OECD Economics Department Working Papers No. 857

Policy Frameworks in the Post-Crisis Environment

Nigel Pain,

Oliver Röhn

https://dx.doi.org/10.1787/5kgdpn1w9lkb-en

OECD

Unclassified **ECO/WKP(2011)26**

Organisation de Coopération et de Développement Économiques
Organisation for Economic Co-operation and Development **22-Apr-2011**

English - Or. English

ECONOMICS DEPARTMENT

ECO/WKP(2011)26
Unclassified

POLICY FRAMEWORKS IN THE POST-CRISIS ENVIRONMENT

ECONOMICS DEPARTMENT WORKING PAPER No. 857

By Nigel Pain and Oliver Röhn

JT03300587

English - Or. English

SUMMARY/RESUMÉ

Policy frameworks in the post-crisis environment

The financial crisis revealed flaws in pre-crisis policy frameworks. Particular gaps included the failure of monetary and financial policies to incorporate fully the implications of the rapid pro-cyclical growth in financial leverage and risk-taking, especially across national borders, and the failure of fiscal policy to create sufficient space for policy manoeuvre in event of a crisis. During the crisis, the clear pre-crisis assignments of policy instruments to objectives became blurred, and the effectiveness of separate policy instruments became increasingly interdependent. In the early stages of the exit from the crisis, policy decisions continue to be made in an environment of high uncertainty. In the near term, important policy priorities are to support the recovery, to keep projected inflation close to target and to pursue internationally co-ordinated financial and structural reforms to enhance financial market resilience and strengthen the prospects for macroeconomic stability. In the medium term, the priority is to ensure that the overall policy framework is more robust than prior to the crisis, which may also require institutional reforms. There are good arguments for restoring a clear assignment of policy instruments to policy objectives and policy institutions, but for this to occur it will be especially important that well-founded and internationally consistent reforms to financial regulation and supervision are put in place.

JEL classification: E52; E58; E62; G28; H12.

Keywords: Crisis; recovery; growth; financial market policy; monetary policy; fiscal policy.

Le cadre de la politique économique après la crise

La crise financière a révélé les failles des politiques économiques menées antérieurement. On peut citer en particulier l'incapacité des politiques monétaires et financières à intégrer pleinement les effets du rapide développement procyclique de l'effet de levier et de la prise de risques, y compris à l'échelle internationale; et aussi le fait que la politique budgétaire n'ait pas dégagé une marge suffisante pour pouvoir agir en cas de crise. Pendant la crise, l'affectation claire des instruments de politique aux objectifs s'est estompée et a fait place à une interdépendance croissante des différents instruments. Dans les premiers temps de la sortie de crise, on a continué à prendre des décisions entachées d'une grande incertitude. Dans le court terme, les priorités politiques essentielles sont de soutenir la reprise, maintenir l'anticipation d'inflation proche de l'objectif, ainsi qu'à procéder à des réformes financières et structurelles, coordonnées sur le plan international, qui renforcer la résistance des marchés financiers et améliorer les perspectives de stabilité macroéconomique. Á moyen terme, la priorité est de s'assurer que le cadre global de politique économique soit plus solide qu'avant la crise, ce qui pourrait aussi exiger des réformes institutionnelles. Il y a de bons arguments en faveur du retour à une affectation claire des instruments de politique aux objectifs et aux institutions ; mais cela sera conditionné par le lancement de réformes judicieuses et internationalement compatibles de la réglementation et de la supervision financières.

Classification JEL : E52 ; E58 ; E62 ; G28 ; H12.

Mots clés : La crise ; la reprise ; croissance ; la politique à l'égard des marchés financiers ; la politique monétaire ; la politique budgétaire.

TABLE OF CONTENTS

Tables

Figures

Boxes

POLICY FRAMEWORKS IN THE POST-CRISIS ENVIRONMENT

By

Nigel Pain and Oliver Röhn[1]

Introduction and Summary

1. The financial crisis revealed flaws in pre-crisis policy frameworks. Particular gaps included the failure of monetary and financial policies to incorporate fully the implications of the rapid pro-cyclical growth in financial leverage and risk-taking, especially across national borders, and the failure of fiscal policy to create sufficient space for policy manoeuvre in event of a crisis. In the crisis itself, the clear pre-crisis assignments of policy instruments to objectives became blurred, and the effectiveness of separate policy instruments became increasingly interdependent. And with the scope for standard countercyclical monetary policies soon exhausted, non-standard monetary policy tools were called upon and discretionary fiscal and structural measures were used for short-term purposes.

2. In the early stages of the exit from the crisis, policy decisions continue to be made in an environment of high uncertainty, reflecting the difficulties of assessing the effects of the crisis on potential output and on the transmission of policy actions within and between countries. In the near term, important policy priorities are to support the recovery, to keep projected inflation close to target, and to pursue internationally co-ordinated financial and structural reforms to enhance financial market resilience and strengthen the prospects for macroeconomic stability. In the medium term, the priority is to ensure that the overall policy framework is more robust than prior to the crisis, which may also require institutional reforms.

3. Key aspects of the new post-crisis policy framework are likely to include:

- Restoring, to the extent possible, a clear assignment of policy instruments to policy objectives, in order to improve the accountability and the efficacy of policy decisions. That said, outcomes in one policy domain will remain linked to outcomes in others and there may be circumstances, such as international spillovers, that require some reassignment, at least temporarily.

- Building adequate safety margins into financial and macroeconomic policies during cyclical upswings to allow space for policy manoeuvre in future crises.

- Strengthening the policy framework at times of high uncertainty about the extent of economic slack by paying greater attention to survey-based measures of slack and to the gap between actual and potential growth, since persistent and one-side errors are less likely to occur in such measures.

- Combining improved micro-prudential regulation and supervision with the establishment of effective macro-prudential policies to help ensure financial stability. This should enhance growth

1 . The authors are both members of the OECD Economics Department. They are grateful for helpful comments and advice from Sven Blöndal, Jorgen Elmeskov, Paul O'Brien, Pier-Carlo Padoan, Jean-Luc Schneider, Douglas Sutherland and members of Working Party No. 3 of the OECD Economic Policy Committee, but retain responsibility for any remaining errors. The opinions expressed in this paper do not necessarily reflect the views of the OECD or its member countries..

prospects and reduce the pressures that would otherwise be placed on macroeconomic policies from the contingent liabilities in public balance sheets and the need for monetary policy to focus excessively on financial stability.

- Ensuring that monetary policy continues to focus on attaining price stability, as in the past, once adequate prudential regulatory and supervisory policies are in place. An upward adjustment in inflation targets would add to safety margins but could be potentially costly. An alternative, moving to price-level targets, could in theory bring benefits, but has many practical difficulties. The policy interest rate should remain the main instrument of monetary policy, with non-standard policy instruments being phased out as the recovery firms. Developments in financial markets and in financial intermediation should receive more attention in policy decisions than in the past, but generally only to the extent that they affect the outlook for the macro-economy and the transmission of monetary policy.

- Setting fiscal policy to restore and maintain sound public finances, with public debt stabilised and eventually returning to low levels. Institutional reforms to fiscal frameworks and improved fiscal rules may help in attaining these objectives. An independent fiscal council could also play an important role by monitoring compliance with the rules.

- Enacting structural reforms to help strengthen the prospects for long-term growth and enhance resilience to shocks. In the near term structural reforms can also help to damp potentially long-lasting negative effects from the crisis, especially in labour markets. Successful enactment of reforms will enhance confidence in the sustainability of public sector debt dynamics and improve the prospects for global rebalancing.

- Enhancing international co-operation under the auspices of the G20, both in regard to the design and harmonised implementation of financial reforms, and to ensure that cross-country differences in policy frameworks do not conflict with macroeconomic stability and economic growth. The international monetary system needs to be strengthened to ensure adequate exchange rate flexibility.

- Ensuring that national policy frameworks have adequate tools to deal with spillover effects from policies in other countries, especially to the extent that such effects are transmitted through capital flows and exchange rates. At times when spillovers are important, the assignment of policy instruments could again become blurred.

Pre-crisis frameworks

4. The decade prior to the crisis was marked by a clear assignment of particular policy instruments to specific tasks. National macroeconomic policies, especially monetary policy, became increasingly rules-based, forward-looking and stability-oriented, with the intention of becoming more predictable and helping to anchor expectations; structural policies were focused on improving longer-term growth prospects and the resilience to shocks. The 'Great Moderation', with continuous declines in the variability of output and inflation, was widely regarded as a sign that such policies were working effectively and would contribute to financial stability, given the perceived forward-looking, efficient nature of financial markets. The potential for systemic financial risks was monitored, but not effectively, being viewed as unlikely provided that stability-oriented macroeconomic policies were pursued and micro-prudential regulation was conducted effectively. Policy decisions failed to fully incorporate the implications of the rapid pro-cyclical growth in financial leverage and risk-taking, the concentration of risk, and the increasing potential for the cross-border and cross-market transmission of economic and financial shocks. The experience of Japan brought awareness of the prolonged weaknesses that could follow financial imbalances, but the main

policy lesson taken was the need for swift action in the event of a crisis rather than the enhanced monitoring and counter-action of financial risk-taking to reduce the prospects of a crisis.

Monetary Policy

5. Prior to the crisis, a widely-held view was that monetary policy was best conducted by an operationally independent central bank, with price stability as a key objective. The main instrument used was the policy interest rate, accompanied by communication policies designed to ensure that policy actions become more predictable and better understood. In practice this was typically defined in terms of achieving a low inflation rate (mostly around 2%). These common elements of monetary frameworks masked differences at more formal and detailed levels. For example, the Federal Reserve had a dual mandate to attain maximum employment and stable prices whereas price stability was the only or the highest-priority goal of *e.g.* the European Central Bank, the Bank of Japan and the Bank of England. Communication strategies also differed significantly across central banks with respect to the transparency of the inflation target (explicit/implicit, point values and band widths), the time horizon over which it was to be attained and the form of guidance about future moves of the monetary authorities (see Minegishi and Cournède, 2009). In its pursuit of the price stability objective, the ECB was notable in having a two-pillar approach that included an explicit focus on monetary and credit developments, with a policy horizon that was allowed to vary according to the shocks hitting the economy, though in practice interest rates did not deviate much from a path suggested by a Taylor rule.

6. Financial markets were viewed as efficient and forward-looking, enabling policy actions to be transmitted through longer-term interest rates, asset prices and inflation expectations (Bean *et al*., 2010). Limited attention was paid to financial intermediation, or to the possible impacts of monetary policy on risk-taking (Borio and Zhu, 2008). Implicitly, risk was viewed as being allocated to those who could best bear it, with monetary policy confined to 'cleaning but not leaning' in dealing with asset price bubbles and their aftermath.

7. Monetary policy appeared to be generally successful in the years prior to the crisis, with low and stable inflation and generally well-anchored inflation expectations. This outcome was helped by the impact of the increased globalisation of economic activity, a positive aggregate supply shock that helped to damp inflationary pressures over several years (Pain *et al*., 2006). However, it arguably contributed to excessive policy accommodation in the lead-up to the crisis, especially in economies in which attention was focused on measures of core (or underlying) inflation only, since this ignored the upward impact of globalisation on headline inflation via rapid growth in commodity prices (Bean, 2006). More generally, it has been suggested that policy was excessively accommodative in the period after the dotcom bubble ended, because it was systematically lower in some countries relative to the guidelines offered by simple normative policy rules, such as Taylor rules (Ahrend *et al*., 2008; Ahrend, 2010). Such rules can however be difficult to interpret, given their sensitivity to measurement issues (Box 1).

Box 1. Alternative Taylor Rules

The standard form of the Taylor rule calculates a benchmark short-term policy interest rate, based on deviations of the actual inflation rate from the inflation target, the output gap and an equilibrium real interest rate. As it omits many factors relevant for policy-decisions, the rule is only a benchmark for policy, rather than something that is appropriate at all points in time, leaving room for discretion in policy judgements. Nonetheless, large and persistent deviations from the rule call into question whether monetary policy has been set in an appropriate manner. A particular example is the pre-crisis period (after the dot-com bubble) in which the monetary policy stance may have been excessively accommodative, thus contributing to the build-up of financial imbalances and excessive risk-taking (Taylor, 2007; Ahrend *et al*., 2008; Bernanke, 2010; Ahrend, 2010; Bean *et al*., 2010).

The Taylor rule is subject to concerns about the reliability of estimates of the output gap and the equilibrium real interest rate. Both of these can vary over time, as can some measures of inflation, such as national accounts deflators. This box abstracts from the potential time variance and uncertainty about the equilibrium real interest rate to consider

the effects of data revisions and in particular uncertainty about the output gap. The Taylor rate using ex-post data may be very different from that using real-time data (Orphanides, 2003; Kohn, 2007), making the Taylor rule very difficult to assess at times of turning points or structural breaks in the economy, when uncertainty about output gap estimates is greatest (Orphanides and van Norden, 2002; Koske and Pain, 2008; Orphanides, 2010).[1] A further issue is whether the Taylor rule should be calculated using current-dated outturns (or 'nowcasts') of inflation and output gaps, or whether it should use expected future values at the time of policy decisions (Bernanke, 2010). A side-effect of using forecasts is that this would reduce the weight given to observed surges in inflation that are thought to be only temporary.

The figures below assess the importance of these issues and present alternative cross-country estimates of interest rates derived from Taylor rules using real time data in the immediate pre-crisis years and through the crisis period. The real-time data are quarterly, and drawn from the semi-annual OECD Economic Outlook databases from the fourth quarter of 2003 onwards.[2] Following conventional approaches, the standard Taylor rule is evaluated, for any forecast in quarter *t*, using real-time estimates of inflation and the output-gap at time *t*. As in Orphanides (2003), the forward-looking variant makes use of expected inflation calculated over the horizon *t-1* to *t+3* and the output gap projected in quarter *t+3*. Two forward-looking variants are constructed, one using only projected inflation (as in Bernanke, 2010) and one using projections of inflation and the output gap. The calculations are made for two separate price indices: the private consumption deflator, for which Economic Outlook projections are available in the whole sample period, and the specific 'core' price index (excluding food and energy prices) used in each policy jurisdiction. The latter series is available on a consistent basis in real-time only from mid-2006.

The output from the rules using core price inflation is shown in the first figure. Two sets of graphs are shown for each economy. The left-hand graph shows the current and the real-time Taylor rates (labelled *TaylorRea*l), using the classic rule. The right-hand graph shows the real-time Taylor rates from the classic rule and two forward variants, the first using projected inflation by the OECD and the current quarter output gap (*TaylorProj*) and the second using projected inflation and output gaps (*TaylorProj1*). Three main points emerge:

- The real-time Taylor rate is almost always below the Taylor rate calculated with current data in all economies, except Japan. One important factor behind this is that the impact of the crisis has led to upward revisions in output gaps compared to those available at the time, especially in the pre-crisis period. The peak difference between the real-time rate and the current rate is 1½ percentage points in the United Kingdom and Japan, 1¼ percentage points in the United States and the euro area and just under 1 percentage point in Canada.

- For the United States and Canada, there is only a small average difference, at around 25 basis points, between the simple forward rate (using expected inflation) and the real-time rate from the conventional rule. In contrast, the real-time rate is typically lower in the other economies, with the exception of the crisis period, when inflation was typically projected to decline from its current levels at the time of the forecast.

