BANK OF FINLAND
BULLETIN

EUROJÄRJESTELMÄ
EUROSYSTEMET

BANK OF FINLAND BULLETIN 4 • 2011

4 • 2011

Monetary policy and the global economy

Contents

The cover picture depicts the national motif on the France's 1 euro coin: A tree as a symbol of life, continuity and growth.

Bank of Finland Bulletin 4 • 2011
Vol. 85
Published 6 October 2011
The Bank of Finland Bulletin is published five times a year.

Editor-in-Chief
Erkki Liikanen

Translated and edited
by the Bank of Finland Language and Publication Services

Subscriptions
email: BoFpublications@edita.fi

Printed
by Edita Prima Oy, Helsinki 2011

ISSN-L 0784-6509 (print)
ISSN 1456-5870 (online)

Bank of Finland
PO Box 160
FI-00101 HELSINKI
Phone: National 010 8311,
International +358 10 8311
Fax: +358 9 174 872
www.bof.fi

Monetary policy and the global economy

13 September 2011

Summary

The outlook for the world economy has deteriorated since late summer 2011. Increased uncertainty in the financial markets has led to declines in key stock market indices. Risk premia have risen in both government and corporate bond markets. At the same time, demand has shifted towards 'safe haven' investments, such as German and US government debt securities and gold, which has lifted their prices to record high levels.

The uncertainty is reflected in the real economy. Indicators of household and business confidence and expectations have fallen in many countries. Receding confidence portends very weak near-term economic performance. The Bank of Finland has lowered its growth forecast for the world economy in respect of 2011 and 2012. Prospects have worsened especially for advanced economies and for world trade. In order for the economic slowdown to remain temporary as forecast, confidence must be boosted quickly. If not, there is a danger that the economy will slip into another recession.

The continuation and spillover of the euro area sovereign debt crisis have begun to hamper the functioning of euro area financial markets. In interbank markets, the spread between secured and unsecured interest rates and the prices of credit default swaps have risen. The sovereign debt crisis increases the risks of financial institutions via two channels. On the one hand, uncertainty about recovering investments in crisis-ridden countries appears to have increased. On the other hand, the overall weakening of growth prospects increases the risk of higher loan losses.

Restoring confidence in politicians' ability to make decisions is key to stabilising the situation. The sovereign debt crisis is no longer only the problem of some small countries but a euro area-wide crisis that has taken on systemic dimensions. Measures taken by a troubled country no longer necessarily suffice to remedy the situation; a broad-based common commitment is required. An important step in this direction would be a swift implementation of the crisis-management decisions made by European heads of state or government on 21 July.

I Cyclical situation and the outlook for the world economy

World economic growth in the second quarter of 2011 slowed by more than expected. Weak growth in advanced economies came as a particular surprise. The pace of growth in emerging economies also eased earlier in the year, but this was largely in line with expectations and a consequence of policy measures taken to prevent overheating.

Weak developments in the spring were partly related to one-off factors. The natural disaster in Japan in March, besides its domestic

Chart 1.

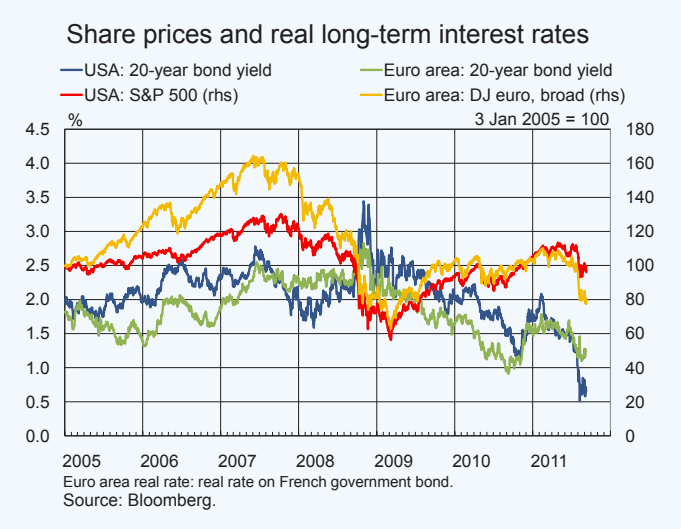
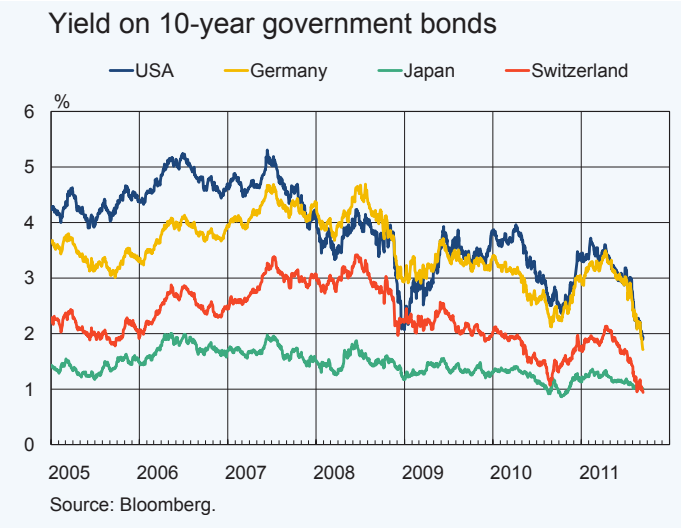


Chart 1.



implications, caused breakages in world-wide production chains, for example, in the car and electronics industries. In addition, turmoil in North Africa raised the price of oil, which was reflected in broad-based slower growth in consumers' real incomes and spending in advanced economies.

It became evident during the summer that the growth slowdown was not only due to temporary factors but to a more broad-based easing in the growth dynamics of the world economy. World trade did not recover as expected from the disruption caused by Japan's catastrophe, and firms' output expectations continued to fade in the summer months. Downward revisions to data on recent US economic performance contributed to more uncertainty about growth prospects. The difficult debt ceiling negotiations in the United States and the renewed exacerbation of the euro area debt crisis further undermined confidence. In particular, trust in political decision-making suffered a serious blow in the markets.

Weaker confidence and lower growth expectations are reflected in the financial markets. Key stock indices were 10–30% lower in mid-September than in late July, and stock market volatility has clearly increased. At the same time, instruments deemed as low-risk, such as German and US government debt securities and gold, have been sought-after targets for investment. Uncertainty has also begun to sap household and business confidence, and indicators of expectations declined in many countries in August. Purchase managers' indices foresee very slow growth in global industrial output in the current and following quarters.

Halting the loss of confidence is a prerequisite for avoiding a recession

Forecasting is currently associated with a high degree of uncertainty, which has contributed to the wide differences among the latest forecasts. The Bank of Finland's new forecast for the world economy is based on the assumption that both the euro area and the United States will be able to take the necessary policy measures for stabilising public finances and the financial markets, thereby bringing the erosion of confidence to a halt in the autumn. As confidence starts to be restored, the situation in the financial markets will gradually ease and the high level of risk aversion that is currently steering investor behaviour will dissipate.

Despite this relatively optimistic basis for the forecast, the uncertainty that has prevailed in the summer and early autumn is expected to result in very weak near-term economic activity. Based on experience from economic history, faltering confidence, even for a relatively short period of time, may lead to a decline in household consumption and corporate investment. The tightening of funding conditions via higher financing costs and/or increasing difficulties in accessing finance comprises a further constraint on corporate investment in particular. The short-term outlook for growth in the Bank of Finland's forecast for the world economy is also impaired by measures aimed at fiscal tightening and improving the sustainability of debt levels, which governments need to take in order to enhance confidence. Fiscal policy is discussed below in greater detail.

According to these assumptions, world economic growth will remain very sluggish in the latter half of 2011. As uncertainty is expected to recede fairly soon, its implications for the real

Chart 3.

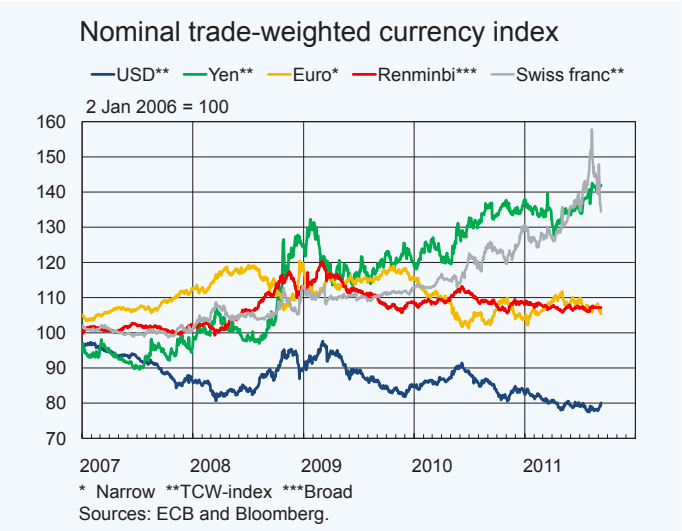


Chart 4.

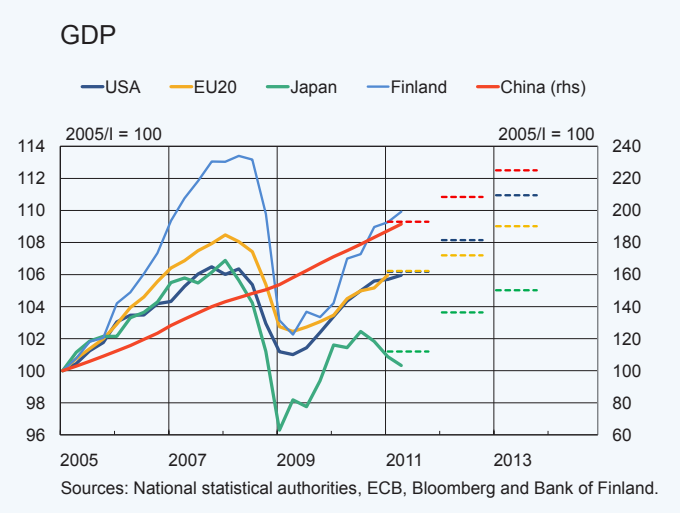


Chart 5.

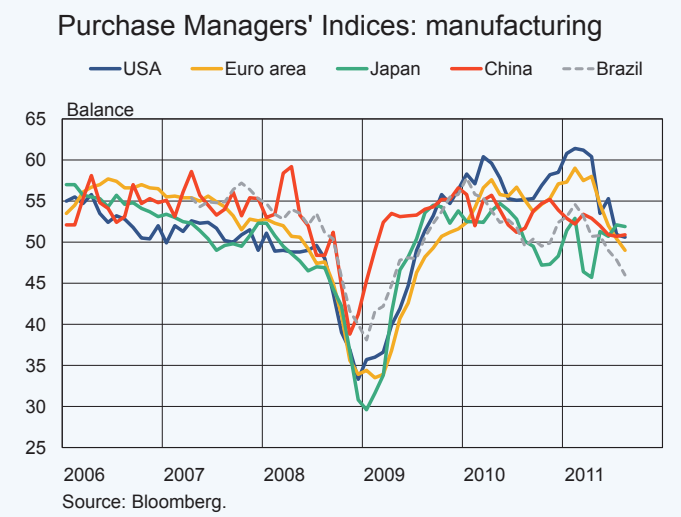


Table 1.

Bank of Finland forecast for world economies

GDP	*2010*	*2011f*	*2012f*	*2013f*
USA	*3.0*	*1.5*	*1.9*	*2.6*
	(2.8)	*(2.7)*	*(2.9)*	*(3.0)*
EU20	*1.7*	*1.6*	*0.9*	*1.7*
	(1.7)	*(1.3)*	*(1.6)*	*(1.8)*
Japan	*4.0*	*–0.6*	*2.4*	*1.3*
	(4.4)	*(1.1)*	*(1.2)*	*(1.3)*
China	*10.3*	*9.0*	*8.0*	*8.0*
	(10.0)	*(9.0)*	*(8.0)*	*(8.0)*
Russia	*4.0*	*4.4*	*4.4*	*3.6*
	(4.5)	*(5.4)*	*(4.7)*	*(4.1)*
World	***5.2***	***3.9***	***3.6***	***4.0***
	(5.0)	*(4.2)*	*(4.1)*	*(4.2)*
World trade	*13.5*	*6.2*	*6.1*	*7.1*
	(13.6)	*(7.6)*	*(7.1)*	*(7.3)*

f = forecast
% change on previous year (previous forecast)
Source: Bank of Finland.

economy should remain of short duration and, at the end of the forecast period in 2013, the pace of world economic growth should return to close to that envisaged earlier. The series of events in the summer and, for example, the downward revision of historical US GDP data confirm the previously held view of a difficult process of recovery. Rebounding from the financial crisis, which is accompanied by high unemployment, deleveraging and structural downsizing of overheated sectors, is slow.

Given that the baseline scenario of the forecast materialises, developments in the emerging economies are expected to generally accord with their internal growth dynamics, and especially for the largest Asian economies – China and India – what happens should be largely self-determined. Accordingly, downward revisions to the forecast for growth paths of emerging economies are moderate, although the emerging European and Latin American countries are assumed to suffer more from the very slow growth in the United States and Europe than is the case for the emerging Asian economies. This means that the earlier view of highly divergent growth across economic regions will be corroborated, and as much as 85% of world economic growth will stem from emerging economies during the forecast period.

Uncertainty hinders world trade

World trade growth almost came to a standstill in spring 2011. Although this was partly a repercussion of Japan's catastrophe, the broad-based slowdown and sluggish recovery have other underlying causes. The Bank of Finland's forecast foresees subdued developments in world trade over the next few quarters.

Behind the forecast is the fact that, in times of economic crisis, world trade typically contracts considerably more than GDP.[1] The main reason for the strong reaction is seen in the composition of world trade: in a crisis situation, the demand for consumer durables and capital goods declines more than for other goods, and precisely these products are over-represented in international trade. World trade contraction may also be reinforced by problems in the provision of trade credits or breakages in international production chains if, for example in a crisis situation, a larger-than-normal portion of subcontracting is allocated to domestic producers. Similarly, the restoration of output and confidence will lead to an upward correction in trade, as deliveries postponed because of the crisis are executed.

