policies have been and will remain oriented towards meeting our respective domestic objectives using domestic instruments and that we will not target exchange rates”.²⁴ The G20 Finance Ministers and Central Bank Governors also committed on 15-16 February 2013 “to refrain from competitive devaluation” and stated that “we will not target our exchange rates for competitive purposes, will resist all forms of protectionism and keep our markets open”.²⁵

¹⁹ These facilities are described in more detail on the Bank of England’s website under the Sterling Monetary Framework Operations: <http://www.bankofengland.co.uk/markets/Pages/money/default.aspx>

²⁰ *The ECB’s enhanced credit support*, Speech by Trichet, 2009.

²¹ *ECB announces measures to support bank lending and money market activity*, News release, 8 December 2011.

²² *Swiss National Bank sets minimum exchange rate at CHF 1.20 per euro*, News release, 6 September 2011.

²³ Speeches by Reserve Bank of New Zealand Governor Wheeler: *Central banking in a post-crisis world*, October 2012, and *Manufacturing decline not just a dollar story*, February 2012.

²⁴ Statement by the G7 Finance Ministers and Central Bank Governors, 12 February 2013.

²⁵ Communiqué, Meeting of Finance Ministers and Central Bank Governors Moscow, 15-16 February 2013.

Communication including forward guidance and intermediate thresholds

3.22 Central banks have also made greater use of forward guidance, a form of communication, to manage expectations of future monetary policy. In the present context, forward guidance can be used to bolster the monetary policy transmission mechanism by reducing longer term interest rates and raising the price of financial assets.

3.23 Forward guidance can be revealing or confirming.²⁶ Revealing guidance influences private sector expectations of monetary conditions by telling market participants something of which they had not previously been aware. For example, a central bank may want to signal that it is prepared to depart temporarily from its usual reaction function in order to provide more of a monetary stimulus than would otherwise have been the case. Confirming guidance may be used to clarify the central bank's existing reaction function, thereby strengthening market participants' expectations of future monetary conditions.

3.24 As a form of communication, forward guidance within inflation targeting frameworks can take a number of forms, including the use of advance signals in speeches,²⁷ forecasts of the policy interest rate, conditional policy commitments based on future dates ('time-contingent') or future economic conditions ('state-contingent'), which can be further defined through quantitative measures of economic performance or intermediate thresholds.

3.25 The Bank of Canada provided an early example of deploying forward guidance in response to the 2008-09 financial crisis. In April 2009, it announced a conditional commitment to keep the policy rate unchanged until the end of the second quarter of 2010, contingent on the outlook for inflation. The purpose was *"to provide more explicit guidance than is usual regarding its future path so as to influence rates at longer maturities"*.²⁸ As Mark Carney has explained, this approach was useful in Canada *"because market expectations at the time were for a sharper increase in interest rates sooner than were our expectations"*. In the end, the conditionality was invoked and the policy rate increased earlier than originally committed.²⁹

3.26 The Federal Reserve has taken a series of steps towards stronger forms of forward guidance within its flexible inflation targeting framework.³⁰ It used time-contingent guidance from December 2008, stating that it would maintain a low policy interest rate *"for some time"*. This progressed in March 2009, to a commitment to maintain a low rate *"for an extended period"*. From August 2011, it began to use a date-specific approach, committing to maintain a low rate *"at least through mid-2013"*, pushing this date out further to mid-2015 by September 2012. As described by Janet Yellen, Vice Chair of the Federal Reserve Board of Governors, a date-based approach in central bank communication gives useful information about when *"lift-off"* might be warranted in future. Such guidance may be especially potent when short-term policy interest rate is close to its effective lower bound.³¹

²⁶ See for example, *Macroeconomic Effects of FOMC Forward Guidance*, Campbell et al, March 2012

²⁷ See for example, *ECB Credibility and Transparency*, Geraats, 2008, which highlights that former ECB President Jean-Claude Trichet developed a traffic-light system of code-word communication for example 'strong vigilance', which signalled an imminent rate change. In this way, financial markets managed "to predict the ECB's next policy move without really understanding its monetary policymaking."

²⁸ Bank of Canada announcement, 21 April 2009

²⁹ Oral evidence taken before the Treasury Committee, Carney, 2013. He explained that "in part because of the response of households and businesses to the commitment, we ended up raising interest rates sooner than we had said, because we had made our commitment conditional on the outlook for inflation. Our view was that if we kept it on, by the time we came to the spring of the following year, of 2010, we would run a risk on inflation."