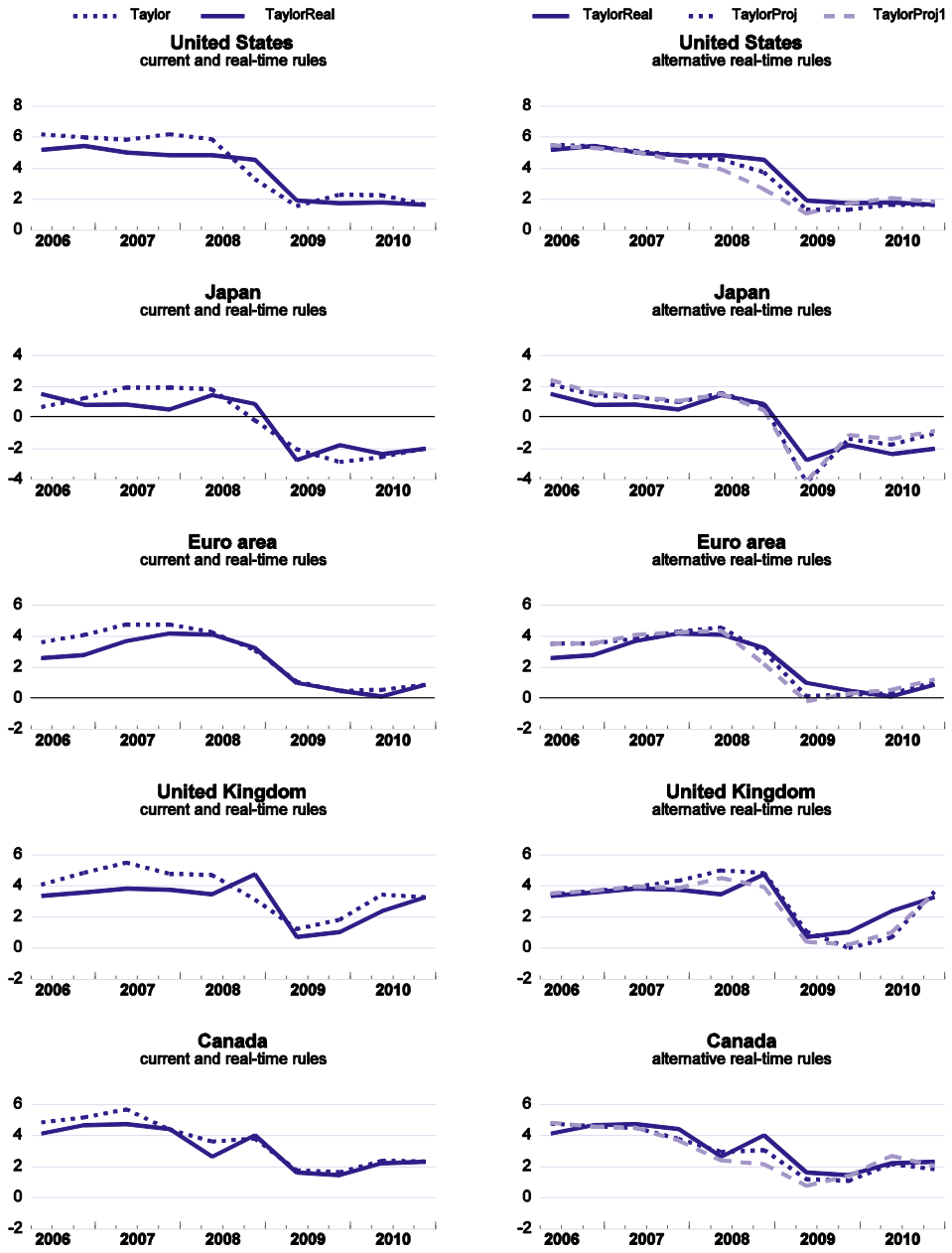
- For all countries, except Japan, the fully-forward looking Taylor rate (*TaylorProj1*) lies below the simple forward rate from the onset of the crisis (the forecasts published in 2007Q4) through to mid-2009. This reflects projections that the output gap would become more negative over time. By the fourth quarter of 2008, the fully-forward rate was close to 2 percentage points below the standard Taylor rate in the United States and Canada and around 1 percentage point lower in the euro area and the United Kingdom. Outside the crisis period, the fully-forward rate is typically just above the standard rate, with economic slack projected to diminish compared to current estimates at the time of the projection.

The estimates of the alternative Taylor rules using the private consumption deflator are shown in the second figure. As would be expected, these Taylor rates are more volatile, especially at times of strong swings in commodity prices. The overall pattern across the different estimates is broadly similar to that found using core inflation. A particular point of interest is that there is a long period in the pre-crisis period in which the real-time rates suggested by the Taylor rule are below the rates calculated using ex-post data.

Overall, these estimates suggest that Taylor rules remain a useful yardstick with which to observe monetary policy decisions, though there are some differences between alternative formulations of rules in normal times. However, incorporating forward-looking information suggested faster and deeper reductions in policy rates during the crisis period, suggesting that the conventional Taylor rule may be less appropriate at times of heightened uncertainty around economic turning points. In the euro area, Japan and the United Kingdom the real-time projected Taylor rates all declined close to or below zero; in Canada and the United States, the real-time rates declined to around 1 percentage point. Moreover, the sensitivity of the Taylor rate to output gap revisions is clear, suggesting that attention could be given to other policy rules that focus either on the change in the output gap, or only on economic growth (Orphanides, 2003, 2010; Plosser, 2010).

Box 1. Alternative Taylor Rules (cont)

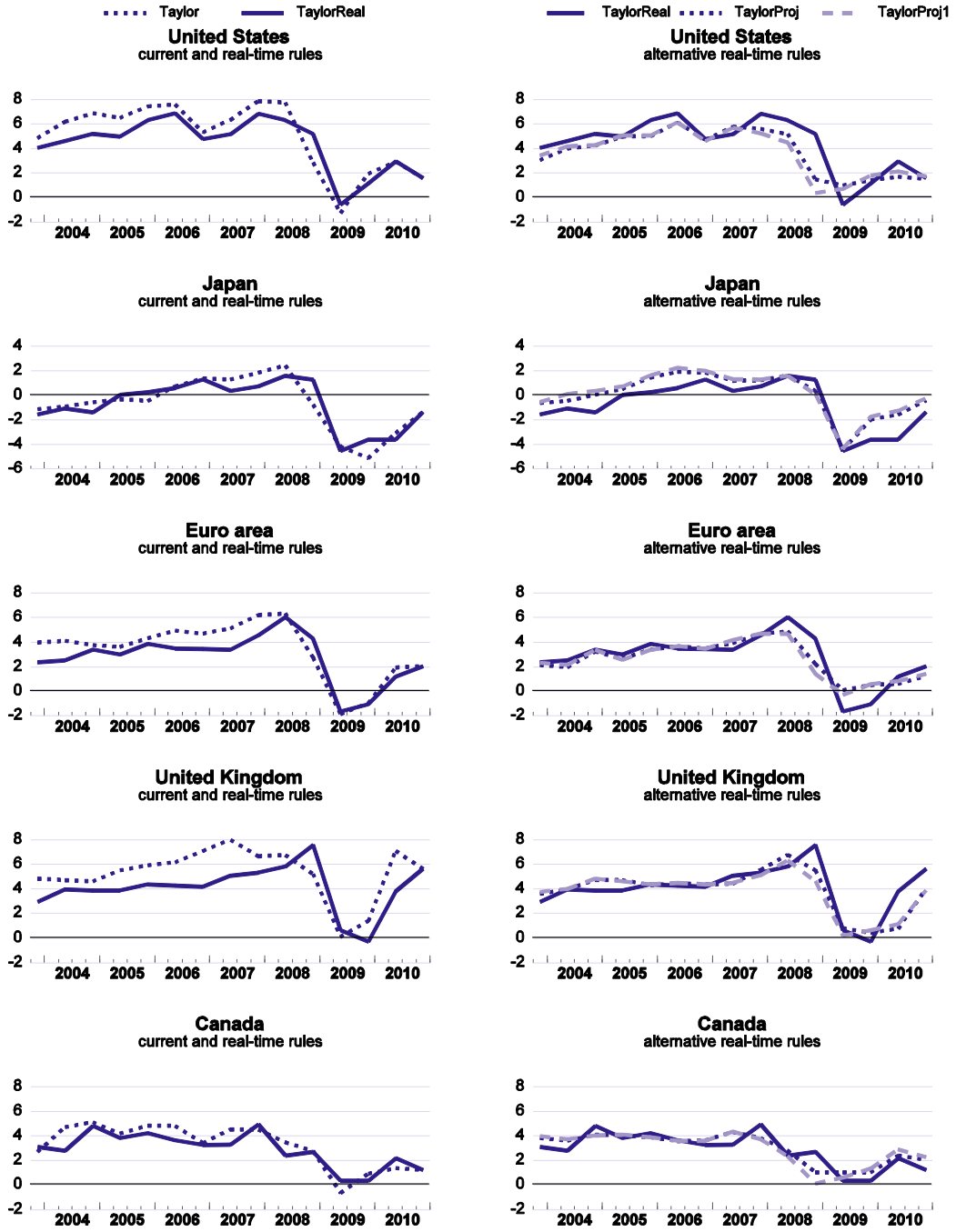
Taylor rules using core inflation



Note: The series are different estimates from a standard Taylor rule. Taylor uses ex-post data for current inflation and the output gap; TaylorReal uses real time data for current inflation and the output gap; TaylorProj uses projected inflation (from t-1 to t+3) and the current output gap; TaylorProj1 uses projected inflation (from t-1 to t+3) and the projected output gap (t+3).

Source: Authors calculations from successive OECD Economic Outlook databases.

Taylor rules using the private consumption deflator



Note: The series are different estimates from a standard Taylor rule. Taylor uses ex-post data for current inflation and the output gap; TaylorReal uses real time data for current inflation and the output gap; TaylorProj uses projected inflation (from t-1 to t+3) and the current output gap; TaylorProj1 uses projected inflation (from t-1 to t+3) and the projected output gap (t+3.

Source: authors calculations from successive OECD Economic Outlook databases.

---

1. The literature suggests that the optimal coefficient on the output gap in the policy rule declines if there are errors in measuring the output gap (Taylor and Williams, 2010).

2. This was the first time in which the OECD published forecasts using quarterly data. Previously only semi-annual data had been used.

Fiscal Policy

8. The main objective of fiscal policy during the pre-crisis period was to attain and maintain sound public finances by stabilising or reducing public deficits and debt, increasingly making use of rules or thresholds for deficit levels (Table 1). Progress towards these objectives was mixed; for the OECD as a whole, general government gross debt in 2007 was no different from a decade earlier, at 73% of GDP, and several countries had structural fiscal deficits entering the crisis. The role of fiscal policy as a stabilisation tool before the crisis was mostly limited to the functioning of automatic stabilisers. Discretionary fiscal policy was not regarded as the stabilisation tool of choice, partly because in "normal" times past experience suggested that the costs could easily outweigh the benefits. For example, implementation lags could result in pro-cyclical impulses during short recessionary episodes, political economy factors might hinder the withdrawal of stimulus and thus the attainment of fiscal sustainability, and uncertainties regarding the effectiveness of discretionary actions might be large. In addition, the effectiveness of discretionary policy might be especially limited in small open economies due to cross-border leakage. Hence active stabilisation was mainly left to monetary policy. This was also largely the case in the euro area, implying that the stance of macroeconomic policy became unsuitable for some members of the monetary union.

Table 1. Fiscal rules applied in selected OECD countries

		Characteristics of the set of rules			
		Budget target	**Expenditure target**	**Rule to deal with revenue windfalls**	**Golden rule**
Belgium	Stability and Growth Pact (1997) National budget rule (2000)	yes	yes	yes	no
France	Stability and Growth Pact (1997) Central government expenditure ceiling (1998)	yes	yes	yes	no
Germany	Stability and Growth Pact (1997) Constitutional Rule (2009)	yes	yes	no	no
Italy	Stability and Growth Pact (1997) Domestic Stability Pact (since 1999)	yes	no	no	no
Netherlands	Stability and Growth Pact (1997) Coalition agreement on multiyear expenditure targets (since 1994)	yes	yes	yes	no
Sweden	Fiscal Budget Act (since 1996)	yes	yes	no	no
Switzerland	Debt containment rule (2001, but in force since 2003)	yes	yes	yes	no
United Kingdom	Code for fiscal stability (1998); superseded by multi-year fiscal mandate	yes	no	no	no
United States	PAYGO rules (2010)	yes	no	no	no

Source: Based on Guichard *et al.* (2007), OECD.

9. The failure to attain sound public finances in the run-up to the crisis constrained the fiscal response in several countries during the crisis and, in some cases, even led to pro-cyclical fiscal tightening. Several factors contributed to the failure to obtain sound public finances in good times. For example, existing fiscal rules (*e.g.* the European Stability and Growth Pact) were at times ineffective, failing to provide incentives to encourage the build-up of a sufficient reserve. There was also a failure to take into account the implications of rising private sector imbalances, and the associated revenue streams from such activities, for the sustainability of fiscal policy. Moreover, forecasts of underlying public budget balances

appeared to have been biased upwards. One contributory factor, discussed further below, is that conventional measures of cyclically-adjusted balances do not take asset price effects into account. Thus during the pre-crisis asset price booms, such measures may have painted an excessively optimistic picture of the underlying structural balances. Another reason may be that the economic forecasts used as a basis for budget-making lacked independence in many countries. Mechanisms for taking implicit fiscal liabilities fully into account were also lacking in many economies.

Financial Market Policy

10. Financial regulation and supervision was largely micro-prudential prior to the crisis, focussing on the solvency of individual institutions. Limited attention was paid to the potential for systemic risks arising from the increasing pro-cyclicality of the financial system (BIS, 2006), or to issues of direct micro-prudential responsibility such as enhanced leverage and risk-taking (especially off balance sheets) in an environment of rapid growth in house prices (Figure 1) and cross-border investments (Figure 2) and low capital and liquidity buffers. This occurred despite the availability of considerable, albeit incomplete, information about leverage and other balance sheet developments (Caruana, 2010).[2] The potential implications of rapidly increasing financial globalisation for the transmission of shocks across borders were also underestimated, although it was recognised that increased financial integration should enhance economic growth prospects. At the national level, supervisory frameworks and practices differed, as did deposit guarantee schemes and the arrangements for crisis resolution (Lawson *et al*., 2009). The patchwork of different institutions, responsibilities and practices made it difficult to monitor and supervise systemically-important, large cross-border financial institutions, and created incentives for regulatory arbitrage.

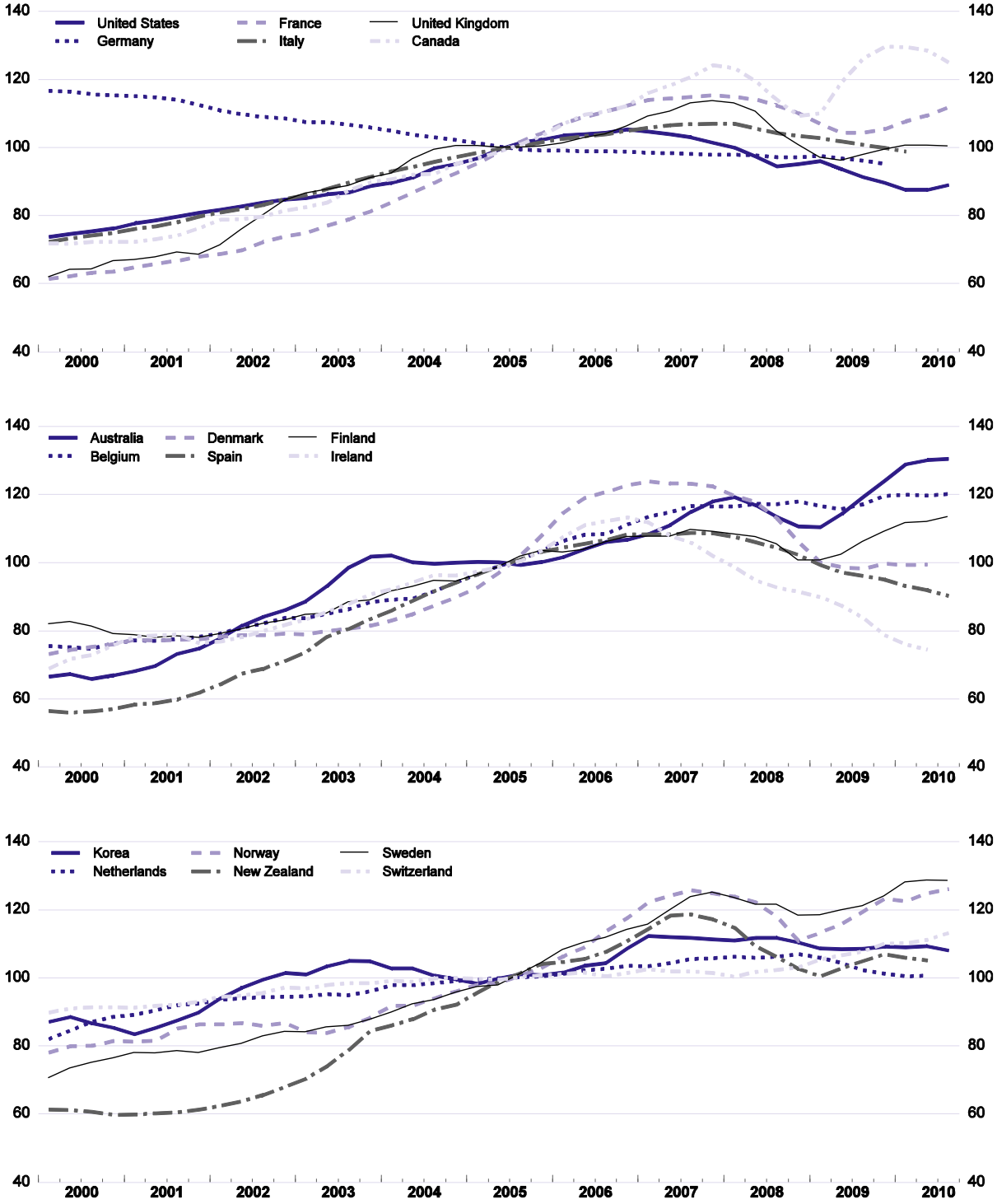
11. Financial innovations and greater regional and global financial market integration in the pre-crisis years made the regulation and supervision of financial institutions more difficult[3] and saw a blurring of the traditional distinctions between different financial activities, such as banking, securities dealing and asset management. Many financial institutions built up excessive leverage, and risk-taking was enhanced with investors moving into new and more risky assets in search of higher yields against a backdrop of historically-low interest rates. At the same time the underlying distribution of risks remained opaque, masking the full extent to which financial sectors were exposed to systemic risks and cross-border contagion from financial and economic shocks in other countries (Trichet, 2009; Bini-Smaghi, 2010). A complicating factor was the scope for financial institutions to move risk from their balance sheets to closely-related special purpose vehicles that were not consolidated for accounting and regulatory purposes but for which they were ultimately liable. Corporate governance rules also proved defective, with management allowed to accumulate risks that were excessive for the owners, as well as the economy.