It is likely that this time the current widespread uncertainty will also delay household and business decisions to purchase consumer durables and capital goods, which will portend very subdued growth in trade in the latter part of 2011. This is also suggested by purchase managers' indices for export orders, which have fallen in recent months in many countries to levels possibly implying a contraction in trade.

Correspondingly, declining uncertainty will lead to a fairly rapid trade recovery in 2012, as pent-up demand breaks out. Trade is expected to grow, year-on-year, by about 6% in 2011 and 2012 and by about 7% in 2013. Relative to world output, international trade at the end of the forecast period will remain at a slightly lower level than previously forecast, as

Chart 6.

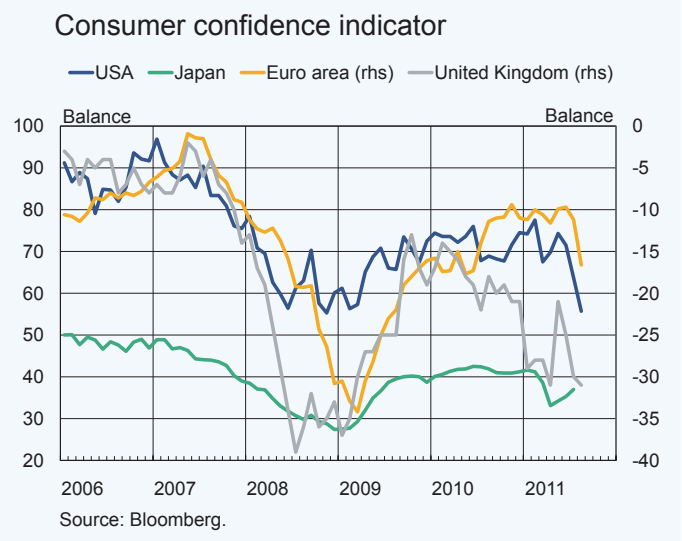
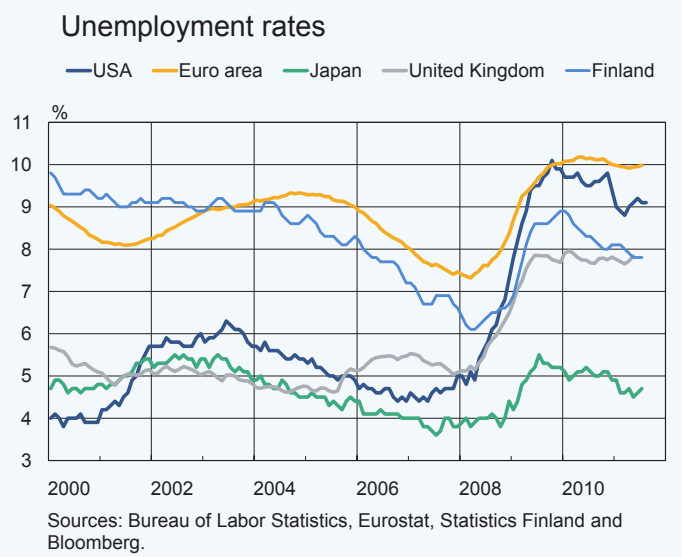
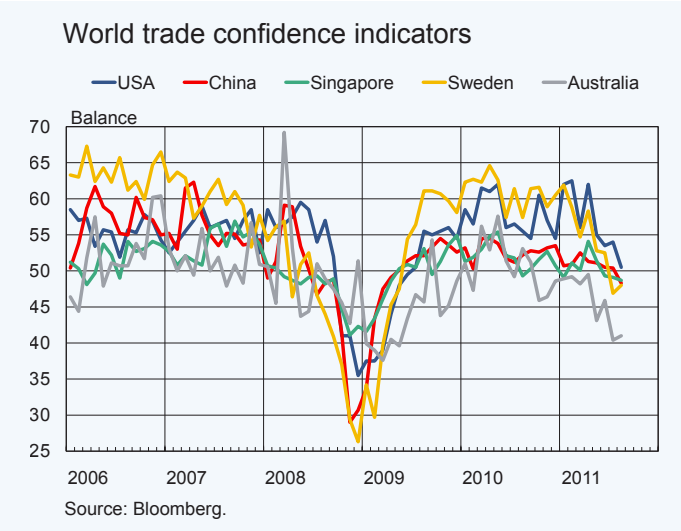


Chart 7.



[1] The drop in world trade in 2008 is examined, for example, by Baldwin, R. (2009): The Great Trade Collapse: Causes, Consequences and Prospects. www.VoxEu.org.

Chart 8.



modest direct investment flows in recent years may point to a slowdown in the internationalisation of output.

Divergence in country prospects

Growth in **advanced European economies** (EU20)[2] decelerated markedly in the second quarter of 2011. Consumer demand in particular slowed in many countries. In the course of the summer, uncertainty in the financial markets increased as a result of the renewed deepening of the debt crisis, which has further eroded business and household confidence in recent weeks. The vulnerable state of the financial markets may also have a marked impact on the availability and price of corporate finance.

Expectations of fiscal consolidation by EU20 governments have increased over the summer. Several big euro area countries, such as **Spain**, **Italy** and **France**, announced new stabilisation measures in late summer or an earlier implementation of already decided measures. In the short term, such measures necessarily restrain economic growth via spending cuts or higher taxes. As a consequence of these factors, the growth forecast for the latter half of 2011 has been revised downwards, and growth on average is expected to be very weak in the advanced European economies. Growth rates for European countries that have recovered quickly from the crisis largely via exports, eg **Germany** and **Sweden**, appear to be easing appreciably as growth of world trade peters out. As regards **Greece**, **Ireland** and **Portugal**, the forecast is based on the IMF/EU programmes for these countries. Developments in the **United Kingdom** are in general associated with a high degree of uncertainty. The economy has been very slow to recover from the financial crisis, and the economic outlook for the next few years is impaired by strong fiscal consolidation.

Growth in the **United States** in the first half of 2011 was discernibly slower than forecast. Household deleveraging, ongoing high unemployment and the continued weak performance of the housing market encouraged households to save rather than spend. Moreover, higher inflation, specifically due to an increase in the price of oil, eroded nominal income growth and therefore acted as a

[2] EU20 includes, besides the euro area, the UK, Sweden and Denmark.

constraint on households' purchasing power. Weak growth prospects and political uncertainty have also sapped financial market confidence in the United States in late summer, which has had a negative impact on the expectations of firms and households, as well. In addition, it seems that the inflamed political situation will lead to an earlier implementation of fiscal consolidation measures in the United States, which will constrain economic growth in the short term. For example, discontinuation of extended unemployment benefits and temporary income tax cuts, which are due to expire at the turn of the year, would be reflected in the economy as subdued consumption growth. Consequently, the forecast for US GDP growth has been markedly revised downwards, and growth is expected to be sluggish well into 2012. If recovery is delayed, structural unemployment might increase, which would retard both predicted and potential output growth in the latter half of the forecast period.

The natural disaster in **Japan** had a widespread impact on Asian economic performance in the spring and summer, particularly on cross-border trade. Japan's recovery from the crisis will continue in the next few quarters, but growth will fade towards the end of the forecast period, as predicted earlier. **Chinese** economic growth has slowed in 2011, as expected. The economic overheating, that threatened in the early part of the year led to monetary tightening, manifested in slower growth of lending and real economic activity. Overall, however, China is expected to continue its strong growth in the next few years, as previously forecast, although the extensive stimulus package launched three years ago has, among other things, increased the risks for the country's financial sector. As the world's second largest economy, a growing Chinese economy benefits the whole continent.

Russian growth was more sluggish in the winter than projected. Growth is estimated to recover temporarily, as lower inflation supports the strengthening of consumers' purchasing power. On the other hand, the growth rate is expected to decline fairly soon. The weaker outlook for the world economy will be strongly reflected in the Russian economy, for example, via the price of oil.

Risks to growth are heavily on the downside

The assumption of a calming down in the financial markets in the course of autumn and winter is relatively optimistic, and therefore an important downside risk is related to the growth forecast for the world economy. If policy measures to reduce uncertainty cannot be executed and the state of the financial markets continues to deteriorate, we may even face a new global recession.

Nervousness in the financial markets has been reflected in sharp declines in share prices. The prices of

several European bank shares have suffered the largest falls, but tumbling share prices have been a common phenomenon across the main economic regions. High volatility in share prices adds to the uncertainty and declining share prices impair corporate and household balance sheets. The weakening of balance sheets restricts demand in the private sector, raises financing costs and hinders access to finance.

In Europe, mutual confidence among financial institutions has faltered.

In the European financial sector, there are signs of a weakening of mutual confidence among financial institutions. In European interbank money markets, the spread between secured and unsecured interest rates has widened. Risk premia have so far increased in Europe less than in autumn 2008, when financial market disruptions that originated from the United States spilled over into Europe. This time, the loss of confidence is related to problems in the sovereign debt market in Europe, uncertainty about the sustainability of sovereign debt levels in banks' home countries and falling share prices.

Different from 2008 is this time, for example, that on the basis of published stress test results banks and financial institutions are better informed of each other's financial positions; thus, the loss of confidence is mainly directed towards the weakest banks for which the prices of credit default swaps have risen sharply. The longer uncertainty prevails and the wider its reach, the stronger its implications for the real economy. In addition to financing channels, the propagation of the crisis to international trade, as at the end of 2008, would spread the crisis, via trade channels, to the entire world economy.

An increase in downside risks relates to the limited room for manoeuvre in economic policy in a number of countries and uncertainties as to economic policy-making. Especially in the euro area, the spreading and deepening of the sovereign debt crisis would clearly worsen the economic outlook. Although it has been possible to make decisions on fiscal policy and crisis management, they have not sufficed to strengthen confidence.

Tight fiscal policy and even further fiscal tightening amid weakening business conditions coincides with limited central banks' room for manoeuvre. Central bank policy rates are very low and their balance sheets have grown because of their efforts to alleviate financial market disruptions by providing more liquidity. The situation in emerging economies is slightly easier than in the advanced economies.

On the other hand, the threat of a deepening crisis is mitigated by the fact that the situation has been difficult and widely perceived already for a long time. Corporate-sector balance sheets are sound in both Europe and the United States. In addition, after previous episodes of crisis, many countries are well prepared to support the supply of

financing to the corporate sector. Also, banks and financial institutions in many countries have been able to prepare for the situation and strengthen their balance sheets. Moreover, with lessons learned from financial market problems in 2008, central banks have the readiness to implement non-standard measures and experience in doing so. The possibility of a prolonged crisis also lowers the output potential of the economy, as investments lie in waiting for several years and structural unemployment increases. In the longer term, if the markets' tolerance of public debt levels has permanently diminished, the public sector must deleverage at the same time as the private sector does so. As deleveraging is a slow process and acts as a brake on economic growth, the consequence may be a long period of subdued growth.

In Japan, GDP grew very slowly in 1991–2003. The period has in fact been referred to as Japan's lost decade. Recent research[3] highlights the view that the response of economic policy to the collapse in asset prices in Japan at the start of the 1990s and to the subsequent recession and financial-sector problems was, considering the gravity of the situation, slow and inadequate, which aggravated the crisis in 1998. Compared with the situation in Japan in the 1990s, the challenges of economic policy are larger still in the current crisis, as simultaneous implementation of adequate and coordinated economic policy measures is now required in many countries. In the euro area, in particular, prevention of a further deepening of the crisis requires the avoidance of errors in economic policy.

II Price stability and monetary policy

Inflation increased across the globe in the early part of the year. Consumer price inflation rose to 4½% pa in the United Kingdom, to over 3½% in the United States, and to nearly 3% in the euro area. In the emerging economies, the increase in inflation has been even more pronounced. For example, in China the inflation rate is already over 6%. The underlying inflation rate – which excludes energy and food prices – has accelerated from the low levels measured in 2010 and eased fears of deflation. However, it still remains below the overall rate of inflation almost everywhere.

Inflation picked up on a global scale in the early part of the year.

The sharp rise in inflation is largely due to the rise in prices of raw materials, especially energy and food. The turbulent political situation in North Africa raised concerns about the adequacy of oil supplies, especially in mid-February after the turmoil in Libya came to a head. To some extent the rise in the price of oil was a reflection of the uncertainty associated with production disturbances in Libya. The country's share of oil production under normal

[3] For example, Hamada K., A. Kashyap, D. Weinstein (eds.) (2011). Japan's Bubble, Deflation, and Long-term stagnation. The MIT Press.

Chart 9.

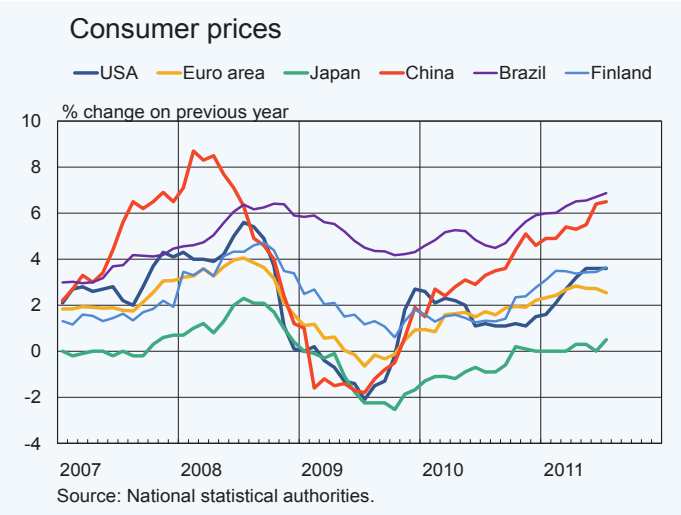
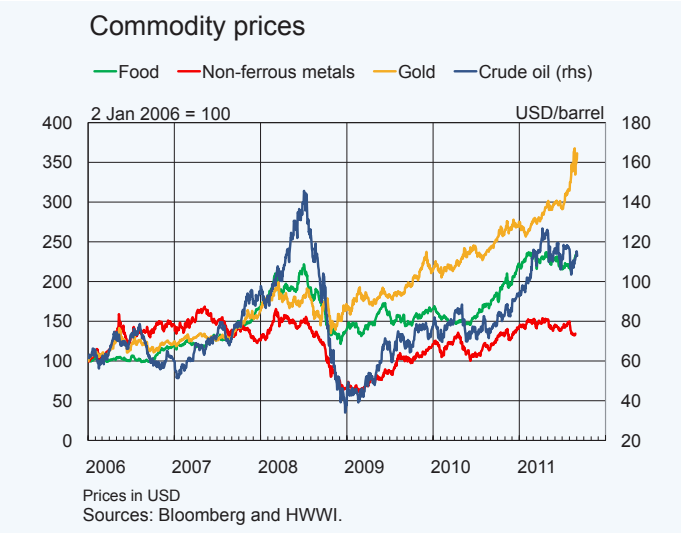


Chart 10.



conditions is less than 2%. But the real concern was that the turbulence could spread to other key oil-producing countries, even to Saudi-Arabia.