³⁰ Prior to the recent financial crisis, the Federal Reserve, used a loose form of time-based forward guidance, for example between August and November 2003, promising to maintain low interest rates "for a considerable period" in order to address concerns over deflation. In January and March 2004 it indicated it would "be patient in removing its policy accommodation" and in May 2004 began to signal its intention to increase interest rates "at a pace that is likely to be measured", continuing such forward guidance until December 2005.

³¹ *Revolution and evolution in central bank communications*, Yellen, 2012.

3.27 The Federal Reserve has since shifted from time-contingent to state-contingent forward guidance. It tied the continuation of asset purchases to the labour market outlook in September 2012. In December 2012, it went further in adopting a numerical threshold for the unemployment rate, of 6.5 per cent, above which it will continue to maintain low interest rates, subject to an inflation threshold. It was argued that the thresholds are consistent with the Federal Reserve's earlier date-based guidance.³² These numerical thresholds built on those suggested by Charles Evans, President of the Chicago Federal Reserve, in 2011.³³

3.28 An essential element of the Federal Reserve's labour market-related thresholds is that they are 'conditional' commitments, constrained by the "context of price stability". The Federal Open Market Committee's (FOMC) statement in December 2012 states that the commitment to maintain low interest rates is "so long as...inflation between one and two years ahead is projected to be no more than a half percentage point above the Committee's 2 per cent longer-run goal, and longer-term inflation expectations continue to be well anchored."

3.29 Janet Yellen argued that such a threshold approach:

"would enable the public to immediately adjust its expectations concerning the timing of lift off in response to new information affecting the economic outlook. This market response would serve as a kind of automatic stabilizer for the economy: information suggesting a weaker outlook would automatically induce market participants to push out the anticipated date of tightening and vice versa.

*Perhaps more importantly, the use of inflation and unemployment thresholds would help the public understand whether a shift in the calendar date, assuming that one is still included in the statement, reflects a change in the Committee's outlook or, alternatively, a change in its view concerning the appropriate degree of accommodation. Since monetary policy works in large part through the public's perceptions of the FOMC's systematic behaviour, this distinction is critical."*³⁴

3.30 Potential indicators that might function as thresholds for state-contingent guidance, aside from the unemployment rate used by the Federal Reserve, include the output gap, real GDP and nominal GDP. To be efficient, any indicator would need to have some relation to the objectives of monetary policy. To be credible and accountable, a threshold would need to be understood and verifiable. As such there is likely to be a trade-off in any choice of indicator for a threshold.

3.31 Academic and central bank research into forward guidance finds more evidence of effectiveness of the stronger forms of guidance, either revealing or confirming, compared with the approach of publishing forecasts of the policy interest rate, which had been the most common pre-crisis form of guidance, for example in New Zealand, Norway and Sweden (Box 3.A).

³² FOMC Statements, September and December 2012.

³³ *The Fed's Dual Mandate Responsibilities and Challenges Facing U.S. Monetary Policy*, Evans, 2011, suggested a 7 per cent unemployment rate threshold subject to a 3 per cent inflation cap.

³⁴ *Revolution and evolution in central bank communications*, Yellen, 2012.

Box 3.A: Empirical evidence on forward guidance

The evidence on forward guidance through forecasts of the path of policy rates, particularly those that are routine and repeated in each decision cycle, is mixed. Such projections could be viewed as following from the central bank's forecast of the economy's evolution, and unless markets believe this to contain superior information about the economic outlook, they may not provide additional news. For example, some research has found the benefits of publishing interest rate forecasts are minimal once macroeconomic forecasts are provided.^a A US Federal Reserve study of the policy rate forecasts of New Zealand, Norway, Sweden and the US, finds only limited impact on market participants' ability to forecast future short-term yields and no evidence of increased predictability of long-term yields.^b The study highlights that too much information on the policy path could be disruptive to financial markets, by causing herding behaviour and over-reaction to policy announcements.