2. Countries such as Canada and Australia that applied micro-prudential policy effectively, performed well during the crisis.

3. For example, innovations such as credit-default swap (CDS) contracts increased the scope for regulatory arbitrage.

Figure 1. The evolution of real house prices

Index 2005=100

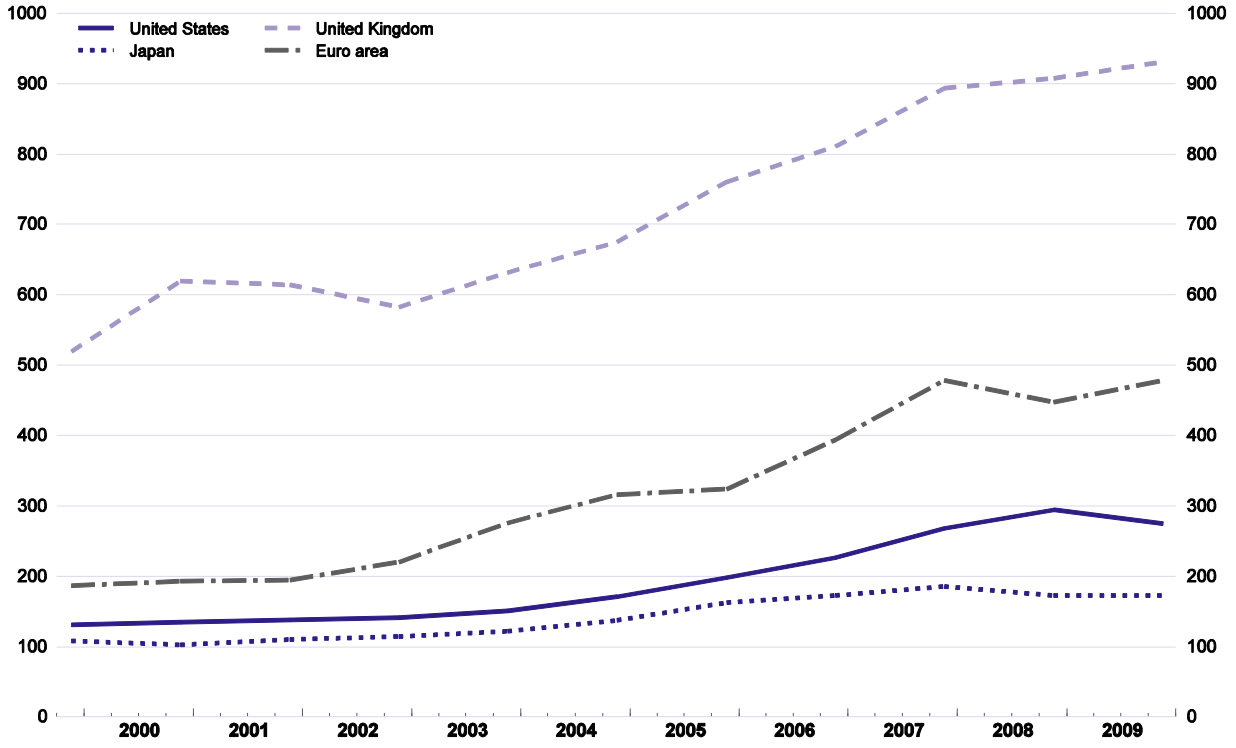


Note: House prices are deflated by the private consumption deflator.

Source: National sources.

Figure 2. Foreign assets and liabilities

In % of GDP



Note: Ratio of the end-year sum of international investment assets and liabilities to GDP.

Source: OECD, System of National accounts; and IMF, BOP dataset.

Structural Policy

12. The main goals of structural policies in the pre-crisis period were seen to be fostering long-term economic growth prospects and improving on labour market outcomes. Drawing on the findings from numerous cross-country studies of the drivers of economic growth, as well as detailed studies of labour markets, including those undertaken at the OECD (*e.g.* OECD, 2003, 2006a), a wide range of policies were implemented to improve labour utilisation rates and labour productivity. Policies to improve human capital and innovation, and reforms to product and labour market legislation were the primary focus of structural reforms. Attention was also paid to measures that could enhance the resilience of economies, by improving the flexibility to bounce-back relatively quickly from downturns (Duval and Vogel, 2008), conditional on the assumption that financial markets and the monetary transmission mechanism functioned in a normal fashion. The importance of competitive financial markets for promoting growth was recognised (OECD, 2006b), but there was less consensus about the appropriate reforms to enhance financial market efficiency. Although attention was paid to the structural policies undertaken in other countries, there was little international co-operation in policy choices, contributing to the persistence of cross-country imbalances in saving and investment. In addition, only limited progress was made towards key international reforms, such as the Doha round and climate change accords.

Policies during the crisis and the recovery

Policy interconnections

13. The speed, depth and duration of the recession overturned the pre-crisis dividing lines between different policies. It also revealed important gaps in the policy framework that would need to be remedied after the crisis. The depth of the recession and dysfunctional financial markets overwhelmed the capacity of traditional counter-cyclical macroeconomic policy to inject a sufficient stimulus. In addition to lowering policy interest rates close to the zero bound, many countries opted to use discretionary fiscal policy and non-conventional policy measures to stimulate aggregate demand and give support to the impaired banking system in a synchronised fashion. This blurred the assignment of separate instruments to separate targets, making the effectiveness of separate policy instruments increasingly interdependent.[4] Substantial efforts were made to support financial institutions, including through the provision of credit and liquidity to the financial system, bank recapitalisation using public funds, deposit guarantee extensions and efforts to move troubled assets from banks' balance sheets to newly-created asset management companies. The dividing line between fiscal, monetary, financial and structural policy became less clear (Goodfriend, 2010). Some central banks made large purchases of public debt, often without explicit guarantees against potential losses, as well as purchases of other assets that had direct impacts on resource allocation and offered general support to economic activity. Equally, low policy interest rates and non-standard monetary policies helped to ease pressures in financial markets and boost the profits of financial institutions, thereby reducing both the need for public recapitalisation and the pressures on the supervisory authorities to resolve impaired institutions. And structural policies were used to provide support to non-financial enterprises and limit the social and labour market consequences of the recession, even if such settings were not appropriate for the long run.

Policy uncertainty during the exit

Policy making under uncertainty

14. At times of crises, and in the immediate aftermath as exit gets underway, policy decisions are complicated by pervasive uncertainties. Such uncertainties stem from: the uncertain nature and impact of the shocks hitting the economy, including the subsequent headwinds during the exit; the impact of policy choices on the economy; and the reliability of real-time data. In this context, the option value in exercising caution before committing to a policy, because waiting may reveal better or additional information (Brainard, 1967; OECD, 2010b), has to be weighed against the chances of damaging and hard-to-reverse outcomes that could emerge from policy inaction, such as entering deflation. During the crisis it was appropriate that changes to policy were made rapidly, given the high costs of delaying decisions. During the exit, at a time of improved information about the state of the economy but still-extensive risks, policies that are more easily reversible may be generally appropriate, given the need to avoid damaging the recovery. However, this need not be the case if they are policies whose principal effects will be felt only in the medium term or ones that are essential to avoid high and damaging costs from policy inaction.

Uncertainty about the state of the economy and potential output

15. Assessing the current state of the economy, the strength of the headwinds from the legacies of the recession and the risks associated with possible future events are important sources of uncertainty during the exit from the crisis. Decision making at the current conjuncture is made particularly complicated by

4. For example, in the absence of emergency fiscal support for the financial sector the effectiveness of any particular conventional or unconventional monetary policy action would have been much diminished.

uncertainty about the extent of economic slack remaining in the economy. Estimates of economic slack always vary markedly according to the indicator used and the assumptions employed (see Box 2) and are subject to substantial revision over time, reducing the confidence that policymakers can place on particular output gap measurements (Orphanides and van Norden, 2002; Beck and Wieland, 2008; Koske and Pain, 2008). The crisis has compounded such uncertainty because of the unknown extent to which it may have had long-lasting effects on both the level and the rate of growth of potential output. However, in all cases, not least survey-based measures, there is little doubt that the crisis brought a rapid drop in resource utilisation and that economic slack remains in most OECD economies at present. Judging the size of the slack remaining is more challenging. Greater reliance on survey-based measures could be a particularly useful guide for policymakers at such times (Box 2). The implications of output gap uncertainty for monetary policy in the exit from the crisis are discussed below.

Uncertainty about the impact of slack on inflation and the public finances

16. In addition to the inherent uncertainty about the size of the output gap, and the near-term growth of potential output, policymakers are faced at present with considerable uncertainty about the impact of economic slack on inflation and the costs of cleaning up the financial crisis. Empirical studies suggest that measures of economic slack remain important for understanding inflation developments (Pain *et al*., 2006; Stock and Watson, 2010), but there is considerable uncertainty about the timeframe over which they might influence inflation.[5] Moreover the effect of persistent large output gaps appears to diminish as inflation eases (Meier, 2010). Such factors complicate judgements about the extent and speed of disinflationary pressures during the exit from the crisis, forcing greater weight to be placed on other cyclical indicators or observed inflationary pressures, and complicate monetary policy decisions.

17. Uncertainty about the output gap also matters for fiscal policy, as a hit to potential from the crisis implies that a larger proportion of existing fiscal deficits are structural rather than cyclical. However, using separate annual OECD and IMF national output gap estimates to calculate the cyclically-adjusted primary balance over 2008-2010 suggest that, on average across countries, the mean absolute difference in gap estimates (around 1 percentage point) is only associated with a mean absolute difference of 0.4 percentage points in the estimated cyclically-adjusted primary balance (Table 2).[6] Hence, given the high budget deficits in many OECD countries, even a large under-estimation of the gap would be unlikely to change the conclusion that significant consolidation is needed in the coming years. By the time that such consolidation has occurred, and issues regarding the measurement of the underlying fiscal situation have come to play a relatively larger role, measurement uncertainty may have declined.

5. Real-time errors in gap estimates have been found to make little difference to the accuracy of near-term inflation forecasts (Koske and Pain, 2008), suggesting that such uncertainty may be limited in practice, at least in non-crisis times.

6. Related results are reported by Koske and Pain (2008) who find that in the decade prior to crisis revisions to current-year real-time estimates of the output gap level in the G7 economies (one measure of gap uncertainty) brought about average absolute revisions to the cyclically-adjusted primary balance of 0.4 percentage points.

Box 2: Measures of economic slack and their implications

Indicators of economic slack are measures of the over or under-utilisation of productive capacities or the cyclical position of an economy. Theoretically the cyclical position can be defined as the difference between actual activity and the level of potential activity that can be sustained without generating inflationary pressures in the economy. From a practical standpoint, a range of conceptual as well as measurement difficulties arise, mostly related to the reference value, potential activity. Conceptually, several different measures of the reference value exist, the most common ones being: potential output, the structural rate of unemployment (as measured by the NAIRU) and full capacity:

- Estimates of the output gap represent the broadest concept of economic slack and are potentially useful for projecting economy-wide inflation as well as for constructing structural measures of total expenditure or taxation.
- The unemployment gap may be important for adjusting expenditure on current transfers to households and for understanding labour market developments.
- In modelling the cyclical behaviour of components of final expenditure, especially fixed investment, it might be more relevant to look at measures of spare capacity rather than the economy-wide output gap.

While gap measures based on potential output and structural unemployment are usually highly correlated, correlations between output and unemployment measures and capacity utilisation are generally lower, suggesting that measures of capacity utilisation might provide additional information (see *e.g.* Koske and Pain, 2008).

A further conceptual issue arises related to the time horizon considered. A long-run concept of potential output considers the output once a steady state is reached, i.e. once all shocks have worked their way through the economy. In contrast, the short-run concept would consider the output that can be produced without inducing inflationary pressure at any given point in time regardless of whether the economy has reached the new steady state or is still adjusting towards it. For example, if private agents permanently demand a higher risk premia, thus raising the cost of capital, the steady state value of the capital-labour ratio should be lower than otherwise in the long-run. However, the adjustment of the capital stock to the new capital-labour ratio will not occur instantaneously. A long-run concept of potential would take only the new long-run steady state capital-labour ratio into account; a short-run concept considers capital-labour ratios along the adjustment path. Monetary policy usually considers a short-to-medium time horizon when assessing inflationary pressures, making the short-run concept particularly relevant. In contrast, to assess the long-run sustainability of fiscal policies, the long-run concept might be more relevant.

Besides conceptual problems, a range of measurement issues arise. Measures of capacity utilisation are generally based on survey information, but potential output and structural unemployment are estimated using empirical approaches. These empirical approaches fall broadly into two categories. One approach is to rely exclusively on information of the respective series itself (GDP or unemployment), with filtering techniques used to extract a trend from a cyclical component of the series. The most common filtering technique is the Hodrick-Prescott (HP) filter. The main advantage of this technique lies in its simplicity. However, results hinge on the choice of the smoothing parameter and it suffers from end-point bias.[1] An alternative approach is to apply more structure (economic theory) in the derivation of the trend component, making use of information from additional macroeconomic variables.[2] One example is the methods employed by the OECD. Estimates of potential output are derived using a production function approach and estimates of structural unemployment are derived from an unobserved components model based on a Philips curve equation.[3]

A common problem to all empirical methods is that the most recent gap estimates, which are of the greatest interest from a policy perspective, are prone to (sometimes large) revisions over time and might therefore lead to policy errors (*e.g.* Cukierman and Lippi, 2005; Nelson and Nikolov, 2003). These revisions can arise from revisions to the actual data or to potential activity. Uncertainty around gap measures is largest in times of structural change or around turning points. Koske and Pain (2008) show that in the two and a half decades preceding the current crisis most of the revisions to output gap estimates are due to revisions of the actual data rather than potential output.

The current situation is characterised by high uncertainty about the impact of the crisis on potential output. As a result, recent output gap estimates differ significantly across the OECD, the IMF and national sources (see table below). In addition to uncertainty about the immediate or short term impact of the crisis on potential output, it also remains unclear how long lasting the impact on structural unemployment, trend labour force participation, capital accumulation and total factor productivity, and hence potential output, will be. Such effects will vary across countries and depend on policy and institutional settings. In this situation it might be preferable to focus on narrower concepts of economic slack such as the unemployment gap. However, whilst the level of structural unemployment might be presently subject to less (albeit still potentially significant) uncertainty than potential output, current measures of

unemployment gaps might still be misleading in several countries. For example, the relatively modest increase in unemployment in several OECD countries might be indicative of labour hoarding and hence might lead to an under-estimation of under-utilised resources.

Output gap estimates for 2009

As a percentage of potential GDP

	OECD	IMF	National Sources[1]
United States	-4.6	-6.0	-6.4
Euro area	-4.8	-3.7	-3.1
Japan	-5.3	-7.1	-6.7

1. CBO (2010), *Budget and Economic Outlook - An Update - Detailed Economic Projections* and *Key Assumptions in Projecting Potential Output* for the US, European Commission (2010), "European Economic Forecast - Spring 2010", *European Economy*, Vol. 2/2010 for the euro area, and Cabinet Office estimate (unpublished) for Japan.

Source: OECD calculations.

Survey based measures have the advantage that they are timely and revisions over time are usually small.[4] Thus policy conclusions based on survey-based measures of capacity utilisation should be more robust over time. One caveat is, however, that for some countries, such as the United States, data on capacity utilisation are not entirely based on survey data. Instead they are partly based on estimates of other series such as physical units of capacity, which may be subject to revisions.[5] In addition, survey measures can have other problems not least the fact that it is unclear what firms regard as full capacity. For example, if it is possible to shut down some capacity temporarily, survey responses may relate to immediately operable capacity, rather than potential capacity in the longer term. This may lead to inconsistencies between concepts of spare capacity in the short run and the long run (Bean, 2010).[6]

To illustrate whether different measures of economic slack lead to different policy conclusions, the figures below display two versions of Taylor rules based on the output gap and capacity utilisation, respectively.[7] These Taylor rules are otherwise standard, i.e. the latest vintage of core inflation and output data are used instead of real time data, and data refers to current-dated outturns instead of forecasts which are used in forward looking Taylor rules. For the euro area and the United Kingdom capacity utilisation measures are taken directly from surveys of the manufacturing sector and relate to the currently operating capacity in per cent of full capacity. For the United States, Japan and Canada, survey responses constitute an input into a more complex derivation of capacity utilisation rates including estimations of physical units of capacity or capital stocks. Thus for these latter countries, the caveat mentioned above applies.

For the United States, the figure shows that the Taylor rate based on capacity utilisation is consistently below the rate based on the output gap. The average difference is 1 percentage point but the difference is significantly smaller during the current crisis. For the United Kingdom, a similar picture emerges; however, the differences between the two series differ more strongly over time. For the other countries, the differences between the two series are significantly smaller. Thus, for some countries, Taylor rules based on capacity utilisation rates and Taylor rules based on ex-post output gap data reach similar conclusion about the monetary stance.