The increase in food prices is due to an imbalance between supply and demand. Supply has been disturbed eg by poor harvests in Russia and Australia. On the demand side, the adjustment is probably of a more permanent nature, a reflection of growing demand in the emerging economies due to rising levels of wealth.

The inflation rate has increased more in the emerging economies than in the advanced economies. This derives from a number of factors. First, food weighs much more heavily in households' consumption basket in the emerging economies than in the richer Western countries. For example, in China the share is about a third whereas in the USA it is less than 15%. Secondly, the deep recession in connection with the financial and economic crisis only caused a growth slowdown in the Asian emerging economies, not an actual reduction in output as was witnessed in many of the advanced economies. Because of persistently high levels of domestic demand, the risk was more on the side of overheating than on the side of an excess of unused production capacity or unemployment. Thirdly, the institutions of economic policy in the advanced economies are stronger and more trusted. One such institutional difference is in the credibility of the central bank's inflation objective.

Growth slowdown eased inflation pressures

In the course of the summer inflation slowed in many of the industrial countries, a result of a weakening of growth and in the outlook for growth in the world economy. In the summer

the price of oil changed course and by the arrival of autumn had declined by almost 25% from its May peak. It is expected (based on futures prices) that the price of oil will decline a bit further yet. In the background is a slowing of demand growth due to moderated growth prospects for the world economy. Futures point to a very modest rise in the near future in the prices of other raw materials. If the economic-growth outcome is below forecast, we are likely to find that the highest inflation numbers are now history, for the time being.

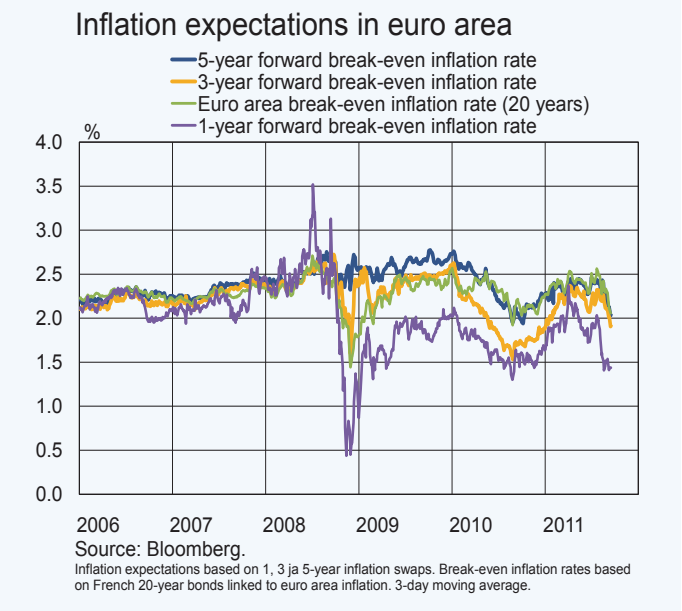
According to survey information, price pressures in both final goods and production inputs have remained modest in the advanced economies. During the summer, inflation expectations among consumers, and among manufacturers regarding their selling prices, receded sharply in both the euro area and the USA. Long-term inflation expectations, derived from financial market information, have also subsided in recent weeks.

The easing of inflation expectations in the advanced economies has reduced the upward pressure on prices that might have followed from energy and food prices leading to wage increases and on to the inflation outlook. A weakening of general confidence among households in the advanced economies in the summer months also suggests moderate wage adjustments.

The longer-term inflation outlook has remained quite subdued in the advanced economies. As for the amount of unused production resources in these countries, there was little change during the summer, as unemployment remained high, and the utilization rate for manufacturing capacity is quite low. All in all, the relatively weak outlook for domestic demand has constrained long-term inflation pressures in the advanced economies.

In the emerging economies, inflation remained high during the summer, and there is some risk of a step-up in the near future. In China the inflation rate in July exceeded 6% pa, in Russia and India over 9%, and in Brazil nearly 7%. Only in China was the core inflation rate considerably lower than the overall inflation rate. Although the prices of raw materials and foods are expected

Chart 11.



to continue on a subdued course, there is a risk that in many of the emerging economies inflation could heat up in future as a result of robust growth in domestic demand. There are also upside risks for food-price inflation because poor weather in August weakened harvest prospects in the key production regions. This could lead to inflation pressures, especially in the emerging economies because of the huge share of food in their household budgets.

Global monetary policies diverge

The past year is marked by diverging trends in monetary policy around the world. China and India have tightened their monetary policy, in terms of both the typical interest rate policies and eg by raising banks' reserve requirements. Among the advanced economies, policy interest rates have been raised in the past year eg in Korea, New Zealand, Russia, Sweden and Norway. The ECB Council also raised its policy rate by a total of 50 basis points (to 1.5%) in its meetings of April-July. On the other hand, in the United Kingdom, United States and Japan, monetary policy has not been tightened.

The use of non-standard monetary policy measures has also continued in the advanced economies. The US central bank (Fed) in June completed its second quantitative easing (QE2) programme, in which it purchased US Treasury securities amounting to USD 900 billion. This, together with earlier programmes, enlarged the Fed's balance sheet total to nearly USD 2900 billion. This total represents nearly 20% of GDP and reflects roughly a tripling of the ratio since September 2008.

In Japan the policy rate has been kept around zero, and monetary policy is set to remain accommodative, in support of economic reconstruction. At the start of August, Japan's central bank announced it would expand its debt purchasing programme considerably, and at the same time it increased the amount of yen liquidity in the currency market in an effort to prevent an appreciation of the yen. The Swiss central bank has also intervened in connection with strengthening of the franc in the face of a weakening economic outlook. At its July meeting, the Bank of England left its policy rate at 0.5%, where it has been since it was cut in March 2009. At the start of July, Sweden's central bank raised its policy rate 0.25 percentage point to 2.0%, the seventh straight increase in the policy rate.

The Eurosystem has provided liquidity to credit institutions via the 'fixed rate full-allotment tender procedure' since the start of October 2008. Banks have thus been able to borrow (against collateral) as much as they want at interest rates set by the Eurosystem. Given the uncertainty due to the financial crisis, banks have sought to ensure their liquidity by borrowing more than they actually need. This has led to a surfeit of

central bank money in the banking sector, which then flows back to the central bank in the form of excess reserves. The amount of excess reserves has indeed served as a kind of stress-meter for the banking sector.

By early summer 2011, the amount of excess reserves in the euro area had declined nearly to the pre-crisis level, which signalled an improvement in market conditions and in the level of trust between banks. The situation however was not completely normalised, as market conditions remained difficult, especially for the banks in debt-crisis countries. At end-July the market situation worsened again in the stock and bond markets as well as in terms of the collateral requirements for credit risk. Moreover, banks are again piling up excess reserves.

At its meeting in early August, the ECB Council decided to continue with the fixed rate full-allotment tender procedure at least until the end of 2011. The main refinancing and fine-tuning operations will be conducted as fixed rate auctions. In the longer-term refinancing operations, including the regular three month operations and the six month operation carried out in August, the rate has been equal to the average rate applied in the most recent main refinancing operation. In order to ensure the transmission of monetary policy, there was also active pursuance of the debt securities programme in August (see Box. Eurosystem's securities purchases enter a new phase). At its September meeting, the ECB Council decided to leave its monetary policy settings unchanged, albeit the body substantially revised its view of economic risks.

Chart 12.

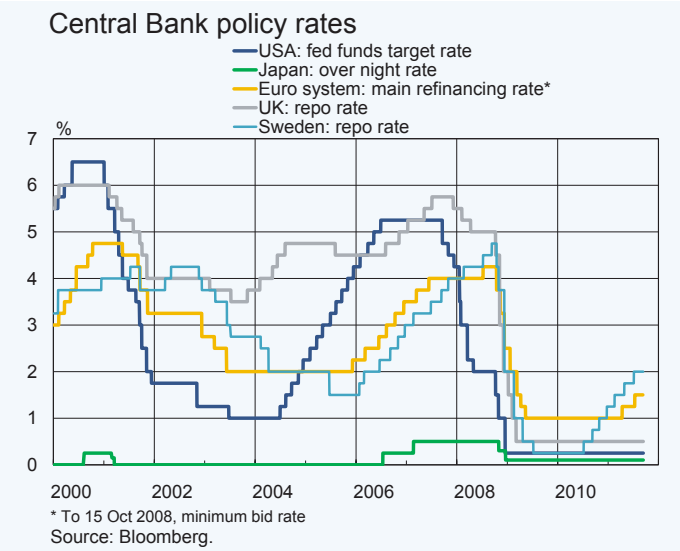
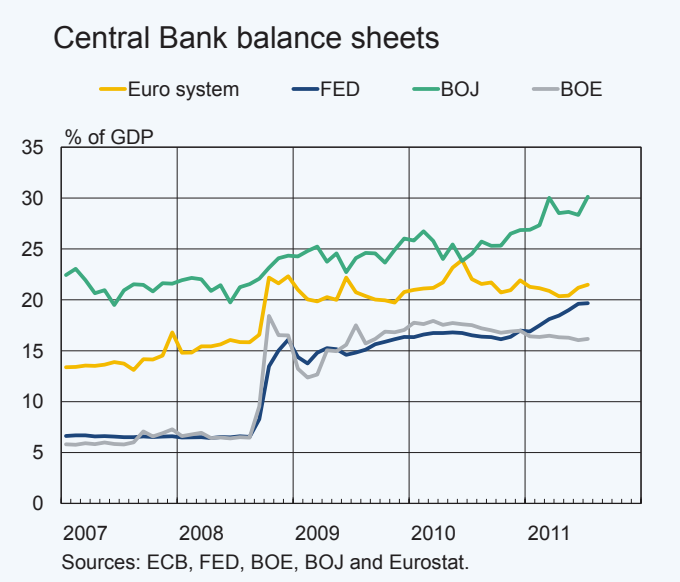


Chart 13.



Box. 1.

Eurosystem's securities purchases enter a new phase

Early August 2011 was a difficult time in the financial markets. Lack of confidence in the euro area government bond markets was starting to spread from the smaller euro area countries to the larger core countries of the euro area. This was accompanied by an almost total halt in the market for private long-term funding. There was a risk of the general nervousness turning into a self-propagating crisis of confidence, with unforeseeable consequences for the real economy and for price stability.

On Sunday 7 August 2011, the President of the ECB issued a press release saying that the Eurosystem will actively implement its Securities Markets Programme (SMP) to ease tensions in the market and to ensure the transmission of the ECB's monetary policy decisions. The ECB's Securities Markets Programme was launched over a year ago, in May 2010, when an escalation of the situation in Greece led to a drying up of liquidity in certain market segments. The details of the SMP purchases are not published, but in the early stages, the common view in the market was that the purchases focused on Greek, Irish and Portuguese government bonds. The ECB publishes weekly data on the amount of purchases, which showed that SMP purchases decreased gradually towards the end of 2010, and stabilized at just under EUR 80 billion.

Following the ECB announcement in August, SMP volumes started to increase again: by 9 September, the purchases had risen to EUR 143 billion, which corresponds to over 1% of euro area GDP. The market perception is that this time the purchases have focused on Spanish and Italian government bonds.

In the second half of August, the financial markets showed signs of calming down. Many euro area countries announced measures to consolidate their fiscal position, which improved sentiment in the government bond market. Private long-term funding also resumed. In early September, however, the markets were again unnerved.

The general perception was that the measures taken by the Eurosystem were justified, but at the same time, concerns were raised as to their impact on the volume of liquidity and price stability.

The Securities Markets Programme is a very exceptional element of Eurosystem monetary policy, so it is understandable that it has been a focus of attention. In assessing the importance of the programme it is important to understand its objectives and role in the conduct of Eurosystem monetary policy.

The role of securities purchases in central banking

The issuing of central bank money and regulation of its supply are at the core of central bank operations. These operations enable the central bank to steer market interest rates in line with policy rates. The central bank provides money mainly by purchasing securities or granting credit to banks. For example, the US Federal Reserve routinely uses the purchase and sale of Treasury bonds as its main tool of monetary policy. In recent years, all the major central banks have greatly increased their securities purchases. Not only the US Federal Reserve but also the Bank of England and the Bank of Japan have purchased large amounts of government bonds, to achieve their monetary policy objectives. In contrast to the Eurosystem, these central banks have set separate policy targets for the volume of central bank money.

The purchase of debt securities – government or private – by the central bank is

thus not in itself exceptional. What is exceptional is that it was done by the Eurosystem, for which such purchases have not traditionally been part of its monetary policy operations.[1] The Treaty Establishing the European Community includes a prohibition of monetary financing: the Eurosystem is prohibited from favouring the public sector in purchasing securities or in the provision of credit. These provisions are based on past experience on how the use of the central bank for financing government expenditure can lead to an uncontrolled surge in inflation.[2]

The link between central bank purchases of government bonds and inflation is however not a direct one. The Bank of Japan has carried out extensive purchases of government bonds since 2001. Over the past ten years or more, its stock of Japanese government bonds has increased to JPY 81 billion. This is ca 17% of Japanese GDP, ie relative to the size of the economy, nearly 15 times the purchases by the Eurosystem. Despite this, average inflation in Japan during that time has been negative (–0.2%).

The US Federal Reserve in spring 2009 launched an extensive Treasury securities purchase programme to support the functioning of the private debt market. By the end of July 2011, Fed holdings of Treasury securities had risen to USD 1,545 billion, which is slightly over 10 % of US GDP. During this period of quantitative easing, the US underlying inflation has averaged 1.3%.