Michael Woodford, in August 2012, summarised some of the empirical evidence based on various central banks' past practices. He highlighted that the Federal Reserve's announcements, including those with more forward guidance, shifted expectations about the future path of the policy rate. Changes in forecasts of the policy rate at longer horizons are found to be more important than changes in the current target rate.^c

Additional evidence of effectiveness of stronger forms of forward guidance lies in the market reaction to the Bank of Canada's April 2009 announcement. Woodford points out that the result was a flattening of the market interest rates curve, which persisted for several weeks and was not matched in related US forward rates at the time. As Mark Carney has explained, the approach worked *"because it was exceptional, explicit and anchored in a highly credible inflation-targeting framework [and] because we 'put our money where our mouths were' by extending the almost \$30 billion exceptional liquidity programs...for the duration of the conditional commitment."*^d

Woodford points to additional evidence, including surveys of professional forecasters; studies using interest-rate options; and studies on futures prices, which he argues confirm the effects of forward guidance. The effects were stronger with guidance that was more explicit and longer-horizon. Woodford suggests unconditional forward guidance may be theoretically more powerful, though this may be sensitive to certain assumptions. For example, if expectations are not formed in the assumed way, the benefits may not accrue to the same degree in practice.

Overall, forward guidance, including the Federal Reserve's most recent approach of deploying state-contingent intermediate thresholds, could be most powerful when market expectations appear uncertain about, or have misinterpreted, the central bank's expectations about future rates.

^a *The Relativity Theory Revisited: Is Publishing Interest Rate Forecasts Really So Valuable?* Brzoza-Brzezina and Kot, 2008.

^b *How Effective is Central Bank Forward Guidance?*, Kool and Thornton, Federal Reserve Bank of St. Louis, 2012.

^c *Methods of Policy Accommodation at the Interest-Rate Lower Bound*, Woodford, 2012.

^d *Written answers to the Treasury Committee's questionnaire*, Carney, 2013.

3.32 In the UK, the MPC issued a statement alongside its policy decision in February 2013, in which the Committee explained *"the appropriate policy response to the combination of the weakness in the economy and the prospect of a further prolonged period of above-target inflation"*. It stated that *"as long as domestic cost and price pressures remained consistent with*

*inflation returning to the target in the medium term, it was appropriate to look through the temporary, albeit protracted, period of above-target inflation”.*³⁵

3.33 The Government believes that use of forward guidance, as with any monetary policy instrument, would need to be consistent with ensuring medium-term price stability. **The Government considers any use of intermediate thresholds to be a matter subject to the MPC’s operational independence in setting policy, to be considered in these exceptional circumstances, as set out in the remit for the MPC at Budget 2013.** As noted above, any threshold and choice of indicator would involve a trade off and therefore require careful assessment. **The Government has requested that the MPC provide an assessment of such approaches to setting policy alongside its August 2013 *Inflation Report*. This assessment should consider the merits of the approach in general, and of specific indicators and thresholds.**

Money financing

3.34 In theory, central banks could go beyond the range of unconventional instruments deployed by central banks in advanced economies since the 2008-09 financial crisis. For example, it is theoretically possible for monetary authorities to finance fiscal deficits through the creation of money.³⁶ In theory, this could allow governments to increase spending or reduce taxation without raising corresponding financing from the private sector. Adair Turner, Chairman of the Financial Services Authority, has suggested this could be a tool to use in extreme circumstances.³⁷

3.35 Theory also highlights the risk that money financing can rapidly undermine the stability of inflation expectations. History provides examples where direct money financing of deficits has led to hyperinflation where commitment to price stability was lost. Policy makers need to maintain the credibility of their commitments to price stability and fiscal sustainability to manage such risks. In the EU, the Treaty on the Functioning of the European Union contains some prohibitions on the actions of central banks.

3.36 The Bank of England’s gilt purchases through the APF are undertaken in the secondary market, purchased from the private sector and the scale is determined by the MPC in order to meet their monetary policy objectives.

³⁵ *Bank of England maintains Bank Rate at 0.5% and the size of the Asset Purchase Programme at £375 billion*, News release, 7 February 2013.

³⁶ For example, *A Monetary and Fiscal Framework for Economic Stability*, Friedman 1948; and *Deflation: Making Sure “It” Doesn’t Happen Here*, Bernanke, 2002.

³⁷ *Debt, Money and Mephistopheles: How do we get out of this mess?*, Turner, 2013.