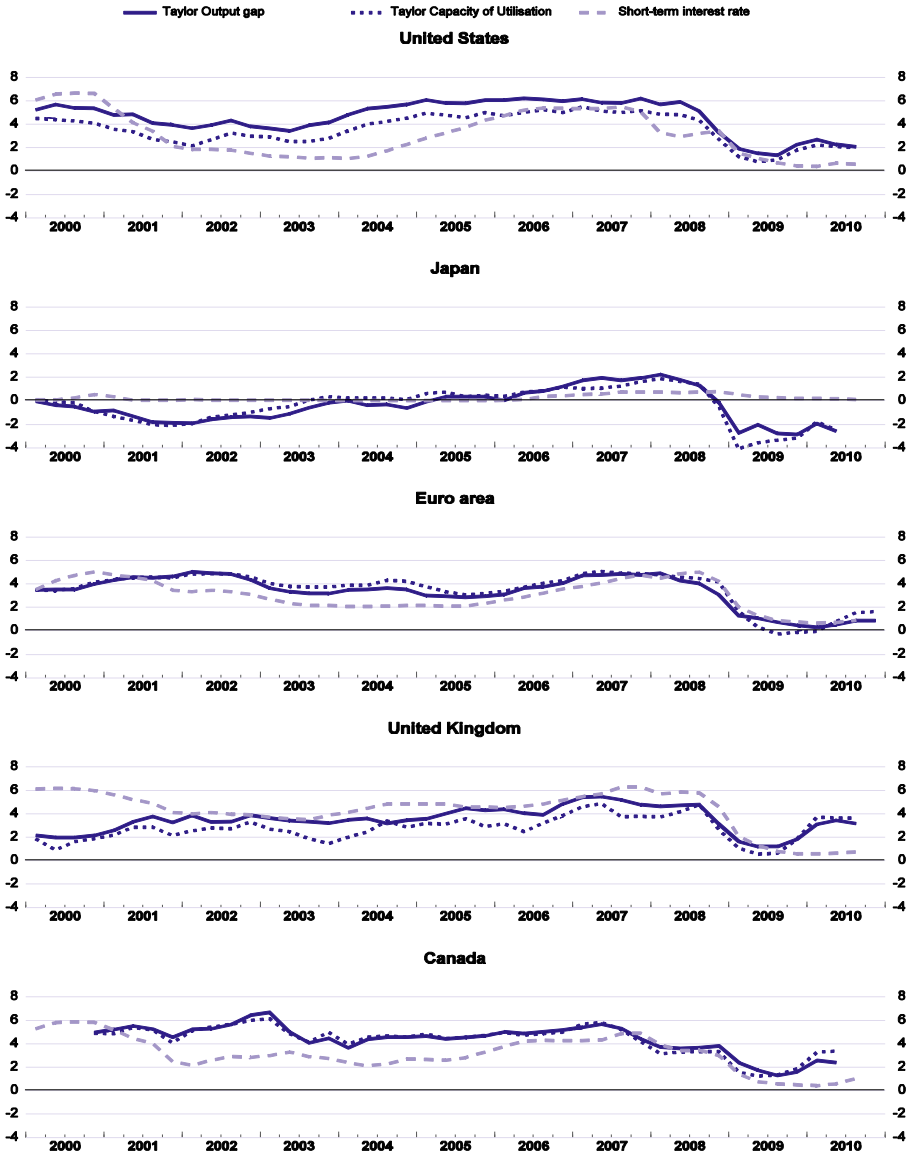
Given the measurement problems of each measure of economic slack, the preferable approach might be to focus on a combination of measures instead of a single one. For instance, some studies show that combining information on capacity utilisation with output or unemployment gap measures can reduce the uncertainty surrounding these gap estimates (*e.g.* Graff and Sturm, 2010; and Trimbur 2009).

---

1. End-point bias means that the estimate of the trend component is strongly influenced by the most recent observation. This problem is especially severe if the last observation falls into a recession (boom), biasing the trend estimate downwards (upwards). One solution to this problem is to extrapolate the series beyond the most recent data point using projected data.
2. Both approaches are not mutually exclusive as methods in the second category frequently employ filtered series as inputs.
3. For more details on the OECD methodologies, see Beffy *et al.* (2006) and Gianella *et al.* (2008).
4. Revisions can occasionally occur due to normalisations of the series or revisions in seasonal adjustments or sector weightings.
5. A comparison of the magnitude of revisions between these measure of capacity utilisation and output gaps would be important but is beyond the scope of this paper.
6. Biased responses or sample bias are among other potential problems of survey-based capacity utilisation measures.
7. To make both series comparable, the capacity utilisation rate has been de-meaned to assure that both series have a mean of zero. In addition the weight on capacity utilisation measure in the Taylor rule has been adjusted by the ratio of the standard deviation of the output gap divided by the standard deviation of the capacity utilisation series. This adjustment assures that a one standard deviation change in each measure of economic slack has the same impact on the Taylor rate.

Box 2. Measures of economic slack and their implications (cont.)

Taylor rules with capacity utilisation



Source: OECD Economic Outlook 88 database; OECD, Main Economic Indicators database; Federal Reserve; METI; and Bank of Canada.

Note: The Taylor rule rate is a function of an equilibrium real short-term interest rate, the output gap and the gap between actual inflation and the implicit inflation target. The standard specification, used here, is given by: $r_T = \pi + r^* + \lambda_1(\pi-\pi^*) + \lambda_2 GAP$, where r_T is the Taylor rule nominal interest rate, π the rate of inflation as measured by core CPI, π^* the inflation target, r^* the equilibrium real interest rate, GAP the output gap and λ_1 and λ_2 are the weights given to inflation and output stabilisation, respectively. The weights are both assumed to equal 0.5. The assumptions for the price stability target and equilibrium real interest rates follow Ahrend *et al.* (2008). For Japan, the assumed price stability target is for inflation of 1.0% and the assumed equilibrium real interest rate is 1.2%. For the euro area, the assumed price stability target is for inflation of 1.9% and the assumed equilibrium real interest rate is 2.1%. For United Kingdom, the assumed price stability target is for inflation of 2.0% and the assumed equilibrium real interest rate is 3.0%. For Canada, the assumed price stability target is for inflation of 2.0% and the assumed equilibrium real interest rate is 2.75%. To make both series comparable the capacity utilisation rate has been de-meaned to assure that both series have a mean of zero. In addition the weight on capacity utilisation measure in the Taylor rule has been adjusted by the ratio of the standard deviation of the output gap divided by the standard deviation of the capacity utilisation series. This adjustment assures that a one standard deviation change in each measure of economic slack has the same impact on the Taylor rate.

Uncertainty about the impact of standard and non-standard macro policies

18. During the crisis policymakers faced considerable challenges in judging the effectiveness of macroeconomic policies. For monetary policy, there was uncertainty about the monetary policy transmission mechanism as financial intermediation became impaired. Policy interest rates were pushed to historically low levels in many economies and central banks were forced to utilise unconventional policy measures in order to stimulate activity in financial markets and work around the impaired banking system. The impact of such measures was difficult to judge, given the limited knowledge of their likely effectiveness. Fiscal policy was also faced with difficult and inherently uncertain choices, notably about the scale and costs of emergency actions that had to be taken to support the financial system and the impact of discretionary policy actions on the economy (Auerbach *et al*., 2010).

Table 2. Different estimates of the cyclically-adjusted (primary) balance in the current situation in selected OECD countries

	Output Gap			Cyclically-adjusted budget balance			Cyclically-adjusted primary budget balance		
	Average 2008-2010			Average 2008-2010			Average 2008-2010		
	OECD	**IMF**	**ABS DIF**	**OECD**	**IMF**	**ABS DIF**	**OECD**	**IMF**	**ABS DIF**
United States	-2.9	-4.2	1.3	-8.2	-7.7	0.4	-5.5	-5.1	0.4
Japan	-2.4	-4.3	1.9	-4.8	-4.2	0.6	-2.2	-1.7	0.5
United Kingdom	-2.8	-2.1	1.0	-7.2	-7.5	0.4	-5.0	-5.3	0.4
Germany	-2.5	-1.9	0.7	-1.5	-1.8	0.3	1.0	0.8	0.3
France	-2.6	-2.6	0.1	-5.0	-5.0	0.0	-2.5	-2.5	0.0
Italy	-3.5	-2.4	1.2	-2.5	-3.1	0.6	2.1	1.6	0.6
Canada	-3.3	-2.1	1.2	-2.3	-2.7	0.4	1.4	1.0	0.4
Switzerland	-0.7	-1.5	0.7	1.2	1.4	0.2	2.2	2.4	0.2
Netherlands	-1.6	0.1	1.6	-3.2	-3.8	0.6	-1.1	-1.6	0.6
Sweden	-3.6	-2.0	1.6	1.7	1.0	0.7	3.1	2.4	0.7
Average			*1.1*			*0.4*			*0.4*

Note: The table exemplifies the impact of different assumptions of the level of potential output on cyclically-adjusted (primary) budget balances in the current situation by comparing potential output assumption from the OECD and the IMF. The columns OECD and IMF refer to calculations based on assumptions about the level of potential output from the OECD Economic Outlook 88 and the October version of the IMF World Economic Outlook, respectively. Actual GDP data are taken from the OECD Economic Outlook database. The cyclically-adjusted (primary) balances are calculated according to the standard OECD methodology detailed in Girouard and André (2005).

Sources: OECD Economic Outlook Database, IMF World Economic Outlook, own calculations

19. Related issues arise during the exit from the crisis. The monetary policy transmission mechanism has improved, but is not yet fully restored. Balance sheet repair is far from complete in the financial sector and financial markets continue to require support from non-standard monetary policies in some economies. And the distribution of possible macroeconomic risks is wide, with continued tail risks, especially on the downside. Uncertainties also arise from the difficulties in assessing the likely course of policy actions in other economies and the associated spillovers from them, and the difficulties in assessing the likely behaviour of private agents in a highly uncertain economic environment.[7] Such factors complicate

7. The crisis illustrated the speed at which shocks originating in one economy could be transmitted to the rest of the world. In general, stronger cross-border linkages mean that domestic monetary policy may need to react less to any country-specific (or region-specific) "shocks", since a larger proportion of such "shocks" will have to be absorbed by foreign economies via changes in trade levels or more risk sharing, or from exchange rate and asset price revaluation effects on foreign asset holdings in the domestic economy (Hervé *et al*., 2008).

decisions about the timing and speed of the exit from conventional and unconventional measures as well as the sequencing of the exit.

20. Fiscal policy also continues to face difficult and inherently uncertain choices. Uncertainty remains about the eventual scale and cost of the implicit liabilities that have been incurred in supporting the financial system. There are also difficulties in estimating the likely effects of consolidation on the economy, although the short-term effects are likely to be negative (OECD, 2010a; Guajardo *et al*., 2010). Fiscal policy multipliers vary significantly according to the state of the economy as well as the choice of fiscal instrument. In principle, the short-term negative multiplier from consolidation could be smaller if policy interest rates can be lowered relative to prior expectations and if the financial sector continues to improve, as households may be better able to smooth the adverse impact on consumption over time than would be the case when they faced even tighter borrowing constraints. In addition, Ricardian effects may be larger when public debt levels are perceived as unsustainable, thereby damping the fiscal multiplier; in effect, private agents may have adjusted their spending plans in anticipation of future consolidation efforts, thus reducing their response when the fiscal measures are implemented (Röhn, 2010). The positive effects from credible consolidation programmes on long-term interest rates via reductions in the risk of default, and thus risk premia, might also be stronger at higher debt levels (OECD, 2010a,b). In addition to concerns about the size of the multiplier, there is uncertainty about the size of the adverse short-term effects on activity from simultaneous consolidations in several countries.

Policy challenges in exiting from the crisis

21. The policy challenges in the OECD economies in the exit from the crisis are to eliminate slack in the economy, restore an appropriate inflation level and to establish sound public finances and resilient financial markets. In this process, which will take place in a large number of countries simultaneously, domestic policies in one domain will need to take into account policy settings in others and in other countries. International cooperation, including through the G20, will be essential to boost the credibility of this policy effort. In countries that have a choice, the extent and speed of fiscal consolidation will depend in part on the scope for monetary policy to offset the adverse near-term effects on demand from fiscal tightening by reducing or delaying increases in policy interest rates. Equally, the pace of reforms to financial regulations (discussed in Section 4) will affect monetary and fiscal policy settings. Structural policies, in addition to strengthening the economy in the longer term, can contribute to fiscal consolidation and also, in some cases, can create room for monetary policy to extend the period of accommodation by raising potential output. In other cases, they might help to strengthen demand in the short term, especially if financial markets are functioning well enough to allow the future benefits of reforms to be priced into assets, with associated positive wealth effects for private balance sheets.

Monetary policy

22. In the absence of large downside risks to the recovery, the challenge for most monetary authorities will be to exit from exceptional stimulus in a way consistent with macroeconomic developments, without exacerbating fragilities in financial markets. In principle, the aim of the monetary authorities should be to bring policy rates to their neutral levels by the time economic slack is eliminated. However, as discussed above, assessing the level of slack is fraught with difficulties following the deep recession. This renders it preferable for monetary policy to rely on more directly observable gauges of where demand is situated relative to capacity (Koske and Pain, 2008). Hence, central banks may need to give more weight to survey measures of resource utilisation and inflation expectations and to whether price inflation is accelerating or declining. Acting only when there is a clear acceleration in underlying inflation would be a risky strategy in normal conditions because core inflation is a delayed indicator and monetary policy acts with long and variable lags. But as long as resource utilisation is still very weak, core inflation is still low (or falling) and inflationary expectations are close to the objectives of the monetary authorities,

there are limited risks from monetary policy remaining supportive and moving decisively towards neutral rates only once underlying inflation seems set to turn up. This strategy would take into account the extent to which the outlook for inflation and activity is affected by fiscal consolidation at home and abroad, as well as progress towards improved financial supervision and the short-term effects of structural policies.

23. To the extent that there is greater confidence in estimates of the growth rate of potential output, as compared with its level, a more robust strategy, at least in the shorter horizon relevant for monetary policy, could be to place greater weight on the gap between actual and potential growth rates (Orphanides, 2003, 2010).[8] Thus, if the output gap is very uncertain in size but expected to narrow sizeably in the near term (*e.g.* output growth is expected to be above potential growth), the exit should begin soon and be gradual. Alternatively, if the output gap is known to be large, but near-term potential growth is highly uncertain, as it has been during the crisis and the immediate aftermath, the exit should come later but be more forceful when it comes.[9]

24. During the exit period monetary policy will also have to keep an eye on macro-prudential risks, because planned new macro-prudential regulatory bodies are not yet in place and operational. In this context it appears important to establish small, yet positive, interest rates (Borio and Disyatat, 2009). In particular, abundant liquidity provision at near-zero funding costs could keep alive insolvent banks, allowing them to roll over the debt of unviable businesses. Prolonged near-zero interest rates could also intensify the search for yield, compressing spreads and distorting the pricing of risk, ultimately resulting in investment going to the wrong projects, or in a build-up of financial fragilities, or more likely a combination of both (BIS, 2010).[10] Thus, conditional on the recovery being solid and deflation risks having evaporated, there is a case for central banks to move policy-controlled interest rates to levels that are still very accommodative but are clearly above zero, so as to support sluggish demand whilst reducing the risks associated with free money.

25. The normalisation of policy rates should begin while some unconventional policy measures are still in place. Indeed, the continued use of unconventional policy instruments could help to smooth the exit strategy for conventional policy given the need to ensure continued progress towards financial market normalisation and the different pace of exit across countries. A corollary is that exit is likely to take place in different ways across different markets (Minegishi and Cournède, 2010), with central banks using liquidity management tools if necessary to ensure that market rates can be increased despite high levels of excess reserves.

26. In many emerging economies the exit from the crisis is more advanced, as is appropriate with economic slack largely absent, inflationary pressures gaining strength and strong capital inflows. In China, there are signs that reforms have helped the monetary policy transmission mechanism become more effective, suggesting that monetary policy can have a more important role in fostering stability than in the past (OECD, 2010c). The scope to tailor monetary policy to domestic macroeconomic conditions would be enhanced by greater exchange rate flexibility in the medium term, and, in particular, by greater focus on

8. A persistent and one-sided accumulation of errors in estimates of this gap over time is less likely than in estimates of the level of the gap (Orphanides, 2010), notwithstanding the present difficulty of estimating potential output growth.

9. Differences over time in output gap estimates have been found to be attributable primarily to revisions to actual rather than potential GDP (Koske and Pain, 2008). This suggests that much of the uncertainty about the size of the output gap, at least in non-crisis times, simply reflects the uncertainty of GDP data and projections of output growth.

10. Zero rates in larger advanced countries could also spill over into asset price inflation in emerging countries, triggering further distortive policy responses in these countries.

achieving an exchange rate appreciation against a basket of currencies, which would also reduce the costs and risks involved in sterilisation of foreign exchange inflows.

Fiscal policy

27. For fiscal policy, the exit from crisis measures and the restoration of sound public finances is likely to continue well into the medium term in many countries. The pace at which fiscal stimulus is withdrawn should be commensurate with the state of the public finances, the ease at which government debt can be financed, the strength of the recovery, already-announced consolidation commitments and the scope for monetary policy to offset the adverse effects of fiscal tightening. It should also take into account that delays in consolidation, with associated risks of higher debt in the medium term, might increase long-term interest rates and undermine future growth. The automatic stabilisers should be allowed to operate around the planned consolidation paths, except in countries at acute risk of losing credibility and in those in which credibility has already been lost. In countries with more comfortable fiscal positions and credible medium-term programmes, the underlying pace of consolidation could be softened if growth were to turn out significantly weaker than projected in the near term.