It is therefore evident that there is no mechanical link between a central bank's purchases of government bonds and inflation. The purchase of government bonds is just one of several monetary policy tools available. The outcome depends on the role of the purchases in the wider operational framework for monetary policy and in goal-setting. The impact of purchases eg on inflation largely depends on the prevailing economic situation.

Volume and objectives of key importance

The risk of inflation applies particularly to a situation in which central bank purchases of government bonds have a fiscal objective and the volume of the purchases is based on the spending needs of government. As a result, the central bank will lose control of monetary policy, and the rate of inflation will depend on the financing needs of the government. It is precisely this kind of monetary financing that the EU Treaty prohibits.

The situation is different if the central bank uses government bond purchases consistently as a tool for achieving price stability and financial stability, and if the measures are gauged according to these objectives. Such operations do not pose a risk to price stability.

The securities purchases by the Eurosystem are clearly in the latter category. The purchases by the ECB and national central banks have a monetary policy rationale. In certain segments of the euro area financial markets, a spiral of distrust was emerging that was starting to pose a serious threat to financial market stability, to the monetary policy transmission mechanism, and ultimately to price stability. Halting this type of a spiral falls indisputably within the duties of a central bank.

The Eurosystem's securities purchases from the market are paid for in central bank money. As a result, the volume of central bank money in circulation increases temporarily, corresponding to the sum of the securities purchases. This,

---

[1] *In addition to such purchases for monetary policy purposes, the Eurosystem central banks have in practice always purchased government debt securities when investing financial assets and foreign reserves. These investments however are not motivated by monetary policy objectives.*

[2] *The recent examples are Argentina in the 1980s and Zimbabwe in the 2000s.*

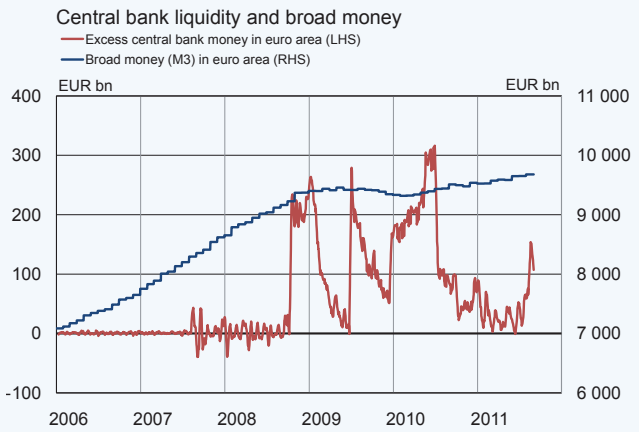
however, does affect the rate of inflation, for several reasons:

- *The Eurosystem sterilises its securities purchases.* The Eurosystem conducts weekly operations to absorb from the banking system the central bank money injected via the Securities Markets Programme. Such sterilisation underlines the fact that the objective of the interventions is not to influence inflation dynamics but to address the malfunctioning of the markets.
- *The changes in the volume of central bank money are also sterilised automatically.* In autumn 2008, the ECB ceased to regulate the volume of central bank money and adopted a fixed-rate tender procedure with *full allotment*. This means that banks may borrow, against collateral, an unrestricted amount of central bank money. If the Eurosystem increases the volume of central bank money via direct purchases of securities, the volume of central bank money acquired by banks in tender procedures decreases correspondingly. As a result, the volume of central bank money would not change from the level preceding the purchase of debt securities even though not all the securities purchases were sterilised.
- *The volume of central bank money is not relevant for inflation.* Central bank money is not the concept of liquidity that is relevant for the economy's inflation dynamics. The key concept is broad money, especially the growth of non-MFI deposits and loans. Since the financial crisis, the growth of euro area deposits and loans has been highly subdued, at times even negative, despite some periods of rapid growth in the volume of central bank money (see Chart).

The ECB's primary tool for maintaining price stability in the euro area is the price of money, ie the level of interest rates. If inflationary pressures build up, the ECB will raise its key interest rates. If inflationary risks move to the downside, the ECB will lower its key interest rates. Securities purchases do not deter this procedure; instead their purpose is to make it more effective.

With securities purchases, the Eurosystem ensures the stability and functioning of the financial markets. Well-functioning financial markets are a prerequisite for a predictable transmission of monetary policy and economic growth. Hence, the securities purchases do not weaken the ECB's control of interest rates but rather support its effectiveness and thereby also the ECB's price stability objective.

Chart.



Source: European Central Bank.

III Challenges for fiscal policy

As a result of the culmination of the financial and debt crisis in autumn 2008, government indebtedness has attained exceptional dimensions. According to the IMF, for the large advanced (G7) countries, the government debt-to-GDP ratios are approaching levels reached right after World War II. Two factors explain the rapid expansion: the deep recession has forced large deficits and hence large government debts, while tax revenues have shrunk even as stimulation measures - automatic and discretionary – have led to more spending. Support of banking systems in many countries has also raised the costs of recession for the public purse. At the same, declining GDP has further boosted debt-to-GDP ratios.

Even in 2007, the year before the crisis, government debt in the advanced economies amounted to about 73% of GDP. The IMF estimates the corresponding ratio for the emerging countries to be about half as high. For this year, forecasts point to debt ratios of over 100% and ca 35% for the advanced and emerging economies respectively.[4] The difference is large, even considering the fact that the emerging economies' debt-servicing capacity, being associated with institutional (eg political stability) risks, is clearly below that of the advanced economies. The distribution of debt burdens is also highly uneven among the emerging economies. For example, Russia's public sector debt represents only some 12% of GDP, whereas eg India and Brazil have ratios exceeding 60%. Even for China, debt obligations of the public sector have increased notably in recent years due to stimulus

Chart 14.

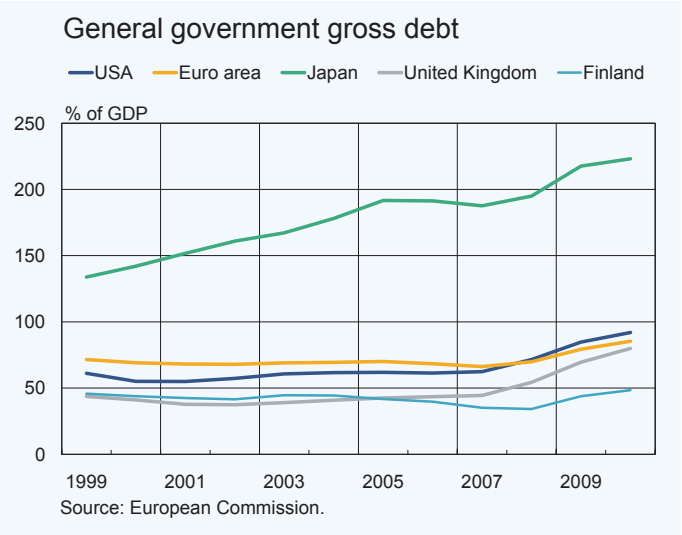
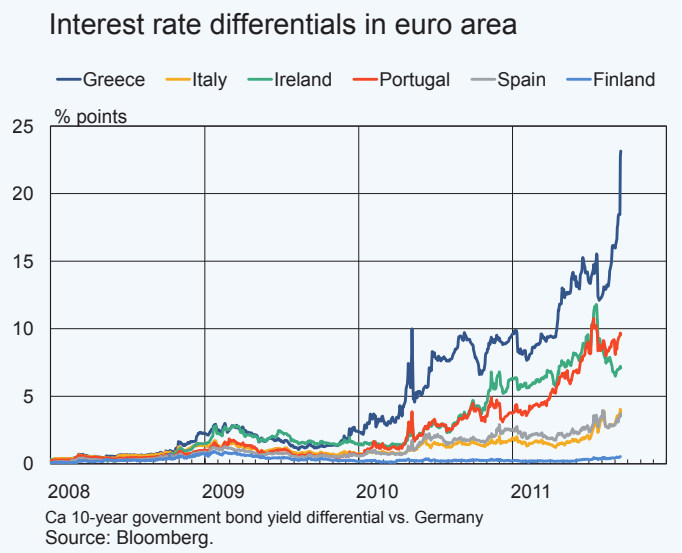


Chart 15.



[4] IMF Fiscal Policy Update, June 2011.

measures. According to Chinese officials, the total debt of local administrations has risen in the last two years to 30% of GDP, which, when combined with central government debt, raises the public sector debt-to-GDP ratio to 50%, and even considerably loftier estimates have been forthcoming.[5]

Although the government debt crisis has put the spotlight on the debt problems of the European countries, on the whole, deficits have contracted faster there than in the other major advanced economic regions. For the USA and Japan, forecasts indicate a public sector deficit in 2011 approaching 10% for the third year running. The United Kingdom also ran deficits in excess of 10% of GDP in both 2009 and 2010; for this year, the ratio is expected to fall nearly to 8½%.

The euro area deficit ratio, which peaked above 6% in 2009 and 2010, is projected to fall to just over 4% in the current year. As regards the large euro countries, relatively low public sector deficits (as compared to the other advanced major economies) have been largely in the hands of Germany and Italy. The French deficit expanded in the context of the crisis to about 7% of GDP, but the aim is to reduce the deficit so as to meet the requirement of the Stability and Growth Pact in the course of next year, with the aid of certain new measures. In Spain the deficit averaged about 10% of GDP in the deepest part of the crisis, 2009-2010; determined actions should enable a reduction in the deficit to around 5% next year.

As regards countries in the IMF/EU programme, developments have diverged. In Ireland the programme has progressed well, so that the economy has shown signs of improvement. The markets have also expressed some improvement in the level of confidence. This is seen eg in a narrowing differential versus Germany in interest rates on government debt. In conformity with Portugal's programme, the first quarterly inspection commenced as scheduled at the start of August. In contrast, programme progress has been stunted in Greece since the first quarter of this year. The market's confidence in Greece's ability to resolve its problems has continually weakened during August and September. In the second week of September, the Greek government did announce that new measures would be taken to meet the public sector debt targets set out in the IMF/EU programme. Experts from the IMF, EU and ECB will return to Greece in mid-September to evaluate the new measures and the situation as regards the programme.

Has tolerance of government debt abated?

The reasons why so many euro countries are in a debt crisis or on the brink are complicated. In part, it is a question of a notable weakening of the basics of public finances. The

[5] BOFIT Weekly Review 26/2011, www.bof.fi/bofit.

seriousness of the Greece's problems in the public sector came to light only gradually as the data were examined. The situation in Ireland, on the other hand, deteriorated abruptly when the debts of the banking sector were thrown into the laps of the taxpayers. As for Portugal, it is more difficult to identify such economic factors as would explain the swift collapse of confidence in the markets; and much the same can be said about Spain and Italy.

In those countries, the problems did not arise from a change in the economic outlook. Yet the widening of interest rate differentials suggests that the markets perceived a pronounced weakening of debt-servicing capacity. The market behaviour can be understood when debt sustainability is evaluated in light the projected debt ratios.

Changes in the debt ratio are due primarily to three factors: the primary balance, ie the difference between public sector spending and revenues (excluding finance costs); the difference between the interest rate on the debt and the GDP growth rate; and the initial level of the debt ratio. The difference between the interest rate on the debt and the GDP growth rate can be considered a 'real cost', which is negative if the growth rate exceeds the nominal interest rate on the debt. GDP is important in terms of both level and growth, as it ultimately determines the tax base, which provides the foundation for servicing public sector debt.

The debt ratio will not increase if the debt does not grow faster than nominal GDP. Reducing the debt ratio and resolving the sustainability problem require a surplus that is permanently larger than that required for consolidation, a higher GDP growth rate, or a lower interest rate on the debt. A change in the primary balance will have a fairly quick impact on prospects for coping with the debt. Structural policy measures that raise the growth potential are also important, but are slower in impact.

The third factor, the level of interest rates on the debt, has played a central role in the course of the debt crisis in the euro area. In many of the advanced economies, financing of the central government depends entirely on the level of confidence in the markets. So long as a country is seen as trustworthy by the markets, it will be able to obtain finance at a reasonable cost and its debt tolerance will be preserved. When market trust subsides, the price of finance rises and expected debt-servicing costs increase. If the demanded interest rates rise sufficiently, a country that has been able to handle its debt will find itself on an unsustainable path.

In many of the advanced economies, financing of the central government depends entirely on the level of confidence in the markets.

Although economic fundamentals have played a role in the onset and course of the debt crisis, there is also an element of pure market psychology at work here. Investors saturated with risk are on the watch for the next country to sink

into crisis and will try to exit in time. When enough investors simultaneously act in this way, contagion is realised and the country's credibility in the markets disintegrates.

The spreading of the crisis around the euro area has been consistent in that the countries that are hit by market pressures are mainly those with the biggest challenges to public finances. Somewhat paradoxical is that certain safe-haven countries are facing sustainability problems in the public sector. While Japan is dealing with especially troubling public-finance problems, the USA is also facing serious challenges.

Reinhart and Rogoff[6] have estimated that when the public sector debt-to-GDP ratio climbs above 90% economic prospects begin to deteriorate. Although such a threshold is subject to some doubt and maybe not even reasonable, the recently weakening situation has raised the question of whether the markets might have lowered their 'ceiling' for the public sector debt. If so, some advanced countries would be forced to reduce their indebtedness even while the private sector is doing the same thing. Because the process of contracting public sector indebtedness is slow and is detrimental to economic growth, the consequence can be a period of very slow growth, as described in the section on risks.

[6] Reinhart, C and Rogoff, K (2010): Growth in a Time of Debt. NBER Working Paper No. 15639.

How can the credibility of fiscal policy be increased?

The problem of fiscal policy credibility can be approached via 'Ricardian equivalence'. This is based on the government's budget constraint and its impact on private sector behaviour. Because the central government operates under such a constraint, a tax cut that is not linked to an equal-size cut in government spending requires an equal-size (in present value terms) tax increase, however it may be spread over the future. A forward-looking economic agent does not view a tax cut as a permanent increase in disposable income but rather as income tied to a future tax liability; hence her income expectations do not change.