Table 3.A: Interventions across major central banks

	Direct interest rate tools	Asset Purchases		Supporting liquidity and credit provision	Exchange rates	Communication – forward guidance
		Financed by issuance of central bank reserves ^a				
		Untargeted	Targeted			
Bank of England ⁺	Short-term policy rate: Cut to 0.5 per cent in March 2009	✓	✓	Special Liquidity Scheme (now closed) Discount Window Facility Indexed Long-term Repo operations Extended Collateral Term Repo Funding for Lending Scheme		
Federal Reserve ⁺	Short-term policy rate : Cut to 0.0-0.25 per cent in December 2008. Long-term interest rate: Maturity extension programme	✓	✓	Money Market Investor Funding Facility Commercial Paper Funding Facility The Term Securities Lending Facility (all now closed)		Future interest rate policy contingent on quantitative thresholds, subject to longer run 2 per cent inflation target and anchored expectations Open-ended asset purchases conditional on a “substantial improvement” in labour market conditions
European Central Bank* ⁺	Short-term policy rate : Cut to 0.75 per cent in July 2012			✓ Securities Markets Programme Outright Monetary Transactions	‘Fixed Rate Full Allotment’ in Main Refinancing Operations and Longer-Term Refinancing Operations (LTRO) – 6 and 12 month Covered Bond Purchase Programme	

Bank of Japan ⁺	Short-term policy rate: at zero since the mid – 1990s	✓	✓		Fund–Provisioning Measure to Stimulate Bank Lending	Coordinated G7 intervention in international foreign exchange markets in 2011 and two unilateral yen/dollar interventions in 2012	
Bank of Canada ⁺	Short-term policy rate : Cut to 0.25 per cent in April 2009. Raised to 1.0 in September 2010						Commitment on future interest rate policy contingent on inflation outlook
Swiss National Bank ⁺	Short-term policy rate : Cut target range to 0.0-0.25 per cent					Minimum exchange rate versus euro through unlimited foreign currency purchases	
Reserve Bank of New Zealand ⁺	Short-term policy rate : Cut to 2.5 in March 2011					Lower exchange rate via foreign currency intervention rather than interest rates.	Published policy rate forecasts

Source: Respective central bank websites.

^a Outstanding amounts: Bank of England at 21 February 2013 – untargeted (£374.9bn); targeted including corporate bonds and secured commercial paper (£0.02bn); Federal Reserve at 20 February 2013 – untargeted (\$1.73trn); targeted including Federal agency debt securities and mortgage-backed securities (\$1.09trn); Bank of Japan at end January 2013 – untargeted (Yen 37.5trn); untargeted including commercial paper, corporate bonds, exchange traded funds, and Japanese real estate investment trusts (Yen 30trn).

* Deposit rate on commercial bank reserve balances cut to zero.

⁺ Liquidity swap lines between central banks.

Governance and accountability

3.37 The use of such unconventional instruments raises several governance and accountability considerations. For example, without the appropriate arrangements they risk blurring the line between monetary and fiscal responsibilities. This arises in two ways:

- First, unconventional instruments can involve credit risk for the central bank's balance sheet, which ultimately has implications for the tax payer, given that governments back the public sector balance sheet; and
- Second, targeted interventions can influence credit allocation, raising the issue of the appropriate role for a central bank in such decisions.

3.38 The boundary between, and hence credibility of, fiscal and monetary policy frameworks can be maintained by appropriate governance arrangements. For example, in the UK, the Treasury indemnifies the Bank of England for any potential future losses from assets it purchases to further its monetary policy objectives through the APF. The indemnity reflects the Bank of England's relatively small capital position compared with other central banks. Although the fiscal risks arising from the indemnity requires the Chancellor's authorisation for increases in the APF purchase ceiling and the eligibility of assets, the MPC retains full operational responsibility over its use as a monetary policy instrument.³⁸ In the US, rather than an explicit indemnity, the Federal Reserve's regular remittances of dividends to the US Treasury would be lower if it made losses on its asset purchases.³⁹ The boundary between fiscal and monetary authorities has also been maintained in the case of the FLS, where HM Treasury and Bank of England made clear when launching the Scheme that both authorities considered it to be a central bank operation which was complementary to other monetary policy instruments.⁴⁰

3.39 In considering the issues around credit allocation, it is worth noting that conventional short-term policy interest rates have distributional impacts, in particular between creditors and debtors. Use of this instrument has been delegated to independent central banks as part of their operational independence to deliver price stability. Delegation was considered appropriate given the benefit to society of time consistent and credible monetary policy setting, as set out in Chapter 1. In the UK, this was set out in May 1997 in the then Chancellor's letter to the then Governor of the Bank of England on the new monetary policy framework. The MPC continues to be accountable to Parliament, including for its operational independence over tools, through scrutiny by the Treasury Committee, for example following each of its quarterly *Inflation Reports*, as are other central banks to their parliaments.⁴¹

3.40 In order to reduce the risk that unconventional monetary policy is seen to blur the boundary between fiscal and monetary policy, it is important to be clear about the respective objectives and accountabilities of the government and central bank. It is also important that when a central bank uses an unconventional instrument, it communicates transparently the rationale for undertaking the action in relation to its monetary policy objectives.