28. Fiscal consolidations in which expenditure reductions have a high weight have been found to be more likely to result in durable retrenchment (Guichard *et al*., 2007). However, given the size of the current consolidation needs, a combination of spending cuts and tax increases is likely to be required (OECD, 2010a). On the spending side, raising the retirement age is a way in which consolidation could bring long-term gains whilst having only limited adverse effects on near-term growth. Priority should also be placed on reducing the distortions created by subsidies and tax expenditures. On the tax side, tax increases should be focused on those that do least harm to growth, such as taxes on overall consumption and immovable property, and could be complemented by revenue-generating environmental taxes or emission permit auctions.

29. The choice of consolidation measures has implications for the ease with which monetary policy can accommodate any adverse shock during the recovery. Moreover, the credibility attached to the consolidation programme will affect financial market conditions and hence the monetary policy transmission mechanism. Past consolidation programmes that have been based on expenditure reductions have been more likely to be accommodated by monetary policy than have programmes based on tax increases, because the latter would be more likely to add to inflationary pressures. However, in the current context of weak inflationary pressures this distinction may not apply, although it remains the case that an expenditure-led consolidation is preferable as it will be less likely to have adverse effects on long-term growth prospects and be more likely to be associated with positive effects on credibility.

The short-run effects of structural reforms

30. Since the onset of the crisis, increasing attention has been placed on identifying structural measures that could offer short-term support to aggregate demand, as well as potential long-run benefits for economic growth and for the sustainability of public sector debt dynamics (OECD, 2009). However, the picture is complicated; some reforms that are advisable on the basis of their strong long-term benefits, such as certain reforms to improve product market competition, can have negative side-effects in the near term if they hasten job losses in declining industries. On the other hand, such side-effects will be small if competition-friendly reforms are implemented in sectors in which there is a strong potential for new job growth, such as retail trade and professional services. More generally, by raising the output capacity of the economy, successful growth-enhancing structural reforms would also allow monetary accommodation to continue for a longer period, contributing to a more vigorous recovery. The future beneficial effects of new reforms might also be incorporated quickly into forward-looking asset prices, provided financial markets are not impaired, helping to strengthen balance sheets and support demand.

31. Structural reforms are especially urgent in labour markets to help countries make greater use of their available labour resources more quickly. In the absence of such reforms, there is a substantial risk that high unemployment will prove persistent. In particular, reforms can help to facilitate the reallocation of jobs and workers across sectors and regions and help ensure that job losers and vulnerable groups remain attached to the labour market.

Policy frameworks in the long term

32. An important lesson from the severity of the recent recession is that policy in various areas will have to be more prudent during upswings and build in greater safety margins to be able to react to large adverse shocks. There are good arguments, such as enhanced accountability and better-focused policymaking, for restoring as clear an assignment of policy instruments to policy objectives and policy institutions as possible, but for this to occur it will be especially important that well-founded and internationally consistent reforms to financial regulation and supervision are put in place. Even with such reforms, international spillovers may continue to create challenges for policy assignment from time to time.

Financial Market Policy

33. The crisis has highlighted the need for fundamental reforms to pre-crisis regulatory and supervisory policies. In particular, additional, comprehensive and globally-agreed reforms are needed to strengthen micro-prudential supervision and regulation. Macro-prudential policies also need to be strengthened and become an integral part of the policy framework, with primary responsibility for ensuring financial stability by guarding against the build-up of systemic financial risks and, in particular, the pro-cyclical build-up of financial imbalances (OECD, 2010b; Lawson *et al*., 2009). Macro-prudential regulation should, in principle, enhance the effectiveness with which financial imbalances are tackled by acting as a brake on feedback loops between asset prices and credit supply. International co-ordination in reforming prudential policies is essential to help ensure common minimum regulations and enforcement practices across jurisdictions and reduce the opportunities for regulatory arbitrage. An international effort to achieve financial reforms will be politically challenging, not only in reaching agreement on comprehensive reform, but also in implementing reforms at a time when memories of the crisis are starting to fade and considerable political capital is being expanded on other necessary structural reforms and fiscal consolidation.

Micro-prudential regulation and supervision

34. Financial policy needs to ensure effective and timely micro-prudential regulation and supervision by increasing capital and liquidity buffers and the risk coverage of the regulatory framework so that financial institutions can withstand adverse shocks. Key elements of a global reform package for the banking sector, namely the definition and the minimum required levels of bank capital and the transition period for achieving these standards have been set out by the Basel Committee (BCBS, 2010).[11] The agreed reform of capital requirements and the impeding reform of liquidity requirements should reduce the frequency and economic costs of future financial crises provided they are implemented fully.[12]

11. Additional measures have also been set out to enhance risk management and supervision, and experimental mechanisms to monitor leverage ratios and liquidity standards have been announced. Regulators have agreed that counter-cyclical buffers will be set at the national level at up to 0 to 2½ per cent of risk-weighted assets.

12. Research has found that banking-sector capital adequacy and liquidity, alongside real house price growth, are the most important banking crisis determinants in a group of 14 OECD economies over the period 1980-2006, see Barrell *et al.* (2010). OECD estimates (Slovik and Cournède, 2011), as well as those by the

35. The imposition of a maximum leverage ratio applicable to all assets should also be a key component of the reformed capital requirement framework. This will guard against the inevitable regulatory arbitrage inherent to the risk-weighting approach that underpins the already agreed minimum capital ratios. Progress on a binding standard for the leverage ratio will require international convergence in accounting standards on whether or not to allow the netting of derivative positions. In addition to facilitating the adoption of a common leverage ratio, ending the netting of derivative positions in financial statements would help to reduce the possibility that investors may underestimate exposure to counterparty risk.

Macro-prudential regulation

36. Improved micro-prudential policies may not suffice to ensure financial stability. Important objectives of macro-prudential policies include preventing the build-up of excessive leverage and liquidity risks, and ensuring that prudent collateral policies are being followed. Particular tools that could be employed to reduce the pro-cyclicality of the financial system and raise its capacity to absorb shocks include contingent or direct capital buffers with capital surcharges being applied on top of prevailing micro prudential capital ratios, dynamic loss provisioning, risk weights that are a function of aggregate borrowers' leverage and procedures for the orderly resolution of cross-border financial institutions.[13] Other potential measures include limits on both the maximum loan-to-value ratio in mortgage lending and loan servicing costs relative to income, as well as margins requirements for securities trading. In addition, stress tests of banks should become more systemic, be undertaken on a regular basis and harmonised further across jurisdictions, with the detailed results being made available publicly. It will also be important to deal with incentive problems embedded in the structure of financial institutions and remuneration systems and, as discussed below, to deal with moral hazard problems for financial institutions that are deemed too important to fail.

37. There are numerous practical implementation difficulties in adopting such measures (Visco, 2011). Important issues to be addressed include the choice of indicators to consider when setting these policy instruments and decisions as to how policy responses should be calibrated. Another issue is whether policy measures should obey a simple rule, or whether more discretion should be allowed for (Yellen, 2010). Rules have clear advantages over discretion for financial markets, making actions as transparent and predictable as possible, but regulatory and supervisory judgement will almost certainly be required as well, given the complexity of financial markets. It will be important to ensure that macro-prudential bodies have a clear mandate and are accountable for it. Once a proper macro-prudential framework is in place, there should be less need to use policy interest rates to 'lean' against asset and credit bubbles.

Open issues: TBTF, cross-border colleges and non-banks

38. A number of open issues remain that require further progress in order to strengthen the financial stability framework (Blundell-Wignall and Atkinson, 2010). These include measures to deal with systemically important financial institutions, the resolution of impaired cross-border banking problems and enhanced supervision and regulation of non-bank financial institutions.[14]

Macroeconomic Assessment Group of the Financial Stability Board and the Basel Committee on Banking Supervision suggest that the impact on GDP of higher capital standards should be relatively moderate and distributed through time. However, such effects could be enhanced if banks were to rush to attain the new standards ahead of the announced deadline.

13. On capital surcharges see Bank of England (2009).

14. An additional issue, not discussed here, is the need to strengthen financial consumer protection (Lumpkin, 2010).

- Some financial institutions are so big or so interconnected that they have become systemically important and therefore cannot be allowed to fail. This was the case before the crisis, but the crisis has exacerbated the problem, with government support becoming explicit and concentration increasing considerably. Such institutions have an incentive to take excessive risk and benefit from a competitive edge in terms of funding costs and the range of collateral they can accept because of their *de facto* government backstop. There are different ways in which this problem can be addressed. An obvious option is to break up systemically important institutions, although this could be challenging, not least for political economy reasons.[15] An alternative option would be to impose higher capital requirements for such institutions, including in the form of contingent capital,[16] as well as stronger supervision than for other institutions in order to limit their risk exposure. Systemically important financial institutions could also be mandated to prepare "living wills" detailing how they should be unwound, including how losses would be distributed across creditors and counterparties, in case of failure. One difficulty of applying specific regulations to a particular set of firms is that this would provide regulatory recognition of the too-big-to-fail status, which could compound the problem that is being addressed. This difficulty may, however, be overcome in the case of requirements to hold more capital in equity or contingent notes if any surcharge is universal but specified as an increasing function of bank size and interconnectedness, rather than applied to a designated set of institutions.

- Further measures are required to ensure that an integrated supervisory framework is in place during future crises. The overall stability of the financial system remains primarily a national responsibility, with cross-border financial institutions mostly supervised by the authorities in the country where they are licensed. This might create an uneven playing field, as regulations and national supervisory frameworks differ across jurisdictions, and might also hamper the response at times of crisis, even though colleges of supervisors have access to supervisory information on cross-border banks.[17] Procedures for crisis management would be enhanced by putting in place harmonised special insolvency or resolution regimes across the world to deal with the resolution of impaired banks. Work has already begun, under the auspices of the G20, to establish procedures for dealing with global systemically-important financial institutions (G-SIFIs), but also needs to be extended to cover other institutions as well.

- Finally, financial reform cannot be confined to banking. Other things being equal, the tightening of bank regulation will encourage the shifting of risk to other parts of the financial sector. In this respect, it is particularly important to ensure that regulations are capable of avoiding the build-up of systemic risk in these activities in non-bank financial institutions, including pension funds, hedge funds, other types of investment funds and, more tentatively, insurance companies.

15. The gross welfare costs of such a measure are uncertain, but could be benign to the extent that many empirical studies suggest that banking involves no significant economies of scale, and more tentatively scope, beyond a relatively small size (Amel *et al*, 2004; Goisis *et al*., 2009). Practical options are available to ensure that the transition cost is limited as well: one of them is to group the key central support services of the former megabank in a separate entity that would serve the individual banks resulting from the break-up.

16. Contingent capital notes are hybrid debt instruments that convert into equity when a certain threshold is crossed. These need to be implemented in such a way as to avoid the fear of conversion creating or amplifying a panic when the issuer approaches the threshold (Penacchi *et al*, 2010).

17. Multiple and non-harmonised national supervisory rules and practices also imply high costs of regulatory compliance for cross-border banks.

Monetary Policy

Should monetary policy lean against or clean asset price booms?

39. The crisis has reopened the longstanding debate about whether monetary policy should seek to lean actively against asset price bubbles, by making policy less accommodative than warranted for price stability purposes, or simply be used to clean up after the bubbles have burst. As discussed above, the broad consensus prior to the crisis was in favour of 'cleaning' but not 'leaning', reflecting practical problems such as the difficulties of identifying asset price bubbles in real time, as well as concerns that an excessively tight monetary policy might end up destabilising the economy and result in inflation expectations becoming unanchored. However, this strategy has been blamed for the build-up of disequilibria prior to the crisis, and the high costs of systemic financial instability shown by the crisis have strengthened the case for using monetary policy to lean against asset price bubbles, especially in circumstances in which rising asset prices are accompanied by rapid, bank-financed, credit growth (Blinder, 2010; Stark, 2010). Adopting an asymmetric position of cleaning, but not leaning, could also create moral hazard and encourage excessive risk-taking. Recent research into the risk-taking channel of monetary policy transmission (Borio and Zhu, 2008) also suggests that monetary policy could have an important signalling role during boom periods, since risk perceptions and risk tolerance may be correlated with the monetary policy stance. At the very least, monetary policy should adopt a precautionary approach and guard against an unnecessarily lax policy stance that might fuel asset price misalignments.[18]

40. This does not mean that credit and asset prices should be added to the formal objective function of monetary policy alongside inflation and, in some cases, resource utilisation. Doing so risks blurring the assignment of policy instruments to targets, thus making monetary policy accountability and the communication of monetary policy actions more difficult. If bubbles can be identified, other tools, notably macro and micro-prudential regulations and supervision offer a better-targeted means of dealing with such problems (Bean *et al*., 2010; Svensson, 2010a). Indeed, relieving monetary policy from the task of leaning against asset price movements is one of the important rationales for establishing strong macro-prudential frameworks. Nonetheless, financial variables and financial markets remain important factors that should continue to be incorporated into forward-looking monetary policy decisions on a regular basis, as is currently the case with the European Central Bank, not least because such financial factors affect the monetary policy transmission mechanism and the calibration of monetary policy decisions.[19] It would not be surprising for policy rates to be raised at times of strong credit and asset price growth if such growth contained information about future economic developments, including the possibility of financial instability, during the horizon relevant for monetary policy decisions. And if other instruments to ensure financial stability were to be unavailable, or impaired, the argument for setting policy rates higher than would otherwise be the case during boom periods would be enhanced. In effect, such a step could be seen as enhancing future price stability by reducing the risks of financial instability (Svensson, 2010a, b). It also

18. Empirical evidence suggests that monetary policy is only one of many factors that affect asset prices, as shown by recent research into the determinants of house price developments (Andrews *et al*., 2010; Bean *et al.*, 2010), and may be an excessively blunt tool for tackling financial imbalances (Assenmacher-Wesche and Gerlach, 2010). Nonetheless, there is evidence that in some economies past episodes in which policy rates were below those suggested by simple rules, such as the Taylor rule, coincided with periods of strong asset price growth (Ahrend, 2010).

19. Indeed, the crisis has shown that more research is needed to understand the effect of financial conditions and financial intermediation on the monetary policy transmission mechanism.

aises the issue of whether the horizon of monetary policy should be extended so as to allow policy to act effectively as a stabilisation tool.[20]

Should the monetary policy target change?

41. The experience of the crisis, with policy interest rates being lowered close to zero, has sparked debate about possible changes to the medium-term monetary policy framework to enhance policy flexibility and effectiveness in the near term, whilst retaining the focus on longer-term price stability. Broadly speaking two alternative measures have been proposed: targeting a slightly higher rate of inflation than at present and moving to a price-level target.

42. Prior to the crisis, several studies suggested that in normal times, with inflation expectations well anchored, inflation targets of around 2% should provide sufficient room for nominal policy rates to be adjusted with only a modest risk of hitting the zero lower bound, and with limited costs if it did, given the limited frequency of large shocks (Yates, 2004). The experience of the crisis, the need for policy interest rates to remain at zero for an extended period and the increased reliance on non-standard monetary policy measures, have led to suggestions that inflation targets should be raised in order to provide room for policymakers to react to large, albeit infrequent, adverse shocks (Williams, 2009; Blanchard *et al*., 2010). Two additional benefits of such an adjustment might be that it would create space for policy manoeuvre if there was a need to 'lean' against strong credit and asset price growth at a time of rising inflationary pressure, and that it would enhance real wage flexibilities in those economies characterised by high downward nominal wage rigidity, thereby acting as an insurance against negative shocks that require a fall in real wages to mitigate the rise in unemployment (Summers, 1991). A side effect of raising the target unexpectedly would be that it would have a one-time benefit for the fiscal authorities, by reducing the real value of outstanding debt, although this is not a reason for changing the target, not least because it could be offset by higher premia on sovereign debt rates in the future.

43. The literature is somewhat mixed as to the effects of an increase in the level of inflation on growth and welfare, although the main body of evidence suggests that the effects of a small upward adjustment would be modest provided that it did not enhance the variability of inflation (OECD, 2003).[21] More generally, some studies suggest that the negative effects from inflation arise only above a certain threshold rate of inflation, perhaps around 3% for industrial countries (Khan and Senhadji, 2001), implying that the costs of a small rise in the inflation buffer may be limited. Against this, it has been argued that even a small increase in inflation may compound other distortions, such as those created by taxation (Feldstein, 1999), to create serious negative welfare effects. More importantly perhaps, the transition to a higher inflation target could have serious costs if the change in the inflation target resulted in inflation expectations becoming less well anchored, inflation becoming more volatile and central banks losing hard-won credibility (Bean *et al.*, 2010).[22] And inflation above 2% could hardly be regarded as price stability, especially since quality-adjustments are increasingly incorporated into many price estimates, suggesting that even an inflation target around 2% might now be somewhat higher than is consistent with

20. In general, the horizon will vary according to the initial situation of the economy, the nature and size of the shocks hitting the economy, the distance of inflation from target and the extent to economic slack (Svensson, 2010b).

21. Estimates in OECD (2003) suggest that a reduction of one percentage point in inflation could lead to an increase of about 0.13 per cent in the level of output per capita, though this is based on data from a period in which inflation was relatively high in many countries.

22. Other possible costs would arise from larger distortions in tax systems that are not inflation neutral and the greater uncertainty induced by a wider dispersion of relative prices, although they might also be able to adjust more quickly than before.

price stability. On the other hand, the intrinsic value of price stability may be open to question if it is not associated with optimum growth and welfare.