In the theory, the rational reaction to such a delayed tax is to keep consumption unchanged and increase saving by the amount of the tax cut in order to pay the extra tax in the future. The consequence is that private demand does not increase; instead savings increase so as to neutralize the stimulus effect.

Because of numerous frictions in the real economy, Ricardian equivalence, at least in its simplest form, does not wholly obtain. In reality, economic agents are not able to predict the future with sufficient accuracy. Their behaviour may differ from the rational norm or they may not be able to adjust their consumption spending between the present and future, eg because

financial markets are not sufficiently functional. Moreover, resources are not allocated in a frictionless manner (as the theory assumes) in the real economy. But despite these problems, Ricardian equivalence does provide some valuable intuitive insight.

Recently this intuitive insight has entered economic policy discussions in reverse form: the sustainability of public finances has an impact on current private-sector behaviour. If the central government credibly manages to strengthen its capacity to deal with its debt over the long run, forward-looking economic agents will anticipate this to surface later as lower taxes or smaller spending cuts (or smaller tax increases/spending cuts) and may react by immediately increasing (or reducing less) their consumption spending. Therefore, measures that strengthen public sector debt tolerance may serve as direct stimulus measures, even though they do not include any short-run changes in taxes or spending.

In many of the advance economies, turning the course of indebtedness will require structural improvements (of several percentage points) in the primary balance. Sustainability gaps in some countries have reached such dimensions that it is beyond reason to expect those countries to be able to close the gaps merely by making promises about future actions. Restoration of confidence will also require immediate actions. The situation is particularly challenging because of the simultaneity of problems across the major economic regions. At worst, fiscal policy that is sufficiently tight to halt the growth of indebtedness poses the threat of a long-lasting slump not only to individual countries but also to the global economy.

In those countries where the markets perceive the presence of sustainability problems, economic growth can no longer be supported via increases in government spending. Additional spending would only weaken confidence among households, companies and the markets, and raise the country's debt-servicing costs. The end result would be a spiralling loss of confidence in which increasing interest costs worsen the central government deficit and further reduce market confidence. A way must then be found to bring the spiral to a halt.

In those countries where the markets perceive the presence of sustainability problems, economic growth can no longer be supported via increases in government spending.

Those countries that continue to have ready access to market financing can more easily decide on the timing of their actions, and they have the possibility of selecting a fiscal policy strategy that maintains long-term market confidence without hindering efforts at short-term economic growth. It is essential to put in place a credible fiscal programme that makes it possible for the growth rate of government spending to stay below the economy's growth rate over the long run.

In the current situation it is crucial to notice that measures taken by a troubled country might no longer

suffice to restore confidence. Confidence in the ability of economic policy to meet these challenges has diminished in both the USA and Europe. To restore the tainted confidence, a broad-based common commitment is required. Trust in the ability to control a crisis situation requires not only efforts by individual countries but also Europe-wide decisive action. From here on, an important step will be prompt implementation of the crisis-management decisions made by the European heads of state or government on 21 July.

Restoration of confidence is an absolute necessity for switching into an upward spiral and for lowering interest rates on government bonds in the crisis countries. An improvement in public-sector debt tolerance would provide space for consumption and investment by households and companies and would enable sustainable economic growth.

IV Macroeconomic imbalance factors in Europe

Events of recent years in the global economy have underlined the need for reform of economic analysis. Besides economic policy aimed at the real economy, inflation and employment, we need policies that focus on macroeconomic imbalances.[7]

At the Bank of Finland the monitoring of macroeconomic imbalances is divided into three sections: competitiveness, indebtedness and asset prices. Analysis of the sections forms a basis for a broad picture of country-specific imbalance factors, which is supplemented by analyses of Europe-level financial markets, financial intermediation and capital flows. The aim is to identify the amounts of country-specific risks and

[7] Tools for macroeconomic stability are discussed in more detail in the article 'Macroprudential policy tools' in this issue.

Table 2.

Monitoring of macroeconomic imbalances

COMPETITIVENESS	DEBT, % OF GDP	ASSET PRICES
• Competitiveness indicators • Unit labour costs • Current account, % of GDP • Export market share	• Households • Non-financial corporations • Financial sector • General government • International net investment position	• House prices • Share prices, index • Market value of shares, % of GDP

INTERMEDIATION OF FINANCE AND CAPITAL FLOWS

Source: Bank of Finland.

the interdependencies between the different sections for individual countries and between countries. It is important to conceptualise developments in the major stability factors and identify changes in macroeconomic imbalances or signs of such as early as possible. Although this type of analysis generally deals with an individual country, the financial market section in particular requires a wider perspective.

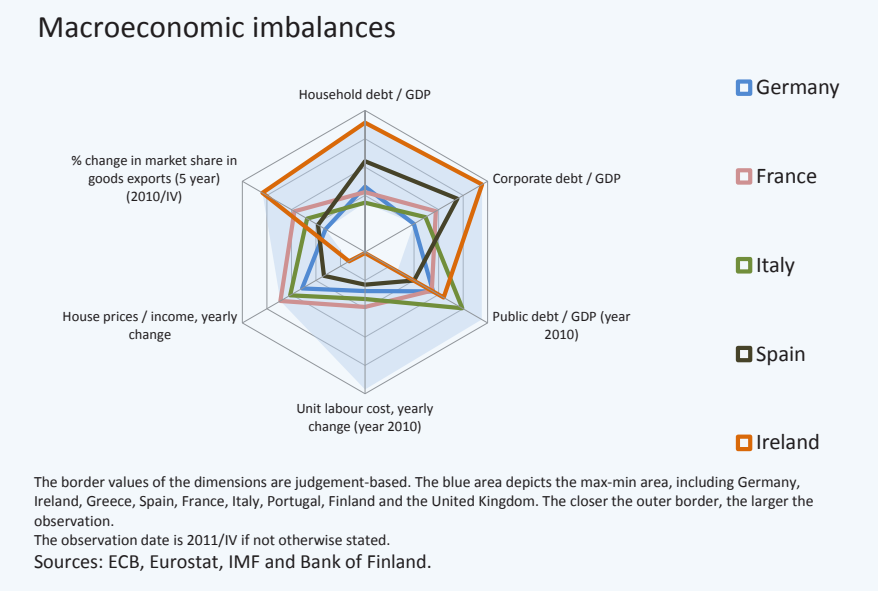
As a basis for the analysis, one can sight three severe macroeconomic risks to stability in Europe:

1. problems in the financial sector and in the intermediation of finance and the spreading of the problems to other parts of the economy
2. poor competitiveness of the countries of southern Europe
3. negative outlook for the public sector combined with fading growth prospects.

Vulnerability of the financial markets

The weakened state of the financial markets poses the outstanding new risk to macroeconomic stability, and the effects could spread between countries and regions via intermediation of finance and capital flows. Wide-ranging uncertainty has increased. Culmination of the government debt crisis has raised fears of an ebbing of economic growth and credit losses for banks. In turn, weakened prospects have increased banking-sector risks and made it difficult for European banks to raise funding, especially in the debt-crisis countries.

Chart 16.

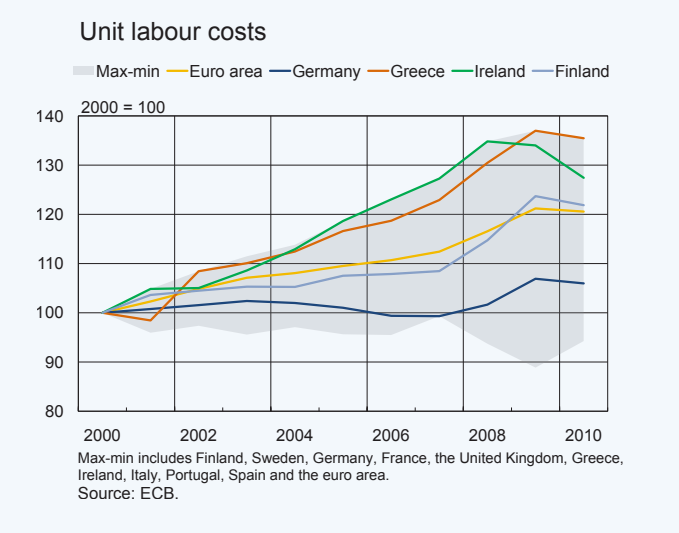


The border values of the dimensions are judgement-based. The blue area depicts the max-min area, including Germany, Ireland, Greece, Spain, France, Italy, Portugal, Finland and the United Kingdom. The closer the outer border, the larger the observation.
The observation date is 2011/IV if not otherwise stated.
Sources: ECB, Eurostat, IMF and Bank of Finland.

If the costs and difficulties of banks' own funding increase, the effects may have repercussions for the banks' customers. Greater difficulties in obtaining bank financing would be especially problematic for small companies that are highly dependent on banks and are often unable to access other sources of finance. The wide-ranging uncertainty also makes it difficult for most companies to tap other sources of finance when the costs of market finance rise and the availability diminishes as risk awareness increases.

The current situation in the financial markets has a negative effect on the economic outlook. This is partly the result of the problems in financial intermediation and the loss of confidence among consumers and companies, which also make it difficult eg for debt-crisis countries to achieve their goals.

Chart 17.



Max-min includes Finland, Sweden, Germany, France, the United Kingdom, Greece, Ireland, Italy, Portugal, Spain and the euro area.
Source: ECB.

Weak price competitiveness puts a particular strain on southern European countries

In the pre-crisis period, price competitiveness weakened trendwise in many euro area countries (Chart 17). Especially in countries now struggling with the debt crisis, unit labour costs rose as nominal wage increases exceeded productivity growth. The situation has not improved much in recent years. In the euro area, the exchange rate is determined by average area-wide developments. A single member state's loss of price competitiveness cannot be remedied by currency devaluation; it requires a lowering of unit labour costs, via either a (relative) decrease in nominal wages or an increase in productivity.

During the years immediately following the euro changeover, Germany was going through the necessary adjustments in the economy. Germany's current price competitiveness is partly due to the high productivity of the country's export industry. At the level of the economy as a whole, however, productivity growth has not been particularly strong. Accordingly, unit labour costs have been partly adjusted via low – even negative – wage increases. Adjustment of Germany's relative competitive position was facilitated by a favourable situation in the world economy. As costs in competitor countries rise, a slower pace of increase in costs than in the competitor countries is enough to correct the relative position.

The restoration of price competitiveness is more difficult now. The demand outlook in the world economy has deteriorated, and the role of exports as drivers of growth has diminished. In addition, the simultaneous efforts of many countries to maintain budgetary discipline hamper the adjustment of an individual country's relative competitive position.

As regards developments in competitiveness, Ireland is different from the other countries struggling with the debt crisis. In contrast to the other countries in crisis, Ireland has experienced a significant improvement in competitiveness, largely because of declining unit labour costs. Compared to 2008, Ireland's unit labour costs have fallen by about 5.5%. Improvements in competitiveness have so far been very modest in the other countries in IMF/EU programmes. Weak competitiveness is also a problem in Italy and Spain.

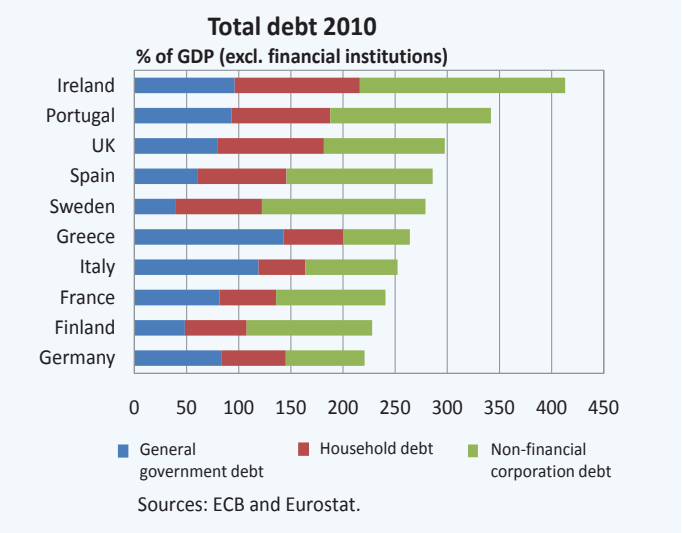
The differences in competitiveness between the countries in crisis highlight the need to implement structural reforms in southern European countries. A higher degree of labour market and wage flexibility would greatly help the countries turn things around. Enhancing productivity via reforms that boost the competitive strength of the economy is also important for the countries' growth potential. Even so, remedying the situation is often a slow process.

Debt levels still high

The following analysis of debt situations in European countries includes, in addition to general government debt, household and corporate (excl. financial institutions) debt, the purpose being to provide a comprehensive view of the countries' overall indebtedness (Chart 18). The rapid increase in household indebtedness is normally associated with accelerating house price increases. This may be related, for example, to higher income expectations or changes in the functioning of the financial markets. Such changes may include the extension of loan repayment periods, interest rate declines, lower interest rate volatility and increasing cross-border capital movements.

The debt problems are broadly based in several European countries. Greece, Portugal and Ireland have

Chart 18.



already witnessed the materialisation of general government financial risks. Although, in Ireland, the risks were realised via an increase in public-sector debt, the root cause of the problems can be traced to unsustainable growth in private-sector debt levels. In autumn 2009, the debt crisis mainly shifted on to the public sector, as the Irish government decided to guarantee the bulk of bank debt. The mere realisation of the risks related to this decision led to double-digit increases in the general government debt-to-GDP ratio. As a consequence of the banking crisis and deep recession, the country's debt ratio increased from about 25% in 2007 to about 96% in 2010.

Market confidence in the debt-servicing ability of Italy and Spain weakened towards the end of July. Debt structures in Italy and Spain differ in that the Italian general government debt-to-GDP ratio is about 120%, while the private sector's (excl. the financial sector) debt ratio is among the lowest in euro area countries. The situation in Spain is almost the opposite. However, Italy may be significantly affected by the vulnerable state of the financial markets. The share of small and medium-size companies is particularly large in Italy, and the impaired availability of bank loans and higher interest rates could have an adverse impact on this sector.