³⁸ The Chancellor's letters to the Governor of the Bank of England on the Asset Purchase Facility on 29 January 2009 and 3 March 2009, clearly set out the purpose and operation of the facility and the delegation of the instrument of asset purchases financed by the issuance of central bank reserves to the MPC.

³⁹ Federal Reserve Statistical Release on 6 January 2011, 'Factors Affecting Reserve Balances'

⁴⁰ Exchange of letters between the Chancellor and the Governor of the Bank of England, 12 July 2012

⁴¹ Similarly, the Federal Reserve is required to report to Congress twice annually on their plans for monetary policy and to prepare an annual report, while the Chairman and Federal Reserve officials often testify before Congress. The Bank of Japan submits the Semiannual Report on Currency and Monetary Control to the Diet. The President of the ECB also appears quarterly in hearings before the European Parliament's Committee on Economic and Monetary Affairs.

3.41 There could be a role for the remit of the MPC to be used as a means of establishing clear principles, processes and potential measures of success when the need for unconventional instruments arises. This would build on the precedent of clarity around the APF which was set out in a separate exchange of published letters. Such an approach could increase transparency and accountability of the instruments, while also maintaining credibility in both the monetary and fiscal policy frameworks. For example, even where an explicit indemnity is not required, as in the case of the FLS, the remit could clarify the objectives, principles or operation of an instrument. The drawbacks of such an approach include the potential constraint on the MPC's ability to respond flexibly to unforeseen circumstances where it judges the need to act to meet its monetary policy objectives.

3.42 Questions about the balance of operational independence have also arisen in other countries. For example, there is a debate in the US about the credit risk taken on by the Federal Reserve. Similarly in the euro area there is a debate about the extent of the ECB's interventions in government bond markets, and about linking its facilities to assistance programmes.

3.43 Governance around the composition and voting system of the MPC is determined by the Bank of England Act 1998. The MPC is made up of the Governor and Deputy Governors, along with two members of the Bank Executive who are responsible for monetary policy analysis and monetary policy operations within the Bank, and four external members appointed by the Chancellor.⁴² As required by the Act, the MPC makes monetary policy decisions by a vote of all the members present at its monthly meetings.⁴³ In the event of a tie, the Governor has a second casting vote. As Mervyn King has argued, *"Over 15 years, the MPC has demonstrated that having a very clear voting system based on individual voting-which can lead to my being in a minority, occasionally-is a very effective way of making decisions. It is effective because there is a very clear instrument on which we vote...[this] has been a great strength of the MPC."*⁴⁴

Conclusion

3.44 This chapter has discussed how central banks have used a wider range of policy instruments to meet their objectives. There has been a significant degree of innovation, with unconventional instruments involving asset purchases, credit easing, liquidity provision and forward guidance. The varied approach across central banks reflects their judgements over the needs of individual economies and the institutional and governance architecture in which policy is set.

3.45 Ultimately, the judgments involved in the choice of instruments cover the benefits, costs and the balance of risks around their efficiency in stimulating activity by the appropriate degree to meet a given policy target, but not to over- or under-shoot and generate unnecessary economic volatility or risk losing policy credibility. Such judgements should include considerations about credit risk and credit allocation, and about managing exit without causing undue disruption to market functioning.

3.46 Given the ongoing exceptional economic challenges, central banks, including the Bank of England, are likely to continue to require the use of unconventional instruments. The policy setting using these instruments is a matter for the MPC's operational independence. **The remit for the MPC set at Budget 2013 clarifies that the development of unconventional instruments which involve interventions in specific markets or activities, with implications for credit risk or**

⁴² Section 13, Part 2.

⁴³ Section 11, Schedule 3.