44. A related suggestion is that the monetary authorities should target the price level rather than the inflation rate. In theory this should provide greater certainty about the price level in the medium and long term, enhancing welfare. And if the price-level target is fully credible, it could in theory also provide a more effective stabilising mechanism than an inflation target (Eggertsson and Woodford, 2003; Ambler, 2009; Cournède and Moccero, 2009). In periods in which the price level was above the price level target, a lower inflation rate will be expected, raising long-term real interest rates and thereby damping activity and prices, helping to bring the price level back to the announced trajectory. Such a mechanism can be especially important if deflationary pressures start to build up when nominal policy rates are close to zero, though these may also be times in which the credibility of the authorities' resolve and ability to pursue the price level target may be tested severely.[23] More generally, in normal times the price-level target should reduce the need for large shifts in nominal policy rates after adverse demand shocks and may reduce the probability of hitting the zero bound.

45. The extent to which price-level targeting can be successful depends on the credibility attached to the policy commitment and the degree to which expectations behaviour is forward-looking. It works well in simulation models in which the target is fully understood, but less well in situations in which expectations are adaptive or based on rules of thumb (Murray, 2010). Introducing price-level targeting would also entail a number of practical implementation and communication difficulties (Goodhart, 2005; Edey, 2008), including the choice of the price series, the target trajectory, the timing of the switch of targets, and decisions about the timeframe in which policy is set to bring the price level back to the target path.[24] Deciding how to deal with a one-time rise in indirect taxes or in commodity prices could also be challenging, especially if there is already spare capacity in the economy (Bean *et al.*, 2010). Such factors should have a temporary effect on inflation, but a permanent effect on the price level, which would have to be unwound, potentially placing further downward pressure on demand. For all these reasons, moving to price-level targets seems likely to prove excessively complex in practice.

Should unconventional policy measures be used outside times of crisis?

46. The longer-term effects from the unconventional monetary policy measures adopted during the crisis remain to be seen, although it is clear that during the crisis many were broadly successful in terms of improving conditions in financial markets and stabilising the real economy (Chung et al., 2011). This raises the question as to whether elements of such policies could be used on a more permanent basis to enhance the operational capacity of central banks in normal times and to facilitate the transmission of policy at times of low policy rates, even if policy interest rates continue to be the primary instrument for monetary policy. For instance, measures such as interest payments on central bank deposits could enhance operational capacity (Minegishi and Cournède, 2010).[25]

23. Evans (2010) proposes a state-contingent price-level targeting regime, in which a price-level target is used specifically at times in which inflation is either close to zero or negative. At other times, the standard inflation target regime is in operation.

24. The choice of the price index is not innocuous, and could contribute to uncertainty if a national accounts series such as the private consumption deflator (PCE) is used, since the historical price level is prone to revisions overtime. A related possibility is the "foolproof" approach set out by Svensson (2003). This combines a commitment to a higher future price level, concrete action to show commitment to this price level and an exit strategy that specifies how to return to "normal".

25. In addition, some new elements in the operational frameworks of central banks such as expanded eligibility for higher-quality collateral and broader liquidity management procedures might usefully be retained (IMF, 2010). Currency swap lines might also usefully be kept open, for contingency purposes in the event of future crises, to help ease adjustments to short-term exchange rate fluctuations.

47. But practical considerations suggest that the use of QE policies should be avoided in normal times (Borio and Disyatat, 2009; Bean *et al.*, 2010). In particular, continual purchases of government debt might cast doubt on the independence of central banks by suggesting that purchases are being made for fiscal reasons rather than monetary ones. They could also raise the suspicion that public debt is to be monetised, with adverse effects on inflation expectations. Central bank interventions in private debt markets could also create distortions and undermine market efficiency. More generally, QE policies have highlighted concerns about the degree of risk-taking on central bank balance sheets, including potential risks associated with sovereign bonds, and the need for capital injections and/or guarantees against potential losses to be given to central banks to strengthen their balance sheets.

48. There is also an important distinction between the objectives of the non-standard measures and the means adopted in the crisis to achieve these. For instance, if central banks want to influence the shape of the yield curve, it would be best achieved through good communication policies or conventional sterilised open-market purchases of longer-dated securities rather than via QE (Blinder, 2010b). Equally, any long-lasting impediments in the monetary policy transmission mechanism arising from factors such as distressed banks or solvency concerns about sovereign debts would best be tackled through means other than non-standard monetary policies.

49. The bottom line is that, under the assumption that more effective and timely macro and micro-prudential regulation and supervision can be put in place, monetary policy should be focused on attaining a low and stable rate of inflation in normal times. Monetary policy should not focus unduly on financial stability, although greater attention may have to be paid to the implications of financial markets and balance sheet developments for future activity and inflation developments.

Interconnections between monetary and macro-prudential policies

50. Macro-prudential policy and monetary policy are conceptually distinct and in normal times, make use of different policy instruments. Nonetheless, as the crisis has made clear, it is essential that there is close co-ordination between the monetary and the regulatory authorities to ensure that systemic risk and macro-financial linkages are monitored effectively and are able to be incorporated fully in both monetary and macro-prudential policy decisions. The application of macro-prudential policies will affect monetary policy transmission, especially through the credit channel. Equally, accommodating monetary policy might stimulate risk-taking and the build-up of leverage.

51. It is clear that central banks should be involved actively in macro-prudential policy; an open question is whether statutory responsibility for ensuring financial stability is given to them. An advantage of a single institution or a single committee for monetary and macro-prudential policy is that it can set an optimal policy response to multiple economic shocks by balancing several policy objectives and instruments, accounting for interdependencies among tools and the relative importance of different shocks. On the other hand, having separate authorities or committees, each with their area of responsibility and policy instrument, would offer greater accountability. Objectives and mandates would be assigned clearly, enabling performance to be more easily monitored, insofar as each authority's objective is not influenced too much by the instruments set by the other authorities. If this set-up were to emerge as the preferred framework, a clear coordination mechanism between the central banks and the regulatory authorities would be needed to identify the build-up of systemic risks and decide the best response to them.

52. In practice, the alignment of monetary and macro-prudential policies will depend on the type of shocks occurring and the ability of each policy to respond. Both types of policy are likely to respond to aggregate demand shocks in a similar manner, but this may not be the case for aggregate supply shocks. As discussed above, monetary policy may need to place greater weight on financial stability issues if macro-prudential policies are impaired for any reason, or not yet fully in place. Equally, if policy interest rates are at the zero bound, macro-prudential policies might have to place greater weight on their macroeconomic effects than would otherwise be the case (Yellen, 2010).

53. There is also a related issue about where responsibility for micro-prudential supervision should lie and, in particular, the delegation of policy responsibility for dealing with impaired institutions. Ultimate responsibility for paying for bank failures should lie with the fiscal authorities. Central banks are the 'lender of last resort', but in normal times should not be involved in rescuing financial institutions unless explicitly guaranteed by the fiscal authorities. In the event of the failure of a cross-border institution, clear arrangements will need to be in place between governments for burden sharing.

Fiscal Policy

54. In the medium term, institutional reforms are required in several OECD countries to strengthen the framework for fiscal policy in various ways in order to ensure sound public finances and adequate fiscal space to respond to any future crises. Substantial fiscal adjustments will be required over the medium term in many countries simply to stabilise debt-to-GDP ratios at pre-crisis levels, let alone to push debt ratios down further (OECD, 2010a, Table 4.4).[26] In several OECD countries, fiscal challenges are exacerbated in the long term by spending pressures related to health care, long-term care and pensions.[27] In addition, future fiscal outcomes may be influenced by the implicit liabilities incurred in rescuing financial institutions.[28] Furthermore, future fiscal frameworks will have to take better account of imbalances arising in the private sector, such as the gaps between private saving and private investment during housing booms, as these have implications for the assessment of structural budget balances and the effectiveness of fiscal policy actions.

55. Medium-term fiscal frameworks including well-designed fiscal rules can assist fiscal policy in becoming more sustainable, transparent, predictable and counter-cyclical. In particular, medium-term expenditure rules offer a way of limiting boom-bust spending cycles by setting a multi-year plan or ceiling for government expenditure and ensuring that stronger than expected revenues are saved rather than spent. And, by building up reserves during expansionary phases of the cycle, expenditure rules can help to create room for discretionary stimulus and the unconstrained functioning of automatic stabilisers in a downturn.

56. Fiscal rules need to strike a balance between being sufficiently binding to be useful and sufficiently flexible in unusual times, without compromising credibility. Simple balanced-budget rules that force governments to cut spending when revenue falls during a downturn can be destabilising. Similarly, excessively-rigid expenditure rules might inhibit necessary discretionary stimulus in severe downturns. And simply suspending fiscal rules at times of crisis, as many countries have done, has potentially lasting adverse consequences for their credibility. If credibility is to be underpinned, it is important to define the conditions under which the fiscal rule can be suspended temporarily.

57. A general problem with all fiscal rules is that they can encourage "gimmickry", such as one-off measures and creative accounting, to circumvent them (Koen and van den Noord, 2005). This problem might be more serious with an ambitious expenditure rule, since this will "bite" more often than a deficit rule, giving a stronger incentive to circumvent it. Part of the solution is to ensure the expenditure rule has a wide ambit to include total expenditure (Price, 2010), applies to different levels of government and includes the monitoring of tax expenditures (Anderson and Minarik, 2006). Within this framework, decisions on individual spending categories should be made in line with considerations for efficiency and

26 . In some countries, such as the United States, new budgetary announcements since the publication of OECD (2010a) will change the near-term fiscal position and have implications for the consolidation required to stabilise the debt-to-GDP ratio in the long-term.

27. These costs are estimated to amount to between 1 and 5½ per cent of GDP in the OECD area over the next 15 years (OECD, 2010a, Table 4.5), and measures to address these would come in addition to those required to deal with the consolidation requirements to stabilise debt over the long-term.

28. Such contingent liabilities are particularly high in the United Kingdom at around 40% of GDP and around 15% in France and Germany (IMF, 2010b).

other government objectives, following the principles mentioned above to make fiscal arrangements more growth friendly. A risk with strict fiscal rules is that they may be accompanied by the imposition of regulations or mandates on private sector activity to attain outcomes previously obtained by fiscal instruments, thereby harming economic efficiency.

58. Establishing an independent fiscal council (IFC) can be an important means of strengthening the compliance with announced fiscal targets, as it raises the political cost of deviating from them, especially if IFCs provide judgments on fiscal policy decisions. There is also some empirical evidence that independent agencies might help to improve equity and efficiency in fiscal decision making, reduce distortions arising from political incentives and improve fiscal discipline (Khemati, 2007; Eichenberger and Schelker, 2007) although causality may go both ways. To be effective, an IFC needs to have an important role in the budget process although government should keep the final budget responsibility (Debrun *et al*., 2009). Over-optimistic macroeconomic forecasts have been a principal culprit in past episodes of fiscal indiscipline; thus a key potential role for an independent agency in the budget process would be to provide independent economic and revenue forecasts that the government would base budget judgements on. IFCs need to be supported by fully independent statistical agencies and auditing offices that record outlays and incomes using appropriate accounting principles.

59. More generally, an important feature of a new fiscal framework would be to make fiscal policy decisions more robust to budgetary uncertainty. For instance, asset price related tax revenue surprises have been an important source of bias in the assessment of structural budget balances. Recent and ongoing work at the OECD shows possible ways to adjust the budget balances for asset-price cycles (see Box 3 and Price and Dang (forthcoming)). Beyond this, uncertainties about the cyclically-adjusted budget balance can also arise from a range of other sources, such as uncertainty about the output gap and revisions to revenue and spending items. These uncertainties should be explicitly taken into account in the budget process. This can be done in a variety of ways, for example through fan charts of cyclically-adjusted budget balances, analyses of several scenarios or deliberately cautious assumptions about crucial variables such as potential output growth (Koske and Pain, 2008; Bos, 2008). And with public finances in many countries now exposed to contingent liabilities arising from guarantees extended to the financial sector, regular stress-testing of government deficit and debt positions would be warranted.

Box 3. Adjusting fiscal balances for asset price cycles

Traditionally, cyclically-adjusted budget balance indicators correct the actual balance for the effect of the activity cycle on revenue and spending items. However, in addition to the activity cycle several revenue components are affected by asset price cycles. Failure to account for asset price movements may thus lead – and has led in the recent past – to a distorted picture of the fiscal position (Joumard and André, 2008). Relatively little attention has been paid to how revenues are affected by asset price cycles. This is partly due to conceptual problems. For example, there is no consensus on how to identify "equilibrium" asset prices in order to disentangle a temporary from a permanent asset price movement. Recent work at the OECD explores ways to systematically correct for asset price cycles in fiscal balances (see Price and Dang, forthcoming).

This work builds on the existing framework for adjusting the budget balance for the real cycle. The existing approach adjusts personal and corporate income taxes, indirect taxes and social security contributions for movements in the output gap and unemployment-related expenditures for the unemployment gap.[1] The new approach also adjusts several tax revenue components for asset-price cycles according to the following simplified formula:

$$T_k^* = T_k (A_k^* / A_k)^{\varepsilon_{t,a}}$$

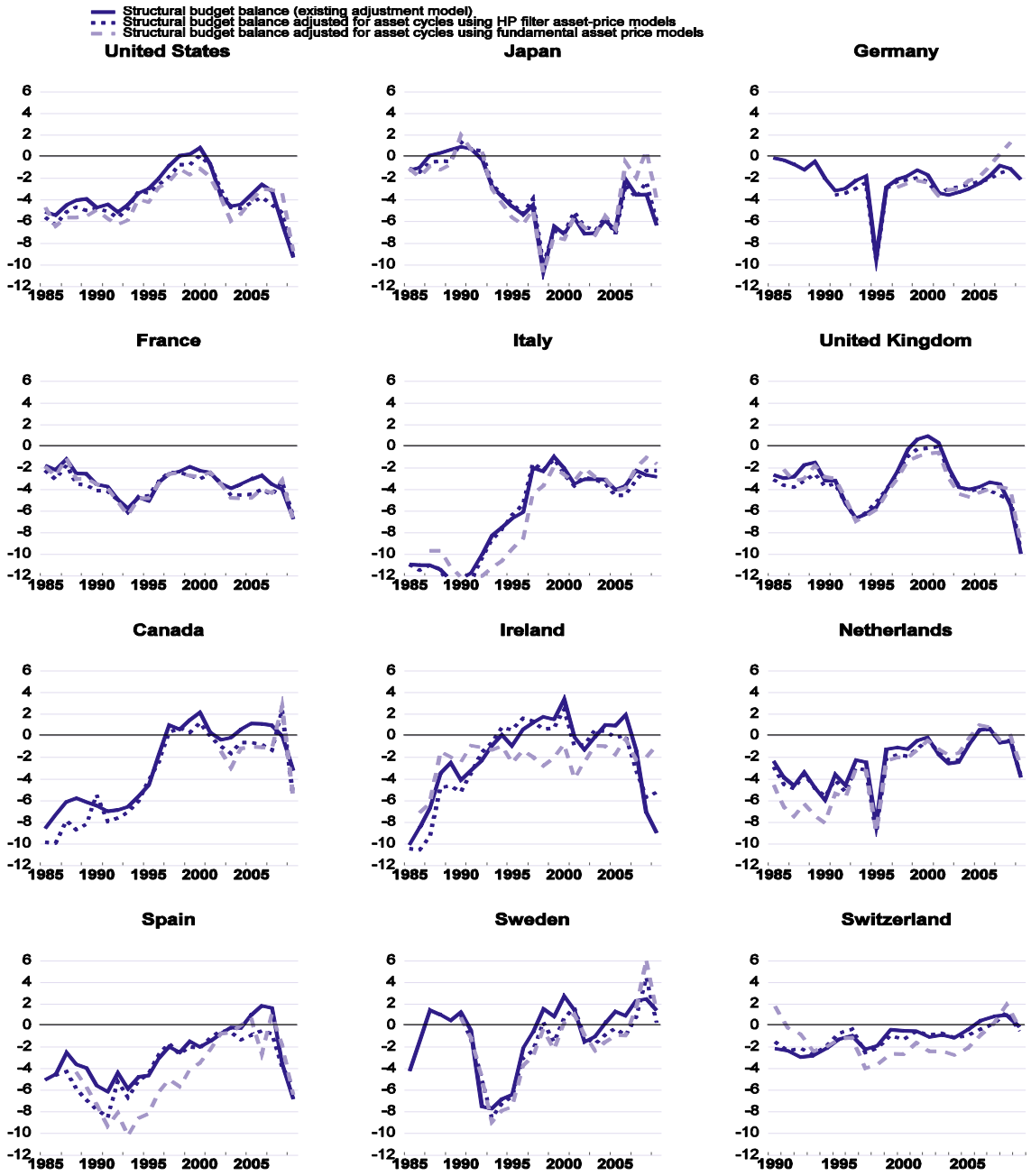
where T_k^* is the asset-price adjusted tax revenue category k, T_k is the unadjusted tax revenue category k, A_k^* and A_k are the trend (or equilibrium) price of the asset and the actual asset price, respectively. The term A_k^* / A_k is thus analogous to the output gap. Finally, $\varepsilon_{t,a}$ is the elasticity of tax revenues with respect to the asset price. The asset prices considered are stock and house prices.