The risks in Spain are specifically related to the pronounced overheating of the housing and real estate sector during the decade, as in the case of Ireland. Falling house and real estate prices and loan losses weaken the banking sector. There is a risk that part of the losses will be shifted to the public sector, as in Ireland. Spain's overall indebtedness (excl. the financial sector) is among the highest in the euro area. The erosion of confidence is thus likely to stem from – besides normal risk aversion – lower growth prospects, weak competitiveness and high unemployment.

A third country that has been in the headlines during the summer is France. However, discussions on the country's economy have been very different in nature as those on Italy and Spain: whether the credit rating of French government bonds remains in the top AAA category or whether it will be downgraded. These discussions have been triggered by a leading rating agency's corresponding downgrade of the US rating. In August and early September, the spreads between French and German government bonds have widened but are still fairly narrow, pointing, above all, to Germany's status as a safe haven for investments in euro.

The debt problem is the Achilles' heel of some European countries. There is no way to solve the problem quickly and easily. Resolution requires long-term policy changes, not only in regard to public-sector debt but also private-sector indebtedness.

Keywords: inflation, monetary policy, economic situation

Fiscal policy responses of euro area countries to the economic crisis

15 September 2011

The euro area countries have attempted to use fiscal policy to constrain changes in output, employment and incomes that derive from business-cycle fluctuations. That is to say, policies have been counter-cyclical. During the crisis, policy responded more actively than before to cyclical changes in the economy, as the longer-term goals for public finances were partly put on hold in favour of business-cycle policy. Forecast errors concerning the euro area countries and subsequent data revisions were considerably larger during the crisis than in the earlier years. Economic uncertainty at the time of decision making substantially impacted fiscal plans and their implementation during the recession years.

As a result of the international financial crisis and attending global recession, active fiscal policy has moved to centre stage in the advanced economies. While automatic fiscal stabilisers have had a partial levelling effect on income losses due to the collapse of output, these countries have also resorted to discretionary increases in government spending and reductions in taxes. The result was severely weakened public-sector finances in all of the euro area countries. In the course of 2010 the trust of fiscal policy shifted from economic stimulation to consolidation of public finances, as the economic outlook improved and the issue of public-sector indebtedness captured increased attention. And in the past year considerable effort has been expended to stabilise public finances across the euro area countries.

Active use of fiscal policy measures in the conduct of counter-cyclical policy entails a number of risks. Accommodative actions may prove ineffective or their effects on the economy may differ from estimated effects. It is, moreover, difficult to predict the impact lags of fiscal policy. Stimulus measures may not have effect until the economy has already recovered from the slump. But the central problem in gauging fiscal policy actions is the uncertainty attached to the future course of the economy. Appropriate fiscal-policy settings require an understanding not only of the appropriate counter-cyclical measures but also a sense of the room one has for fiscal-policy manoeuvring. That is, the uncertainty relates not only to future developments but also to the current economic situation. If one over-estimates the government's structural balance, ie the levels at which revenues and expenditures will stabilise after economic conditions return to normal, fiscal policy is not on a sustainable basis. Erroneous estimates of either the leeway for fiscal policy or coming economic developments can lead to policies that later prove to be inappropriate as well as to excessive indebtedness.

Helvi Kinnunen
Adviser
Monetary Policy and Research

Maritta Paloviita
Research Economist
Monetary Policy and Research

Fiscal policy decisions are always made on the basis of an inadequate view of the economic situation and inadequate data. Nor is it easy to evaluate ex post the ultimate aims of fiscal policies. Statistical data are revised and the view concerning the cyclical position becomes clear only with time, so that an ex post examination can result in a distorted picture of the way fiscal policy has reacted to the economic situation. If one wants to study the extent to which fiscal policy has been counter-cyclically oriented, fiscal actions must be evaluated in light of the data available at the time when policy decisions are made. This article assumes that perspective in examining the euro area countries' discretionary fiscal policies during the time of monetary union (EMU). Thus the analysis is based on the data available at times when decisions are made, ie on 'real-time' information.[1]

Crisis took euro area countries by surprise

Fiscal policy in recent years has necessarily been conducted in an environment of huge uncertainty. The forecast errors tell us something about how abruptly the economic crisis came about. Three different measures of average forecast errors in the euro area countries are presented in table 1. The mean error (ME) indicates whether the forecasts systematically over- or under-

[1] This article is based on the authors' study, Finanssipolitiikan reaktiot euromaissa: mitä kriisi muutti?, published in the Bank of Finland's BoF Online series (in Finnish only). The study analyses more extensively euro area countries' fiscal policies, including estimation of reaction functions for the years 1999–2010 based on real-time data. Country-specific panel data from the OECD Economic Outlook are used in the study. See also Kinnunen and Paloviita, Real time analysis of euro area fiscal policies: adjustment to the crisis, forthcoming Bank of Finland Discussion Paper.

Table 1.

Average forecast accuracy in euro countries 1998–2010

	Whole period (1998–2010)			*Pre-recession (1998–2007)*			*Recession years (2008–2010)*		
	Mean error	*Mean absolute error*	*Root mean squared error*	*Mean error*	*Mean absolute error*	*Root mean squared error*	*Mean error*	*Mean absolute error*	*Root mean squared error*
Cyclically-adjusted primary balance, % of GDP	*–0.39*	*1.11*	*1.61*	*0.06*	*0.81*	*1.00*	*–1.71*	*2.05*	*2.63*
Public-sector debt, % of GDP	*0.79*	*3.24*	*4.39*	*–0.34*	*2.48*	*3.04*	*4.57*	*5.75*	*6.98*
Output gap, % of GDP	*–0.05*	*0.81*	*1.12*	*0.08*	*0.67*	*0.83*	*–0.54*	*1.31*	*1.65*
GDP growth, %	*–0.44*	*1.18*	*1.57*	*–0.14*	*0.90*	*1.10*	*–1.46*	*2.10*	*2.53*

Sources: OECD Economic Outlook and authors' calculations.

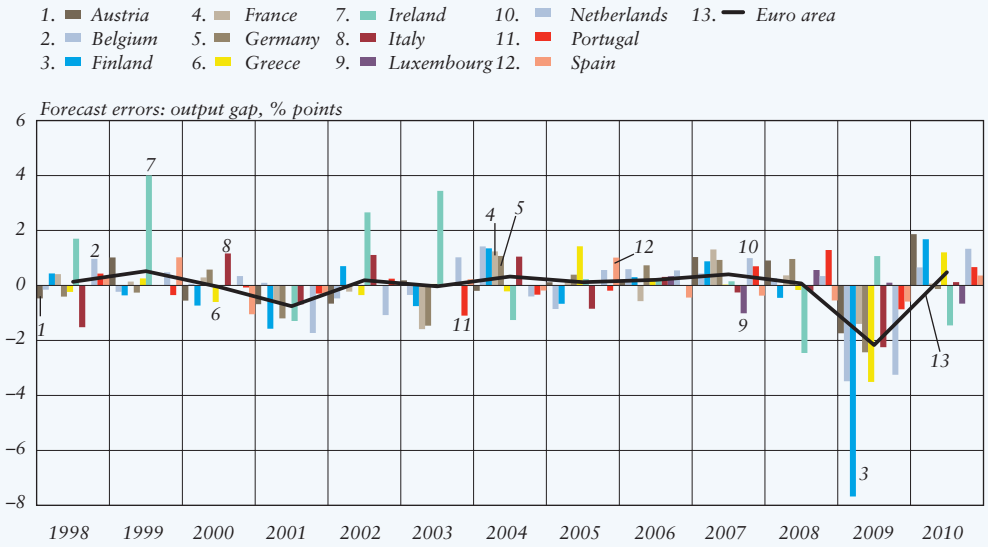
estimate the outcome. The mean absolute error (MAE), in which signs of the errors are removed, is a measure of the average accuracy of the forecasts. The root mean squared error (RMSE) is another metric for the average absolute error, which puts more weight on outsized errors. All of these measures indicate that forecasts were not very accurate during the crisis. The forecast errors increased greatly: for all the variables, the MAE and RMSE were twice as large as in previous years. For instance, the average forecast error for GDP increased to more than two percentage points compared to just under one percentage point before the crisis. Moreover, all the euro area countries systematically underestimated the growth of the debt. Thus the gauging of fiscal policy has been based on highly erroneous forecasts, and realised fiscal policy in the recession years has been much more accommodative than the projected policy.

Differences in forecast errors across years and countries show that estimates of the output gap and cyclically-adjusted primary balance[2] (CAPB) have been relatively inaccurate even in normal times (charts 1a and 1b). The errors for individual countries have been substantial; yet forecasts of the output gap persistently fluctuated fairly regularly until 2008, in terms of both country and sign. Errors relating to the CAPB, on the other hand, have been more systematic. The structural balance of the public sector was in many countries weaker than forecasted in 2002–2005 and stronger than forecasted in 2006–2007. The global recession impacted almost all of the euro area countries; at the same time, in the same direction and without warning. This is apparent in the fact that in 2009 forecast errors for the output gap in all the countries were negative, ie output performance was clearly worse than forecasted. Errors concerning the CAPB followed a similar pattern. Differences between countries also increased in 2009; eg developments in Greece and Ireland differed widely from the rest. Examination of forecast errors indicates that when budgets are prepared the prevailing view of economic conditions has often differed substantially from the actual situation. The huge uncertainty prevailing especially during the crisis has affected the planning of fiscal policy. Examination of forecast errors also reveals that developments in Greece and Ireland differed widely from events in the other countries. Because these developments would dominate average developments in the euro area, they are eliminated from our analysis of euro area policies.

[2] The cyclically-adjusted primary balance is calculated by removing the effects of cyclical conditions and other discretionary factors - such as the aftereffects of changes in interest rates, debts and receivables - from the public-sector financial balance. In practice, interest costs and the portion of the financial balance due to the gap between potential and actual output are subtracted from the public-sector financial balance.

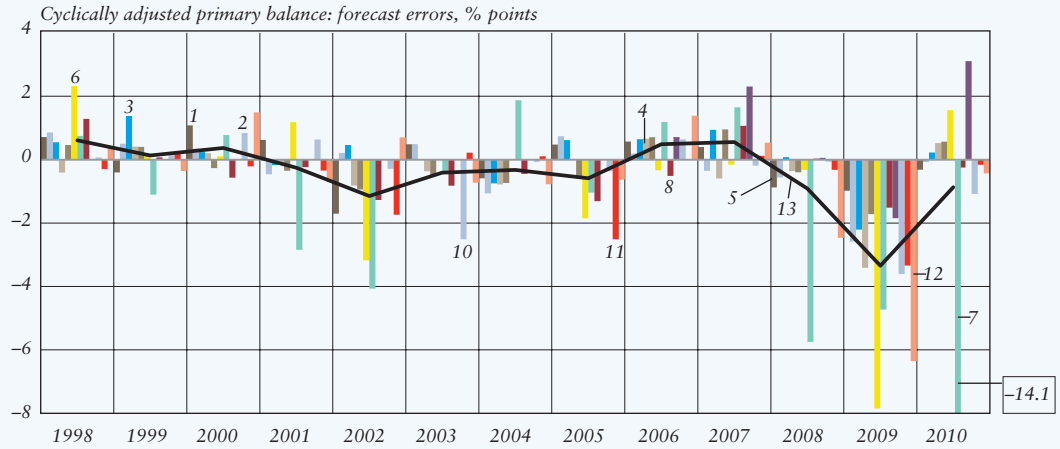
Chart 1a.

Forecast errors by country



Sources: OECD Economic Outlook and authors' calculations.

Chart 1b.



Sources: OECD Economic Outlook and authors' calculations.

What was the fiscal-policy response to recession?

Using the fiscal-policy reaction function we are able to demonstrate the importance of uncertainty and budget planning for fiscal policy. A reaction function provides information on how forecasts of economic performance over the budget year and longer-term policy goals impact budget planning. Discretionary fiscal actions (budget plans) of the euro area countries are evaluated in terms of the ratio of cyclically-adjusted primary balance to potential output. Economic performance during the budget year is defined in terms of the projected output gap and longer-term policy goals, the so-called persistence factors, ie the current year's primary balance. The persistence factors indicate the degree to which fiscal policy is rules based, ie the degree to which policy planning is long-term oriented.

If fiscal policy is counter-cyclical, taxes and/or spending are tightened when the projected output gap is positive, ie when actual output exceeds potential output, and visa versa in an economic downswing. Persistence factors indicate how persistently policy actions focus on long-term goals: the larger its estimated coefficient, the greater the long-term focus of policy. The tighter the rules for government spending limits and financial balance, the less the room for active discretionary fiscal policy. A high degree of persistence in fiscal policy means that realised actions in one period will affect the policy choices for future periods.

Table 2.

Estimation results: EMU period	
Business-cycle coefficient	*0.267**
	(0.082)
Policy persistence coefficient	*0.557**
	(0.086)
Goodness of fit	*0.881*
Durbin–Watson-statistic	*1.619*

St. dev. in parentheses,
** indicates significance at 5% level.*

Sources: OECD Economic Outlook and authors' calculations.

In this study, fiscal policy reaction equations were estimated for ten euro area countries on the basis of real-time panel data for the years 1999–2010.[3] The estimation results show that during the time of monetary union the euro area countries have used discretionary policy measures to reduce cyclical fluctuations (table 2). That is, forecasts of cyclical conditions over the budget year have affected budget planning (statistically significant business-cycle coefficient). Euro area countries' discretionary fiscal policies have also been quite persistent (persistence coefficient 0.6).

The aim of the estimation exercise is to study planned fiscal

[3] Cross-country differences were taken into account via country-specific constants from panel-data estimations.

Table 3.