⁴⁴ Oral evidence taken by the Treasury Committee, Bank of England May 2012 *Inflation Report*.

credit allocation, should include consideration with Government of appropriate governance and accountability arrangements.

3.47 Forward guidance through state-contingent intermediate thresholds can be considered an element of the monetary policy framework, as it relates to the balance between inflation and output objectives, or can be considered a monetary policy instrument. **The Government considers the use of intermediate thresholds within the UK's current flexible inflation targeting framework to be subject to the MPC's operational independence and, in the remit at Budget 2013, has requested that the MPC provide an assessment of such approaches in the August 2013 Inflation Report. This assessment should consider the merits of the approach in general, and of specific indicators and thresholds.**

4

Conclusion

4.1 This paper has reviewed the performance of the UK's flexible inflation targeting framework against the internationally-accepted monetary policy objective of price stability, which is an essential pre-requisite to longer-term growth and macroeconomic stability. Such a discussion is necessary given the economic challenges posed by the financial crisis of 2008-09, the slower-than-forecast recovery that followed it, and the fact that conventional short-term policy interest rates are at the effective lower bound.

4.2 Across the world, monetary frameworks based on flexible inflation targeting have evolved to ensure they offer flexibility to address these challenges. There are some theoretical merits in alternative monetary frameworks, but these come alongside important practical drawbacks and risks. The Government believes that relative to these alternatives, the flexible inflation targeting framework has served the UK economy well, and that the remit for the MPC set at Budget 2013 provides the most appropriate monetary policy framework for the UK.

4.3 Based on the lessons from recent macroeconomic history, the Government believes that low and stable medium-term inflation is a necessary, though not sufficient, pre-requisite for economic prosperity. The current juncture represents an important updating of the UK's macroeconomic policy frameworks. In order to identify and address systemic risks to financial stability, macro-prudential policy will be operated by the FPC on a permanent statutory basis from April 2013. In meeting the objectives of price stability and financial stability, coordination will be essential between the MPC and FPC.

4.4 The remit for the MPC set at Budget 2013 reflects the assessment set out in this review. The Government has:

- Retained a flexible inflation targeting framework for the UK, with a continued commitment to medium-term price stability at the core of this framework;
- Reaffirmed the inflation target of 2 per cent, as measured by the 12-month increase in the Consumer Prices Index. The target applies at all times, and is critical for the anchoring of inflation expectations;
- Clarified how the existing flexibilities in the remit should be interpreted:
 - the inflation target applies at all times, but the actual inflation rate may depart from its target as a result of shocks and disturbances, and the MPC may therefore wish to allow inflation to deviate from the target temporarily in order not to cause undesirable volatility in output;
 - in some circumstances, consideration may be given to financial imbalances and the remit requires that the MPC should have regard to the policy actions of the FPC;
 - in exceptional circumstances, where shocks are particularly large and with persistent effects, the MPC is likely to be faced with more significant trade-offs between the speed with which it aims to bring inflation back to target and the consideration that should be placed on the variability of output;

- the appropriate policy horizon over which the Committee expects inflation to return to target continues to be subject to the operational independence of the MPC; and
- the remit allows for a balanced approach to the objectives set out in the remit, while retaining the primacy of price stability and the inflation target.
- Required that in forming and communicating its judgements the MPC should promote understanding of the trade-offs inherent in setting monetary policy to meet a forward-looking inflation target while giving due consideration to output volatility. This is particularly important in exceptional circumstances such as those currently prevailing;
- Ensured that the MPC and the Government put in place appropriate governance arrangements in the development of new unconventional instruments which have implications for credit risk or credit allocation, to ensure accountability;
- Clarified that the Government considers any use of intermediate thresholds to be a matter subject to the MPC's operational independence in setting policy, to be considered in these exceptional circumstances. As such, the remit requests that the MPC provide its assessment of the merits of the use of intermediate thresholds in its August 2013 *Inflation Report*; and
- Intended that the policy frameworks for both the MPC and FPC should be coordinated.

4.5 The Government believes that this balanced, flexible and coordinated approach to monetary and macro-prudential policy frameworks will contribute to economic prosperity. Maintaining price and financial stability will give households, businesses and investors the confidence to plan and invest in a stable macroeconomic environment, contributing to sustained economic growth in the longer term. To ensure the UK's monetary policy framework remains at the forefront of international best practice, the Government will undertake a further review before the end of 2019.

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HM Treasury

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