Elasticities with respect to asset prices have been estimated for the following tax categories: individual and corporate capital gains taxes, taxes on immovable property and wealth, financial and capital transaction taxes and estate, inheritance and gift taxes. In addition, an elasticity for indirect taxes with respect to residential investment has been calculated to capture value-added taxes on new housing in countries in which such a tax is levied.[2] To capture the complicated lag structures between asset prices and relevant tax bases, elasticities have been estimated in an error correction model which allows estimating long-run and short-run elasticities as well as adjustment speeds separately. The tax elasticities are then aggregated into (national account) tax categories of the existing framework according to their revenue shares.[3]

To account for the fact that no consensus exists on how to identify asset cycles, alternative measures of asset gaps have been constructed in order to assess the sensitivity of the preferred approach. The first alternative method separates a trend and a cyclical component of equity and house prices based on an HP filter. The second alternative method makes uses of estimates of the fundamental component of asset price movements. Fundamental house prices have been estimated based on user cost adjusted price-to-rent ratios following André (2010).[4] Fundamental stock prices are based on long-run price-earnings ratios using a variant of the Gordon formula. Price and Dang (forthcoming) show that stock price gaps seem to differ depending on the chosen approach, especially in the run-up to the current crisis. While the stock price model based on the fundamental price-earnings ratio tends to show an undervaluation of stock markets before the recent recession, the HP filter tends to show an overvaluation. House prices seem to be less affected by measurement differences.

Comparisons between the traditional and the new asset-price adjusted structural balances show that the extent of asset price adjustment differs substantially among countries (see figure). A consistent picture appears to exist, however, prior to the burst of the dot-com bubble (1996-1999), when asset-price adjusted structural balances were significantly more negative than the unadjusted measure in virtually all countries (around 1.5 percentage points of potential GDP on average across the countries displayed here in case of the fundamental asset price models). A more heterogeneous picture emerges in the pre-financial crisis period. Most affected are Canada, Ireland and Sweden, where the negative adjustment is around 2% of potential GDP, followed by France, Switzerland and Spain where the negative adjustment is around 1½ per cent. However, the definition of the asset-price gap can make a difference especially in the pre-financial crisis period.

Asset price adjusted budget balance (in % of potential GDP)



Source: Price and Dang (forthcoming).

1. For details see Girouard and André (2005).

2. Data on capital gains taxes for households and co-operations are only available for a very limited number of countries. Thus capital gains tax elasticities are estimated using the broader personal and corporate tax income categories controlling for other tax bases such as income and profits.

3. For details see Price and Dang (forthcoming).

4. One drawback of the model is that it does not reflect structural changes in housing and housing-finance markets and may thus overstate housing price gaps.

60. In monetary unions, fiscal governance can be strengthened through more intense market discipline by allowing for the possibility of orderly debt restructuring. Based on the belief that countries with unsustainable fiscal positions would not be bailed out and private sector losses would have to be incurred in the case of debt restructuring, financial markets may enhance their monitoring of fiscal developments and adequately price sovereign default risk. Credibility is crucial for market discipline to be effective and can be established through rules and institutions that facilitate the orderly and voluntary restructuring of sovereign debt. The priority of claims would have to be clearly established as well as the inclusion of collective action clauses in debt contracts and the minimum share of creditors required to accept restructuring that is binding for all creditors. To limit the risk of financial contagion, financial regulations should take into account the possibility of sovereign default both in terms of capital requirements and in requiring appropriate diversification of risk. This also calls into question whether the zero-risk weighting given to sovereign debt holdings under the Basel II and III frameworks is appropriate. The existence of differentiated sovereign risk might also need to be taken into account in the context of collateral for central bank liquidity.

Structural Policy

61. The risk of a permanent reduction in potential output from the crisis underlines the need for structural policy reforms to be a central pillar of medium-term policy frameworks. Indeed, the medium-term effects from implementing such reforms could facilitate the fiscal consolidation that is needed over a similar timeframe (OECD, 2010a), as well as providing a boost to longer-term growth and helping to narrow global imbalances. Moreover, such reforms may often also enhance the resilience of economies to future shocks. A continued focus on the areas of reforms recommended before the crisis appears warranted.

Interactions between structural and fiscal policies

62. As discussed above, there are several ways in which growth-enhancing structural reforms can contribute positively to fiscal consolidation in the medium to long term. For example, increasing the retirement age can boost labour utilisation while at the same time mitigating the budget pressures resulting from ageing societies. Furthermore, moving to national or international best practices in the provision of health and educational services can boost public-sector efficiency and thus create room for consolidation. If tax increases are necessary, these should be restricted to areas that are known to be the least harmful for growth, such as consumption and property taxes. More generally, reforms that boost private sector employment appear particularly well-suited in this context, raising tax revenues, reducing unemployment benefits and lowering the GDP share of the public-sector wage bill. Calculations in OECD (2010a) suggest that a 1 percentage point improvement in potential employment may improve government balances by between 0.3-0.8 per cent of GDP. Productivity enhancing product-market reforms also have the potential to increase tax revenues, but gains in productivity are likely to be reflected in higher wages in general, with higher public-sector wages and transfers offsetting, at least partly, increased tax revenues. Nevertheless product market reforms may ease adjustments to consolidations and help address saving-investment imbalances.

Improving resilience to shocks

63. Structural reforms to ease rigidities in labour and product markets are also needed more than ever to help make national economies more resilient to economic shocks, either by damping the impact of shocks or by making their impact less persistent and thereby facilitating the recovery from recessions. Many structural policies have opposite effects on these two dimensions of resilience, although typically the net impact of less-rigid policies is to reduce the cumulated costs of economic shocks (Duval and Vogel, 2008). In particular, reforms that lower employment protection for regular workers, reduce the degree of centralisation in wage bargaining, and weaken anti-competitive product-market regulations, could all enhance resilience, although potentially at a cost of a deeper initial impact from shocks. This suggests that the prompt and effective implementation of micro and macro-prudential reforms could also help to improve resilience by helping ensure the monetary policy transmission mechanism is working effectively and that financial intermediation continues to function effectively, even at times of crisis.[29]

International policy co-ordination, rebalancing and spillovers

64. In the longer term, mechanisms need to be found that allow cross-country differences in policy frameworks and policy settings to co-exist in a way that promotes macroeconomic stability and economic growth. This will require enhanced international co-operation, surveillance and communication in setting policy priorities and in minimising any potential adverse side-effects that can arise from the resulting policy combination. One aspect of this is the international effort underway to strengthen prudential frameworks around the world in a consistent manner to enhance financial stability. Beyond this, the role of the G20 *Framework for Strong Sustainable and Balanced Growth* is to identify a combination of macroeconomic, structural and exchange rate policies that would strengthen growth prospects and help to achieve more sustainable fiscal positions whilst minimising the risks of renewed widening in global imbalances. The potential contributions of different kinds of structural policies towards these objectives are set out in Table 3.

65. Structural reforms have a key role in addressing the underlying determinants of global imbalances, through their impact on saving and investment (Kerdrain *et al*., 2010; OECD, 2010d). A well-designed package of structural reforms to reduce product market regulations in sheltered sectors and improve social welfare systems in non-OECD countries, in conjunction with fiscal consolidation, would help to narrow global imbalances in the years ahead.

66. Co-operation is also necessary if the international monetary system is to be strengthened (Bernanke, 2010). In particular, reforms are needed to facilitate the movement of exchange rates in line with economic fundamentals. In the long term, real exchange rates will move to allow policy differences, as well as generally-different growth rates, inflation and fiscal positions, to co-exist. If the nominal exchange rate is fixed, the required changes have to come through adjustment to wages and prices. Such adjustments can take a long time to come about and persistent currency misalignments in the interim can help to generate external imbalances that ultimately become unsustainable. The nominal exchange rate is thus an important safety valve that allows different policy frameworks to co-exist. That said, excessive exchange rate volatility can also have costs.

29. There is some evidence that household mortgage debt, treated as a proxy for the strength of the monetary policy transmission mechanism, reduces the persistence of economic shocks (Duval and Vogel, 2008).

Table 3. Structural reforms

Particularly suitable for external surplus countries with :
High or moderate need for fiscal consolidation
Ease product market regulation
Reduce state control of potentially competitive activities
Reduce support to agriculture
Enhance efficiency of public spending in health, education and pensions
Increase retirement age
Reduce tax wedge on labour and change tax structure
Reduce corporate Income tax and change tax structure
Relax FDI restrictions
Low need for fiscal consolidation
Increase growth-enhancing public spending (education, innovation, infrastructure)
Increase ALMP spending
Reduce tariffs on international trade
Particularly suitable for external deficit countries with :
High or moderate need for fiscal consolidation
Reform of employment protection
Reforms to unemployment and disability/sickness benefits
Low need for fiscal consolidation
Measures to enhance price and non-price external competitiveness (increased public support for innovation; reduced employers' labour costs).

Note: Reforms reported could either reduce or be neutral for current account imbalances in all economies. Reforms reported as suitable for countries with high or moderate need for fiscal consolidation are either positive or neutral for fiscal positions.
Countries with low fiscal consolidation needs are ones where sufficient fiscal space exists to implement the suggested reforms.

The table does not report reforms that would enhance growth prospects but further increase current account and/or – for countries with high or moderate fiscal consolidation needs – fiscal imbalances. Only the direct fiscal effects of reforms are considered here: in the medium to longer run, many reforms contribute indirectly to fiscal consolidation through their positive impact on labour utilisation and/or productivity.

Source: OECD classification, Going for Growth 2011, forthcoming.

67. Over time, it would be expected that emerging market economies would experience a real exchange rate appreciation, reflecting the prospects for stronger growth and economic development. Strong capital inflows and upward pressure on currencies are thus to be expected, and are consistent with their relatively good economic prospects and with the requirements for balanced global growth. As a result, the real exchange rate will, on average, be a tightening influence on monetary conditions in these economies, reducing the requirements that would otherwise be placed on domestic monetary policy (Box 4).

68. In the near term, attempts to use currency market intervention or regulations and restrictions on capital movements to limit upward exchange rate pressures may help to damp the adverse effects that strong capital inflows would have in economies in which financial institutions and policies are not yet fully developed. However, it is important that such policies are not used for the purpose of competitive devaluation of currencies or used to delay excessively real exchange rate appreciation that is consistent with underlying fundamentals. Further ahead, financial market deepening and improved policy frameworks in emerging economies, including the implementation of harmonised international reforms to micro and macro-prudential policies, would prove a more effective line of defence against the negative effects of strong, speculative capital inflows.

Box 4. Exchange-rate tensions during the exit from the crisis[1]

The exit from the crisis has been accompanied by a sharp rise in the level of capital flows from countries with weak activity and accommodating monetary policies towards countries with more buoyant activity and less accommodating monetary policy, especially to emerging economies in Asia and Latin America. Such flows, and the associated changes in real exchange rates, will contribute to the needed international rebalancing of demand during the exit, but they also pose considerable policy challenges for the recipient host countries.

A potential downside is that a sizable move in the exchange rate could result in a rather uneven distribution of the adjustment burden, with sectors directly exposed to the exchange rate bearing most of the adjustment and other domestic sectors (and asset markets) continuing to expand strongly.

A further risk for the host economies is that strong inward capital flows could push up asset values, with attendant risks of high output volatility and excessive credit growth. Weaknesses in domestic financial regulation can also lead to concerns about the robustness of financial institutions should capital flows reverse suddenly.

As discussed in the main text, tackling such challenges is best done through a mix of micro and macro-prudential policies in host-country financial markets and also through the deepening of financial markets. However, such changes will take time to put in place. Other possible policy options in the near term include foreign exchange intervention and other measures to damp capital inflows, such as taxes on capital inflows or direct capital controls, and reserve accumulation, via foreign exchange intervention.

If the exchange rate movement is seen as a short-lived overshooting, there could be an argument for temporary intervention to smooth the adjustment. However, there is a risk that such an approach could be exploited to justify intervention in cases where it does not really apply. Even where intervention may have some sound basis, its implementation is fraught with difficulties. There is broad convergence in empirical studies on the finding that foreign-exchange intervention is typically ineffective beyond the very short term, unless it is unsterilised. That is to say, intervention works only if domestic monetary policy moves in the same direction, changing the stance of monetary policy. In particular, a country that intervenes to stem currency appreciation would have to make its domestic monetary policy more accommodative, with the risk of adding to domestic consumer and asset price pressures. And repeated currency intervention, if seen to be motivated largely by aims of maintaining or strengthening competitiveness, raises a strong risk of mutually offsetting interventions that could ultimately result in protectionist measures with adverse consequences, not only for the recovery but also for long-term prosperity.

An alternative option is to try to curb capital inflows through taxation, deposit requirements and other tools. Such measures may have an effect in the short term, although their efficiency is open to doubt, and eventually foreign investors usually find a way around them. Controls of this nature are blind: while they may stop some speculative inflows, they are also bound to hurt productive investment. They are more effective and have fewer unintended side-effects when they are targeted at avoiding excessively large inflows of hot money that can suddenly become an outflow and lead to financial sector problems. There is some empirical evidence that capital controls can effectively shift the composition of inflows from short to long-term investments. Even so, the first-best policy setting is not to target foreign capital inflows but to put in place regulatory and supervisory arrangements that make sure that the financial sector is resilient to funding shocks independently of their origin. A further approach to addressing capital flows that appear potential destabilising is to tighten fiscal policy so as to take some of the pressure off monetary policy and thereby reduce the incentives driving the flows.

In the case of emerging market countries, large inflows and currency appreciation are presently consistent with their relatively good economic prospects and will help global balancing in the medium-to-long term. However, the upward pressures on exchange rates in some of these countries with relatively open capital accounts and floating exchange rates have arguably been exacerbated by other large emerging countries restraining capital and currency movements. This raises the risk of escalating currency interventions and heightened tension, emphasising the considerable benefits that might accrue from charting a path in which the required currency flexibility to aid re-balancing would occur with a greater degree of international co-operation.

1. This Box draws heavily on OECD (2010f).

69. Even with enhanced international co-ordination and suitable assignment of domestic policies to objectives, there may be times at which national policies have to be adjusted to deal with spillovers from policies in other countries that have different cyclical or structural situations. In particular, cross-country differences in interest rates can prompt strong international financial capital flows, as is occurring at

present in the exit from the crisis (Box 4). Accepting the upward pressure on the currency from strong net capital inflows may have costs that are difficult to reverse. In particular, it has allocational consequences that can distort resources, with more of the burden from tighter monetary conditions falling on tradeable sectors and less on other parts of the economy.[30] The issue is particularly acute in monetary unions (OECD, 2010e), where monetary policy decisions that are appropriate for the union as a whole may leave real interest rates too low in fast-growing economies and too high in those with substantial economic slack. A danger in such circumstances is that external and internal imbalances build up, as was the case in the euro area prior to the crisis. Thus international spillover effects may necessitate temporary changes in the assignment of policies.

70. In countries in which there is a need for a tighter domestic monetary policy, alternative options to help stabilise the economy might be to seek to further tighten fiscal policy or to tighten macro-prudential policy by raising counter-cyclical capital buffers. Either would blur the clear assignment of policies, and shift the cost of adjustment to domestically-oriented sectors. For instance, raising counter-cyclical capital buffers in the banking system would concentrate costs on credit-dependent activity. In countries in which there is a need for lower real interest rates, it could also be necessary to use fiscal and macro-prudential policies for stabilisation purposes, but only if sufficient space is available for policy manoeuvre. This reinforces the need to establish well-designed and robust policy frameworks and also the need to enhance resilience.

30. Large currency appreciations can have hysteresis effects on export supply, although these may not be huge (Campa, 2004).

REFERENCES

Ahrend, R. (2010), "Monetary Ease: A Factor Behind Financial Crises? Some Evidence from OECD Countries", *Economics, The Open-Access Open-Assessment E-Journal*, Vol. 4.

Ahrend, R., B. Cournède and R. Price (2008), "Monetary Policy, Market Excesses and Financial Turmoil", *OECD Economics Department Working Papers*, No. 597.

Ambler, S. (2009), "Price-Level Targeting and Stabilization Policy: A Review", *Bank of Canada Review*, Spring, 19-29.

Amel, D., C. Barnes, F. Pancetta and C. Salleo (2004), "Consolidation and Efficiency in the Financial Sector: A Review of the International Evidence", *Journal of Banking and Finance*, Vol. 28.

Anderson, B and J.J. Minarik (2006), "Design Choices for Fiscal Policy Rules", *OECD Journal on Budgeting*, Vol. 5.

André, C. (2010), "A Bird's Eye View of OECD Housing Markets", *OECD Economics Department Working Paper*, No. 746.

Andrews, D., A. Caldera Sànchez and A. Johansson (2010), "Housing Markets and Structural Policies in OECD Countries", *OECD Economics Department Working Paper*, forthcoming.

Assenmacher-Wesche, K. and S. Gerlach (2010), "Monetary Policy and Financial Imbalances: Facts and Fiction", *Economic Policy*, July 2010.

Auerbach, A.J., W.G. Gale and B.H. Harris (2010), "Activist Fiscal Policy", *Journal of Economic Perspectives*, Vol. 24, No. 4.

Bank of England (2009), *The Role of Macroprudential Policy: A Discussion Paper*, Bank of England, London.