Correlation coefficients by country: planned budget vs output gap

	Budget-year output gap	*Current-year output gap*
Netherlands	*0.48*	*0.54*
Belgium	*0.67*	*0.54*
Spain	*0.86*	*0.87*
Ireland	*0.77*	*0.69*
Italy	*–0.27*	*–0.21*
Austria	*0.59*	*0.52*
Greece	*0.38*	*0.11*
Luxembourg	*–0.11*	*0.21*
Portugal	*0.40*	*0.45*
France	*0.79*	*0.69*
Germany	*0.59*	*0.73*
Finland	*0.57*	*0.63*
Average	***0.48***	***0.48***

Sources: OECD Economic Outlook and authors' calculations.

policy, ie the budget actions for the next year.[4] The results show that fiscal policy in the euro area countries has been counter-cyclical on average during the time of monetary union: it has generally been tightened in booms and eased in recessions. It has also been long-term oriented, ie the euro area countries have generally conducted counter-cyclical fiscal policies in accord with prior commitments. In other words, repeated changes in fiscal policy strategy have been relatively small. A possible reason for this is that the fiscal rules for the different countries have prevented large deviations from the basic orientation of cyclical policy; instead, policies are tied to long-term programmes. It is worthwhile emphasising that this result applies to policy responses relative to the economic prospects as seen by policy-makers when the regular budgets are being planned. One usually obtains a very different picture of fiscal policy from an ex post analysis based on final economic numbers. Developments in the financial balance also reflect changes in policy orientation in the course of the budget year.

An average result does not shed light on cross-country differences in response. Correlations for individual countries as between budget plans and real-time estimates of cyclical conditions point to responses in the same direction (table 3). The CAPB and cyclical situation (real-time estimate of current or next-year's output gap) have generally been highly positively correlated; only for Italy was the correlation coefficient negative. Budget plans have thus moved in opposition to the economic outlook (according to both metrics) and generally to the same extent in all the countries. This result suggests that there are probably not great differences in response between the countries, so that cyclical conditions have apparently impacted euro-country budget planning in a fairly uniform manner.

Fiscal policy has been crucial in euro area countries' stimulus measures during the current

[4] The data include next year's budget, as they are based on the December issues of the OECD's Economic Outlook.

recession. Using fiscal-policy reaction functions, one can examine whether fiscal stimulus reflected regular budget policy, ie the realisation of plans in connection with the regular budget process. One might ask whether during the severe crisis of recent years the euro area countries actually altered their long-run policy goals during the budget planning process. Moreover, did budget planning in the euro area become more counter-cyclical in the course of the crisis? The larger the estimated business-cycle coefficient, the more cycle oriented the fiscal policy. In order to analyse fiscal policy during the recession years, the data were divided into two periods via 'dummy variables'.[5]

The estimation results (table 4) demonstrate that during the recession fiscal policy deviated to an extent from that conducted over the longer-term. When the crisis years are analysed separately from the earlier period, the persistence coefficient in both periods and the business-cycle coefficient in the crisis period are statistically significant at the 5% level. The estimated business-cycle coefficient for the recession years is larger than that for the earlier period. This means that business conditions played a larger role in fiscal strategy as a result of the recession. Policy persistence, on the other hand, was less important during the recession.

[5] The dummy variable takes the value zero for the years 1999–2007 and one for the years 2008–2010.

Table 4.

Estimation results: crisis years and earlier period

Business-cycle coefficient, crisis years (2008–2010)	*0.199** *(0.073)*
Business-cycle coefficient, earlier period (1999–2007)	*0.121* *(0.082)*
Policy persistence coefficient, crisis years (2008–2010)	*0.596** *(0.098)*
Policy persistence coefficient, earlier period (1999–2007)	*0.640** *(0.082)*
Goodness of fit *Durbin–Watson-statistic*	*0.907* *1.890*

Std. dev. in parentheses,
** indicates significance at 5% level.*

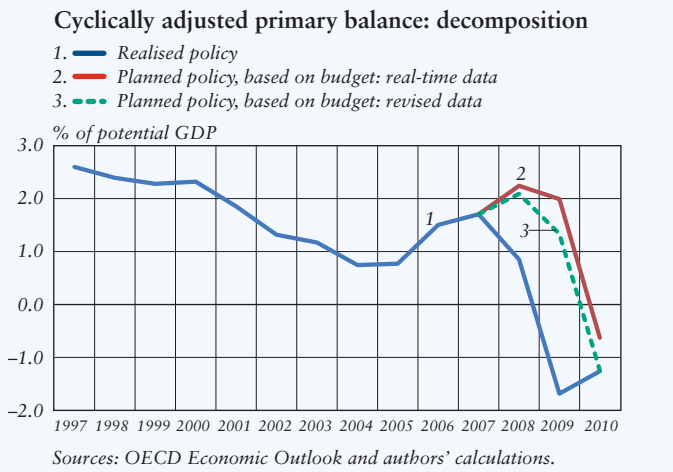
Sources: OECD Economic Outlook and authors' calculations.

However, the estimated persistence coefficient for the euro area countries in the crisis years is only slightly smaller than that for the earlier period. Therefore, the results suggest that, even during the recession, budget planning continued to adhere quite closely to fiscal policy rules.

Evaluation of fiscal policy during the recession years

The recession years were an exceptionally challenging time for fiscal policy. Abundant uncertainty about economic performance and a simultaneous need for a more active fiscal policy posed a risk for the gauging of policy actions, but the conduct of policy was also marked by difficult challenges. Because the crisis was severe and unpredictable in the euro area countries, it required quick responses by policy-makers. In fact,

Chart 2.



Sources: OECD Economic Outlook and authors' calculations.

fiscal plans for the next year often had to be revised in the course of the budget year. Using real-time data and estimated reaction functions, one can examine the extent to which realised fiscal easing is explained by the fact that cyclical conditions only gradually became clear. Budget plans were devised on the basis of projected economic performance that was better than the actual outcome.

Although euro area countries' budget planning became slightly more responsive to business-cycle conditions during the crisis, this would not produce the observed degree of fiscal easing had policy been gauged on the basis of actual economic conditions. To shed light on the issue, we examined the OECD's revised CAPB figures for recent years and two alternative primary balance series, calculated using the estimated reaction function (chart 2). These observations reveal developments in the primary balance in the planned budget based on the data available at times when decisions were made (real-time data) and on subsequently revised data (final data).

If fiscal policy during the crisis years had been conducted in accord with planned budgets (without additional decisions during budget years) and economic performance had been in line with the perception of the economic situation when the policy decisions were made, fiscal easing would have not have occurred until 2010. If, on the other hand, economic performance had been correctly forecasted when policies were planned, substantial fiscal easing would have occurred already in 2009. Because primary balance figures for the last few years will not be finalised until later, partly due to revisions to potential output estimates, it should be emphasised that our estimates for the elements of fiscal policy during the recession years are merely indicative. Nonetheless, our results do suggest that during the recession the policy responses reflected in planned budgets differed substantially from what actual economic conditions would have required. The chart clearly shows the wide differences between planned and realised policy actions. The shrinking of the realised primary balance in 2010 reflects the change in fiscal-policy focus from

economic stimulus to consolidation of public finances.

Division of fiscal policy into its components shows that a substantial portion of realised stimulus during the recession years is explained by factors other than budget plans and statistical uncertainties. The difference between budget plans and realised policy is largely explained by additional decisions made during budget years and other factors such as changes in economic agents' behaviour in connection with stimulus measures. These factors largely explain the realised discretionary change in the structural balance.

Our analysis shows that during the crisis period it has been possible, using fiscal tools, to respond flexibly to a deteriorating economic situation, even in the course of the budget year. However, the results underline the fact that if we examine realised policy on the basis of ex post revised data, we may come to widely different conclusions about policy rules and fiscal policy as compared to those based on data that were available at the time when decisions are made.

The crisis increased fiscal policy responsiveness to cyclical conditions

The above analysis indicates that forecast errors and ex post data revisions in the euro area countries were exceptionally large during the crisis. The results also suggest that during the time of monetary union budget planning in the euro area countries has aimed at reducing business-cycle fluctuations. That is, fiscal policy has been used to reduce the changes in output, employment and income that derive from cyclical changes. The planned budgets of the euro area countries have on average entailed easing whenever economic conditions seemed to be worsening at the time when decisions were made. And fiscal policy has become less accommodative when the economy was in an upswing. It has also been typical that fiscal policy could be characterised as having a long-term focus, so that yearly changes in policy are restrained by long-term goals.

The recession changed the fiscal policy stance in the euro area countries; it became more responsive to business-cycle movements and simultaneously less persistent. This suggests that during the crisis the long-term goals of fiscal policy were to an extent put on hold in favour of counter-cyclical actions. This was quite natural in a situation where it was feared that the financial crisis could worsen further and where monetary policy was accommodative and inclusive of non-standard policy measures, as policy-makers did not want to invite the risks of excessive fiscal tightening. The realised fiscal policy of the crisis years was clearly more accommodative than that embedded in the planned budgets.

Developments in recent years highlight the uncertainty associated

with statistical data and the problems of gauging fiscal policy as well as the need to develop more reliable data and better methods of analysis and forecasting. The huge uncertainty concerning economic performance over the coming years means that the risk of pursuing poorly gauged (in ex post terms) business-cycle policies will continue to be a large risk. This, along with the public-sector debt problems, will pose even bigger challenges for fiscal policy. From the perspective of being able to adjust policies in light of economic conditions and the state of public finances, poorly gauged fiscal policy can lead to higher financing costs. The huge difference between planned budgets and realised policies also causes problems for the closer coordination of fiscal policies within the EU. For example, based on our analysis, it appears advance budget approval would not be very effective if in future realised fiscal policy continues to differ as widely as in recent years from the policies intended when budget decisions are made.

Key words: fiscal policy reaction function, economic crisis, real-time data

Central banking and balance sheet risks

13 September 2011

The main risks of central banking are always related to the success of the policy implemented, ie whether the decisions made lead to price stability and whether other economic policies can be supported without prejudice to price stability. Central banking is also associated with financial risks. These are relevant particularly in situations marked by destabilising developments on the financial markets and in the economy and by central bank interventions in foreign exchange, money or capital markets. Although financial returns are not a primary central bank objective, financial independence is a prerequisite for an effective conduct of monetary policy aimed at maintaining price stability. This article examines the financial risks involved in Eurosystem activities from the perspective of developments in the Eurosystem balance sheet.

We can begin our assessment of the financial risks related to central banking with an analysis of central bank income formation. A central bank, like any economic unit, generates a profit when the return on its activities exceeds the costs of financing its debts. Although the European Central Bank (ECB) is responsible for the single monetary policy of the euro area, the consolidated balance sheet of all the components of the Eurosystem (the ECB and the national central banks) needs to be examined in order to obtain a comprehensive overview of euro area central banking. This is particularly so because the national central banks implement euro area monetary policy and the bulk of the Eurosystem's financial assets and capital are held on their balance sheets. This article first analyses the current composition of the Eurosystem balance sheet and then looks at its development over time. An analysis of macro- and micro-level risks related to central banking is followed by a brief comparison of developments in the balance sheets of the Eurosystem and the central banks of some other currency areas. The article concludes with a review of the main changes in the Bank of Finland's balance sheet that have taken place since adoption of the euro.

Tuomas Välimäki
Head of Division
Banking Operations

Balance sheet of the Eurosystem

The bulk of the assets side of the Eurosystem balance sheet (Table) comprises foreign reserve assets (incl. gold), monetary policy operations and euro-denominated financial assets. Income on the foreign reserve portfolio is determined by changes in the value of the currencies involved and investment returns derived from foreign reserve assets. As exchange rates and the price of gold are subject to considerable volatility even under normal circumstances, variations in the external value of the euro have a highly significant impact on the annual income of the Eurosystem. In a longer-term perspective, however,

Table.

Consolidated balance sheet of the Eurosystem as of 31 August 2011, EUR billion

Assets		*Liabilities*	
Foreign reserve assets (incl. gold)	*606*	*Bank notes*	*850*
Lending and securities related to monetary policy operations	*700*	*Banks' reserve holdings*	*197*
Financial assets denominated in euro	*438*	*Deposits related to monetary policy operations*	*232*
Other assets	*328*	*Other liabilities*	*793*
Total	***2,072***	***Total***	***2,072***

Sources: European Central Bank and the author's calculations.

there is no reason to assume that the valuations of the reserve currencies will evolve so as to deviate from uncovered interest rate parity. In other words, in the long term, income on foreign reserve assets can be assumed to correspond to the risk-adjusted return on the euro-denominated investment portfolio.

The bulk of monetary policy operations consists of lending to euro area banks. These include both main refinancing operations with a weekly frequency and longer-term refinancing operations. During the financial market and sovereign debt crises, the Eurosystem has also purchased securities for monetary policy purposes in dysfunctional markets that are key to the transmission of monetary policy. In addition, Eurosystem central banks hold euro-denominated financial assets comparable to investment assets, the main part of which is placed in bonds issued in the euro area.

In the long term, the level of the policy rate is the main factor impacting on central bank income formation.

In general, the rate of return on credits granted to banks is very close to the prevailing policy rate. Bond yields, in turn, depend on bond maturities and risk premia. As monetary policy operations are mainly collateralised loans with very short maturities, the expected return from investing financial assets is higher than the return on monetary policy operations, in line with liquidity and credit risk premia.

The largest single liability item on the Eurosystem balance sheet is banknotes. As banknotes can be deemed as zero-coupon debt securities issued by the central bank, assets held as counterparts for banknotes have no direct funding costs. Basically, banks need to borrow money from the central bank so they can buy banknotes in order to meet the demand for banknotes on the part of households and businesses. The monetary income resulting from the central bank's right to issue banknotes can roughly be estimated by multiplying the volume of banknotes issued by the policy rate. Over the longer term, the level of the policy rate is by far the main single factor affecting the central bank's income formation.

In addition to cash, the demand for central bank financing also

increases with the minimum reserve requirements.[1] Deposits held by commercial banks with national central banks for the fulfilment of their reserve requirements constitute a neutral balance sheet item from the viewpoint of the central bank's income formation, as these reserve holdings are remunerated at the same rate of interest as the central bank charges for credits granted to banks in the main refinancing operations.

The Eurosystem remunerates banks' excess reserves[2] at the rate on the deposit facility.[3] As this rate is lower than the rate on credit operations, the central bank benefits financially when banks' deposits exceed their minimum reserve requirements. In other words, the banking sector as a whole makes a loss if banks borrow central more bank money than is needed to fulfil the reserve requirements. During the financial crisis, banks have prepared themselves for negative shocks by borrowing excessively from the central banks.

In addition, the largest liability items on the Eurosystem balance sheet include deposits held by governments with certain national central banks and central bank holdings of capital. National central banks may pay interest on government deposits, but at a rate lower than the market rate of interest. Capital, in turn, is a non-interest-bearing item, for which the financing costs can be derived from, for example, the central bank's profit distribution policy or the owner's (normally the government) financing costs.