Barrell, R., E.P. Davis, D. Karim and I. Liadze (2010), "Bank Regulation, Property Prices and Early Warning Systems for Banking Crises", *Journal of Banking and Finance*, forthcoming.

BCBS (2010), *The Basel Committee's Response to the Financial Crisis: Report to the G20*, Basel Committee on Banking Supervision, Bank for International Settlements, October.

Bean, C. (2010), "Measuring Recession and Recovery: An Economic Perspective", Speech given at the RSS Statistics User Forum Conference, October.

Bean, C., M. Paustian, A. Penalver and T. Taylor (2010), "Monetary Policy After The Fall", paper presented at Federal Bank of Kansas City Symposium, Jackson Hole, August.

Beck, G.W. and V. Wieland (2008), "Central Bank Misperceptions and the Role of Money in Interest-Rate Rules", *Journal of Monetary Economics*, Vol. 55.

Beffy, P.-O., P. Ollivaud., P. Richardson and F. Sédillot (2006), "New OECD methods for supply-side and medium-term assessments: a capital services approach", *OECD Economics Department Working Papers*, No. 482.

Bernanke, B.S. (2010a), "Monetary Policy and the Housing Bubble", speech at the Annual General Meeting of the American Economic Association, Atlanta, January.

Bernanke, B.S. (2010b), "Rebalancing the Global Recovery", speech at the 6th ECB Central Banking Conference, Frankfurt am Main, November.

Bini Smaghi, L. (2010), "What Has the Financial Crisis Taught Us? The Global Dimension and International Policy Cooperation", speech at the 21st Century Forum, Beijing, September.

BIS (2006), 75th *Annual Report*, Bank for International Settlements, Basel.

BIS (2010), *80th Annual Report*, Bank for International Settlements, Basel.

Blanchard, O., G. Dell'Ariccia and P. Mauro (2010), "Rethinking Macroeconomic Policy", *Journal of Money, Credit and Banking*, Vol. 42 Supplement.

Blinder, A. (2010a), "Commentary: Rethinking Monetary Policy in Light of the Crisis", presentation at Federal Bank of Kansas City Symposium, Jackson Hole, August

Blinder, A. (2010b), "Quantitative Easing: Entrance and Exit Strategies", *Federal Reserve Bank of St Louis Economic Review*, Vol. 92, No. 6.

Blundell-Wignall, A. and P. Atkinson (2010), "Thinking Beyond Basel III: Necessary Solutions for Capital and Liquidity", *OECD Journal: Financial Market Trends*, Vol. 2010, Issue 1.

Borio, C. and H. Zhu (2008), "Capital Regulation, Risk-Taking and Monetary Policy: A Missing Link in the Transmission Mechanism", *BIS Working Papers*, No. 268.

Borio, C. and P. Disyatat (2009), "Unconventional Monetary Policy: An Appraisal", *BIS Working Papers*, No. 292.

Bos, F. (2008), "The Dutch Fiscal Framework: History, Current Practice and the Role of the Central Planning Bureau", *OECD Journal on Budgeting*, Vol. 8, No. 1.

Brainard, W. (1967), "Uncertainty and the Effectiveness of Policy", *American Economic Review*, Vol. 57.

Campa, J.M. (2004), "Exchange Rates and Trade: How Important Is Hysteresis in Trade?", *European Economic Review*", Vol. 48.

Caruana, J. (2010), "Macro-Prudential Policy: Could It Have Been Different This Time?", presentation to People's Bank of China Seminar on Macro-Prudential Policy, October.

Chung, H., J-P. Laforte, D. Reifschneider and J.C. Williams (2011), "Have We Underestimated the Likelihood and Severity of Zero Lower Bound Events?", *Federal Reserve Bank of San Francisco Working Paper*, No. 2011-01.

Cournède, B. and D. Moccero (2009), "Is There a Case for Price-Level Targeting?", *OECD Economics Department Working Papers*, No. 721.

Cukierman, A. and F. Lippi (2005), "Endogenous monetary policy with unobserved potential output", *Journal of Economic Dynamics and Control*, Vol. 29, pp.1951-1983

DeBrun, X., D. Hauner and M.S. Kumar (2009), "Independent Fiscal Agencies", *Journal of Economic Surveys*, Vol. 23.

Duval, R. and L. Vogel (2008), "Economic Resilience to Shocks: The Role of Structural Policies", *OECD Economic Studies*, Vol. 2008.

Edey, M. (2008), "The Future of Inflation Targeting", remarks at Bank of Canada conference on International Experience with the Conduct of Monetary Policy under Inflation Targeting, July.

Eggertsson, G. and M. Woodford (2003), "The Zero Bound on Interest Rates and Optimal Monetary Policy", *Brookings Papers on Economic Activity*, 2003:1.

Eichenberger, R. and M. Schelker (2007), "Independent and competing agencies: An effective way to control government", *Public Choice*, Vol. 130.

Evans, C. (2010), "Monetary Policy in a Low-Inflation Environment: Developing a State-Contingent Price-Level Target, speech to Federal Reserve Bank of Boston 55th Economic Conference, October.

Feldstein, M.S. (1999), "Capital Income Taxes and the Benefits of Price Stability", in M.S. Feldstein (ed.) *The Costs and Benefits of Price Stability*, University of Chicago Press.

Gianella, C., I. Koske, E. Rusticelli, and O. Chatal, (2008), "What Drives the NAIRU? Evidence from a Panel of OECD Countries," *OECD Economics Department Working Papers,* No.649.

Goisis, G., M.L. Giorgetti, P. Parravicini, F. Salsano and G. Tagliabue (2009), "Economies of Scale and Scope in the European Banking Sector", *International Review of Economics*, Vol. 56.

Goodfriend, M. (2010), "Central Banking in the Credit Turmoil: An Assessment of Federal Reserve Practice", *Journal of Monetary Economics*, forthcoming.

Goodhart, C.A.E. (2005), "Beyond Current Policy Frameworks", *BIS Working Papers*, No. 189.

Graff, M. and J.-E. Sturm (2010), "The Information Content of Capacity Utilisation Rates for Output Gap Estimates", *Paper presented at the CESifo Area Conference on Macro, Money and International Finance*, February 2010, Munich.

Guajardo, J., D. Leigh and A. Pescatori (2010), "Will It Hurt? Macroeconomic Effects of Fiscal Consolidation", *IMF World Economic Outlook*, October, and expanded version presented at NBER Monetary Economics Program Meeting, November.

Guichard, S., M. Kennedy, E. Wurzel and C. André (2007), "What Promotes Fiscal Consolidation: OECD Country Experiences", *OECD Economics Department Working Papers*, No. 553.

Hervé, K., I. Koske, N. Pain and F. Sédillot (2008), "The Macroeconomic Policy Challenges of Continued Globalisation", *OECD Economic Studies*, Vol. 2008.

IMF (2010), *Central Banking Lessons from the Crisis*, International Monetary Fund, Washington D.C.

IMF (2010b), *World Economic Outlook, October 2010*, International Monetary Fund.

Khan, M.S. and A.S. Senhadji (2001), "Threshold Effects in the Relationship between Inflation and Economic Growth", *IMF Staff Papers*, Vol. 48.

Khemani, S. (2007), "Does delegation of fiscal policy to an independent agency make a difference? Evidence from intergovernmental transfers in India", *Journal of Development Economics*, Vol. 82.

Koen, V. and P. van den Noord (2005), "Fiscal Gimmickry in Europe: One-off Measures and Creative Accounting", *OECD Economics Department Working Papers*, No. 417.

Koske, I and N. Pain (2008), "The Usefulness of Output Gaps for Policy Analysis", *OECD Economics Department Working Papers* No. 621.

Lawson, J., S. Barnes and M. Sollie (2009), "Financial Market Stability in the European Union: Enhancing Regulation and Supervision", *OECD Economics Department Working Paper*s, No. 670.

Lumpkin, S. (2010), "Consumer Protection and Financial Innovation: A Few Basic Propositions", *OECD Journal: Financial Market Trends*, Vol. 2010, Issue 1.

Meier, A. (2010), "Still Minding the Gap: Inflation Dynamics during Episodes of Persistent Large Output Gaps", *IMF Working Paper*, No. WP/10/189.

Minegishi, M. and B. Cournède (2009), "The Role of Transparency in the Conduct of Monetary Policy", *OECD Economics Department Working Papers*, No. 724.

Minegishi, M. and B. Cournède (2010), "Monetary Policy Responses to the Crisis and Exit Strategies", *OECD Economics Department Working Papers*, No. 753.

Murray, J (2010), "Re-examining Canada's Monetary Policy Framework – Recent Research and Outstanding Issues", speech to the Canadian Association for Business Economics, Kingston, August.

Nelson, E. and K. Nikolov (2003), "UK inflation in the 1970s and 1980s: the role of output gap mismeasurement", *Journal of Economics and Business*, Vol. 55, pp.353-370.

OECD (2003), *Sources of Economic Growth*, OECD, Paris.

OECD (2006a), *OECD Employment Outlook* 2006 – *Boosting Jobs and Incomes: Policy Lessons from Reassessing the OECD Job Strategy*, OECD, Paris.

OECD (2006b), "Regulation of Financial Systems and Economic Growth", *Going For Growth* 2006 edition, OECD, Paris.

OECD (2009), *Economic Policy Reforms: Going For Growth*, OECD, Paris.

OECD (2010a), "Fiscal Consolidation: Requirements, Timing, Instruments and Institutional Arrangements", *OECD Economic Outlook*, No. 88.

OECD (2010b), "Counter-Cyclical Economic Policy", *OECD Economic Outlook*, No. 87.

OECD (2010c), "Prospects for Growth and Imbalances Beyond the Short-Term", *OECD Economic Outlook*, No. 87.

OECD (2010d), *OECD Economic Surveys*: *China 2010*, OECD, Paris.

OECD (2010e), *OECD Economic Surveys*: *Euro Area 2010*, OECD, Paris.

OECD (2010f), "Briefing on Exchange-Rate Developments", *OECD Economics Department Briefing*, October 2010.

Orphanides, A. (2003), "Historical Monetary Policy Analysis and the Taylor Rule", *Journal of Monetary Economics*, Vol. 50.

Orphanides, A. (2010), "Monetary Policy Lessons from the Crisis", *Central Bank of Cyprus Working Paper*, 2010-1.

Orphanides, A. and S. van Norden (2002), "The Unreliability of Output Gap Estimates in Real Time", *Review of Economics and Statistics*, Vol. 84.

Pain, N., I. Koske and M. Sollie (2006), "Globalisation and Inflation in OECD Economies", *OECD Economics Department Working Papers* No. 524.

Pennacchi, G. G., Vermaelen, T. and Wolff, C., "Contingent Capital: The Case for COERCs", *INSEAD Working Paper* No. 2010/89/FIN.

Plosser, C.I. (2010), "Output Gaps and Robust Policy Rules", speech to 2010 European Banking & Financial Forum, Prague.

Price, Bob and T-T. Dang, "Adjusting Fiscal Balances for Asset Price Cylces: Proposals for a New Set of Indicators", *OECD Economics Department Working Paper, forthcoming*

Price, R. (2010), "Political Economy of Fiscal Consolidation", *OECD Economics Department Working Papers*, No. 776.

Röhn, O. (2010), "New Evidence on the Private Saving Offset and Ricardian Equivalence", *OECD Economics Department Working Papers*, No. 762.

Slovik, P. and B. Cournède (2011), "Macroeconomic Impact of Basle III", *OECD Economics Department Working Paper,* No. 844.

Stark, J. (2010), "In Search of a Robust Monetary Policy Framework", presented at the 6th ECB Central Banking Conference, Frankfurt am Main, November.

Stock, J. and M. Watson (2010), "Modelling Inflation After the Crisis", paper presented at Federal Bank of Kansas City Symposium, Jackson Hole, August.

Summers, L. (1991), "Panel Discussion: How Should Long-Term Monetary Policy Be Determined?", *Journal of Money, Credit and Banking*, Vol. 23.

Svensson, L.E.O. (2010a), "Monetary Policy After the Financial Crisis", speech at the Second International Journal of Central Banking Fall Conference, Tokyo, September.

Svensson, L.E.O. (2010b), "Inflation Targeting", forthcoming in B.M. Friedman and M. Woodford (eds.), *Handbook of Monetary Economics: Volume 3*, Elsevier.

Taylor, J.B. (2007), "Housing and Monetary Policy", *NBER Working Paper*, No. 13682.

Taylor, J.B. and J.C. Williams (2010), "Simple and Robust Rules for Monetary Policy", *Federal Reserve Bank of San Francisco Working Paper*, No. 2010-10.

Trichet J.-C. (2009), "Systemic Risk", Clare Distinguished Lecture in Economics and Public Policy, Clare College, Cambridge, December.

Trimbur, T. M. (2009), "Improving Real-Time Estimates of the Output Gap", *Federal Reserve Board of Washington Discussion Paper*, 2009-32.

Visco, I. (2011), "Key Issues for the Success of Macro-prudential Policies", speech at the BOK-BIS Conference on Macroprudential Regulation and Policy, Seoul, January.

Williams, J.C. (2009), "Heeding Daedalus: Optimal Inflation and the Zero Lower Bound", *Brookings Papers on Economic Activity*, Fall 2009.

Yates, A. (2004), "Monetary Policy and the Zero Bound to Interest Rates: A Review", *Journal of Economic Surveys*, Vol. 18.

Yellen, J. (2010), "Macroprudential Supervision and Monetary Policy in the Post-Crisis World", speech at the Annual Meeting of the National Association for Business Economics, Denver, November.

WORKING PAPERS

The full series of Economics Department Working Papers can be consulted at www.oecd.org/eco/workingpapers/

856. *Global imbalances, exchange rate pegs and capital flows: a closer look*
(April 2011) by Paul van den Noord

855 *Interest rate pass-through during the global financial crisis: the case of Sweden*
(April 2011) by Niels-Jakob Harbo Hansen and Peter Welz

854 *What drives inflation in the major OECD Economies*
(April 2011) by Diego Moccero, Shingo Watanabe and Boris Cournède

853 *Mitigation potential of removing fossil fuel subsidies: A general equilibrium assessment*
(April 2011) by J.M. Burniaux and J. Chateau

852 *Enhancing labour utilisation in a socially inclusive society in Australia*
(April 2011) by Vassiliki Koutsogeorgopoulou

851 *Meeting infrastructure needs in Australia*
(March 2011) by Claude Giorno

850 *Restoring fiscal sustainability in Spain*
(March 2011) by Pierre Beynet, Andrés Fuentes, Robert Gillingham and Robert Hagemann

849. *Drivers of homeownership rates in selected OECD countries*
(March 2011) by Dan Andrews and Aida Caldera Sánchez

848. *How efficient are banks in Hungary?*
(February 2011) by Margit Molnár and Dániel Holló

847. *Strengthening the macroeconomic policy framework in South Africa*
(February 2011) by Tatiana Lysenko and Geoff Barnard

846. *To move or not to move: what drives residential mobility rates in the OECD?*
(February 2011) by Aida Caldera Sánchez and Dan Andrews

845. *Reforming the labour market in Spain*
(February 2011) by Anita Wölfl and Juan S. Mora-Sanguinetti

844. *Macroeconomic Impact of Basel III*
*(*February 2011) by Patrick Slovik and Boris Cournède

843. *The policy and institutional drivers of economic growth across OECD and non-OECD economies: new evidence from growth regressions*
by Romain Bouis, Romain Duval, and Fabrice Murtin

842. *Limiting Long-Term Unemployment and Non-Participation in Sweden*
(February 2011) by Niels-Jakob Harbo Hansen

841. *Enhancing the cost-effectiveness of climate change mitigation policies in Sweden*
(February 2011) by Stéphanie Jamet

840. *Policies towards a sustainable use of water in Spain*
(February 2011) by Andrés Fuentes

839. *Increasing public sector efficiency in Slovakia*
(January 2011) by Felix Hüfner

838. *Raising education outcomes in Switzerland*
(January 2011) by Andrés Fuentes

837. *The Price Responsiveness of Housing Supply in OECD Countries*
(January 2011) by Aida Caldera Sánchez and Åsa Johansson

836. *Housing markets and structural policies in OECD countries*
(January 2011) by Dan Andrews, Aida Caldera Sánchez and Åsa Johansson

835. *Raising potential growth after the crisis: A quantitative assessment of the potential gains from various structural reforms in the OECD area and beyond*
(January 2011) by Romain Bouis and Romain Duval

834. *The GDP impact of reform: a simple simulation framework*
(January 2011) by Sebastian Barnes, Romain Bouis, Philippe Briard, Sean Dougherty and Mehmet Eris

833. *Improving the flexibility of the Dutch housing market to enhance labour mobility*
(January 2011) by Jens Høj

832. *Making the Dutch pension system less vulnerable to financial crises*
(January 2011) by Jens Høj

831. *Real house prices in OECD countries: the role of demand shocks and structural policy factors*
(December 2010) by Dan Andrews

830. *International financial integration and the external positions of euro area countries*
(December 2010) by Philip R. Lane

829. *Improving fiscal performance through fiscal councils*
(December 2010) by Robert Hagemann

828. *Minimising risks from imbalances in European banking*
(December 2010) by Sebastian Barnes, Philip Lane and Artur Radziwill