Regular interest income from the above balance sheet assets exceeds the financing costs for the balance sheet liabilities. Accordingly, as a rule, central banking generates a profit, which covers the operating expenses of the central bank and of which a significant portion is distributed to the owner, ie the State. Nevertheless, central banking also includes elements that may cause considerable variation in annual income. The main risks are related to changes in the value of foreign reserve assets and the price of gold, interest rate and credit risks involved in monetary policy operations, and market risk associated with investment activities. Central banks prepare for the realisation of these risks and for safeguarding financial market stability by accumulating part of their earnings as risk buffers on their balance sheets.

---

[1] Each bank is required to hold on its account with the central bank an amount of money for which the average may not fall below the minimum reserve requirement imposed on the basis of its liabilities.

[2] Banks are required to place funds in excess of their reserve requirements as separate overnight deposits under the deposit facility in order to earn interest thereon.

[3] The differential between the rate on the main refinancing operations and the rate on the deposit facility (available for placing funds overnight), has normally been 1 percentage point, but during the financial crisis and particularly after the zero interest rate constraint on nominal interest rates materialised, this differential has been 0.75 percentage point.

Growth in banknotes in circulation has dominated developments on the Eurosystem balance sheet.

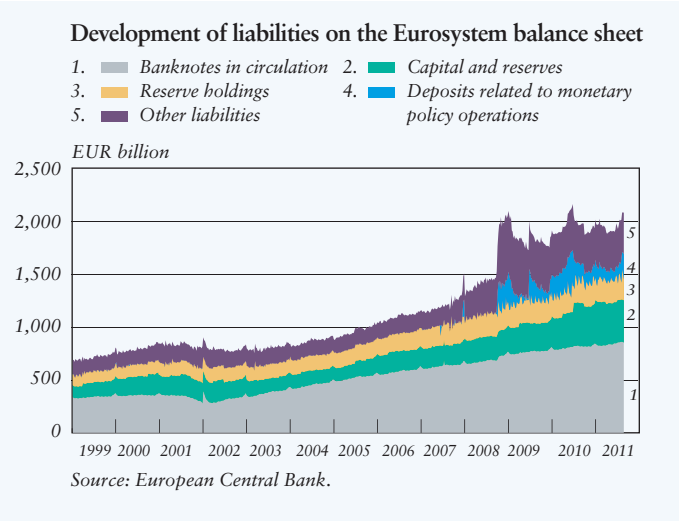
Evolution of the Eurosystem balance sheet

The main factors underlying the financial risks faced by the Eurosystem are most clearly visible when developments in the balance sheet are examined over time. Over the years, the evolution of liabilities (particularly banknotes in circulation) has dominated changes in the bottom line of the Eurosystem balance sheet (Chart 1).[4]

Since the introduction of euro cash until the onset of the financial market disruption (from January 2002 to August 2007), shifts in the demand for banknotes accounted for 90% of changes in the weekly balance sheet total of the Eurosystem.

[4] This is a fairly normal phenomenon in large currency areas. In the case of small currency areas, changes on the bottom line of the central bank balance sheet often reflect developments in foreign reserve assets.

Chart 1.



During the financial market crisis since autumn 2007, the increase of EUR 877 billion in liabilities on the Eurosystem balance sheet has been fairly evenly divided between banknotes, deposits related to monetary policy operations, items comparable to capital, and other liabilities.

The aftermath of the Lehman Brothers bankruptcy saw an exponential increase in overnight deposits placed by banks with the national central banks. The functioning of the financial markets was paralysed at that time, and part of financial intermediation normally handled by the money market was taken over by the Eurosystem. Under the crisis conditions, banks were not willing to provide credit to each other as previously, and therefore banks in need of money covered their entire liquidity requirements by borrowing from the central banks, while banks with surpluses deposited their excess funds with the central banks. However, the spread between the central bank lending and deposit rates provided banks with an incentive to normalise the functioning of the money market as soon as possible.

Since May 2010, deposits with a one week maturity accepted from banks to sterilise the liquidity injected through the Securities Markets Programme have increased the volume of deposits related to monetary policy operations.

Growth in other liabilities reflects both an increase during the crisis in governments' central bank deposits and, particularly in late 2008, a liability to non-euro area central banks related to the provision of foreign currency refinancing. The Eurosystem accepted slightly over EUR 50 billion worth of government deposits in August 2008, with the amount more than doubling in a year to about EUR 115 billion. During the financial market distress, several central banks began to grant foreign currency loans to their counterparties. At that time, besides euro-denominated loans, the Eurosystem financed its counterparties with loans in US dollars and Swiss francs. As this foreign currency liquidity provided to banks was acquired via swap lines with the US Federal Reserve and the Swiss central bank, the balance sheet counterpart for claims denominated in foreign currency was liabilities to non-euro area residents. Owing to the acute financial market crisis that followed the collapse of Lehman Brothers, lending in foreign currency increased to more than EUR 300 billion. Central banks have also previously cooperated by, for example, coordinating their foreign currency interventions. During the financial market dislocation that began in 2007, however, joint operations reached completely new dimensions, in terms of both operational models and the size of operations. The above foreign currency lending has had no material impact on the Eurosystem's financial performance, as the rate of interest charged on credits provided to counterparty banks is set so as to correspond to the payments made for the currencies to the foreign central banks involved.

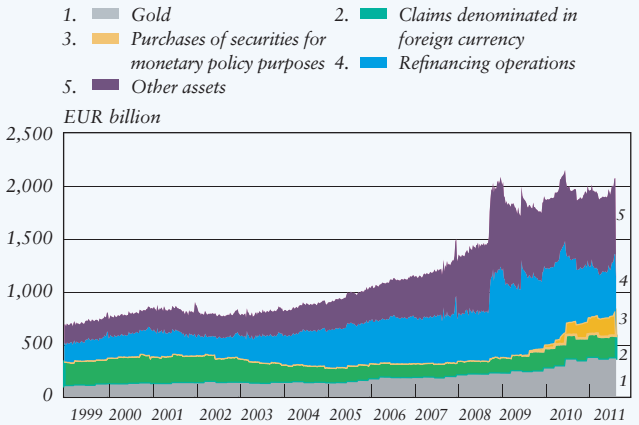
Analysis of the assets side of the Eurosystem balance sheet reveals that the Eurosystem's primary response to the rapid growth in banknotes in circulation in 2002–2007 and the consequent higher structural liquidity deficit in the banking system was to increase liquidity provision in credit operations (Chart 2).

As it was not considered appropriate to let these operations normally conducted with short maturities to grow manyfold,[5] the Eurosystem decided to increase its structural liquidity provision by

[5] The increased liquidity allotments in the weekly operations increased banks' allotment uncertainty, which, at a certain stage, began to be reflected in the effective tender rates.

Chart 2.

Development of assets on the Eurosystem balance sheet



Source: European Central Bank.

allowing the national central banks to augment their own financial assets. By paying for its investments with central bank money, a central bank creates liquidity, which in turn reduces the need for refinancing granted to banks through monetary policy credit operations. The Eurosystem's investments denominated in euro (other than claims related to monetary policy operations) grew by almost EUR 200 billion from 2002 to August 2007. However, this growth in part reflected the decision made by several national central banks to reduce the size of their foreign reserve assets by selling foreign currencies in exchange for euro. Converting foreign currency investments into those denominated in euro does not change the volume of euro liquidity in circulation, but significantly reduces the (foreign exchange) risks related to financial assets.

The most visible change on the assets side of the Eurosystem balance sheet at the beginning of the financial crisis was the surge in monetary policy credit operations from EUR 450 billion to more than EUR 800 billion in the few weeks after the bankruptcy of Lehman Brothers. With the easing of the most acute phase of the crisis, however, demand for excess liquidity declined significantly until summer 2009, when the banking sector again faced a situation of huge excess liquidity resulting from the provision by the Eurosystem to euro area banks of EUR 450 billion worth of refinancing with a maturity of one year.

Increasing the volume of refinancing and extending its maturity expose the Eurosystem to higher-than-normal credit and interest rate risks. The main instrument for managing credit risks to Eurosystem refinancing operations is collateral. Banks may borrow central bank money only against adequate collateral. The Eurosystem reduces its credit risk exposure by choosing eligible assets as collateral, by performing revaluation of collateral on a daily basis at observed market prices and by reducing the collateral values of underlying assets below their market values (a haircut).

However, the design of risk control measures is not a straightforward exercise. The volume of central bank financing can be assumed to be at its highest and the creditworthiness of banks and issuers of underlying assets at its lowest during a financial crisis where credit demand increases and the financial position of counterparty banks and companies worsens. This procyclicality of risks poses the central bank a dilemma. On one hand, the central bank could reduce its risk exposure by limiting the volume of its financing and by tightening is collateral requirements. On the other hand, by maintaining its financing, the central bank brings stability to the functioning of the financial markets and prevents sound banks from collapsing in the face of

temporary liquidity problems. Accordingly, acting as the provider of emergency finance for the banking sector requires from the central bank a readiness to accept a temporary increase in credit risk in times of crisis.

The rising price of gold has led to one of the most significant changes on the assets side of the Eurosystem balance sheet during the crisis since August 2007. The value of Eurosystem gold reserves has risen from about EUR 170 billion in August 2007 to more than EUR 360 billion in four years. As Eurosystem central banks have not sold much of their gold reserves, the rise in the price of gold is mainly reflected as unrealised gains in the revaluation accounts of the balance sheet. Although the higher value of the gold reserves has boosted the Eurosystem balance sheet, changes in the price of gold pose the main individual risks to the balance sheet, as measured by the Value-at-Risk method.

In order to implement monetary policy effectively, the central bank needs to ensure the functioning of the financial markets. From time to time, this may call for a specific transfer of risk overpriced by the market to central bank balance sheets. In principle, the expected return from such a corrective measure is positive, but like all risky operations, central bank interventions may also lead to losses. The wider the market disruption, the greater the necessary transfer of risk between the private sector and the central bank balance sheet, and the higher the potential for a loss.

In summer 2009, the Eurosystem began to buy securities for monetary policy purposes for the first time . At that time, the ECB established a programme for the purchase of covered bonds issued by banks. During a period of 12 months, euro area central banks bought EUR 60 billion worth of bonds under this programme. The purchases took place in both primary and secondary markets, with the aim of reactivating a market segment that is key to European banks' funding. The purchases under the programme came to an end in June 2010.

The rising price of gold has substantially enlarged the Eurosystem balance sheet.

In May 2010, the Eurosystem launched another purchase programme, under which euro area central banks purchased securities from secondary market segments that had become dysfunctional and that are key to the transmission of monetary policy. The Eurosystem's purchases of bonds during the first year of this Securities Markets Programme amounted to just under EUR 80 billion. There was a long break in purchases in spring and summer 2011, but they were reactivated in August, as euro area capital markets came under intense pressure. By early September, the cumulative amount of bonds purchased under the Programme totalled around EUR 140 billion.

The liquidity injected into the money market through securities

During episodes of market disruption, central banks seek to ensure the functioning of the financial markets by accepting onto their balance sheets assets with higher than normal risks.

purchases in connection with investment activities is in practice absorbed so that banks reduce their demand for central bank money in monetary policy credit operations. As long as the banking system continues to have a structural liquidity shortage, the liquidity created in the market via monetary policy-related securities purchase programmes could be absorbed automatically in the same way. The ECB wants to emphasise, however, that the purchase programmes do not aim at quantitative easing. Consequently, the central bank money created by securities purchases under the Securities Markets Programme is withdrawn from the market by weekly collections of deposits from banks. For the present, these deposit operations are executed as variable-rate tenders in which the rate on the main refinancing operations serves as the maximum bid rate. This means that the maximum rate at which the Eurosystem is prepared to remunerate banks' weekly deposits is the rate it applies when providing credit to banks. As the rates on these deposits have generally remained clearly below the maximum bid rate, the separate absorption of liquidity created via the purchase programmes has been financially profitable for the Eurosystem.

The success of the purchase programmes needs to be assessed relative to their objectives; in other words, it must be assessed whether the transmission of monetary policy has become more effective and whether the operational conditions of the financial markets have improved. It is still too early to evaluate the financial implications of the ongoing programmes for central bank balance sheets. Owing to market pressures, significant risk premia are included in the prices of securities purchased on the secondary markets in response to the market disruption. For this reason, the expected yield on these securities is markedly above the expected level of the policy rate. Contrary to purchases conducted via investment activities, securities purchased under monetary policy-related purchase programmes are not marked to market, but are recognised on the Eurosystem balance sheet as items that earn interest derived from the purchase price ('held-to-maturity portfolio'). This enables the Eurosystem to avoid exposure to market risks in connection with its monetary policy-related securities purchases; credit risk remains the only risk factor related to these securities that has an impact on the balance sheet.

Purpose of central banking: macro- versus micro-level risks

The financial risks related to central banking could, at their worst, be highly significant. The Swiss central bank, for example, had to recognise losses of SFR 26.4 billion in 2010. In this case, the source of the losses was the foreign reserve portfolio, which decreased in value as the franc

strengthened considerably vis-à-vis the reserve currencies.

However, a central bank's financial result often correlates negatively with the attainment of its policy objectives. When, for example, the external value of the domestic currency weakens, the central bank's foreign reserve assets appreciate in value. Devaluation may bring significant 'profits' to the central bank, but the success of the measure should be assessed on the basis of its macroeconomic implications. Similarly, a central bank that succeeds in stabilising prices at a low level earns less than a central bank whose nominal interest rates on assets denominated in its domestic currency are higher because of stronger and more volatile inflation. The central bank must therefore have the patience to make its key decisions mindful of their macroeconomic consequences, even in the event of its measures causing sizeable losses for itself in the short term.

The main risks to central banking are always related to the monetary policy implemented. Do the policy decisions help achieve price stability, for example? Drifting into an inflationary or deflationary spiral would cause significant welfare losses and random reallocation of wealth between lenders and borrowers. In the Eurosystem it is fully understood that policy rate changes must always be consistent with the objective of price stability. The impact that interest rate setting has on financial results never affects decision-making, although the interest rate level is the largest single factor that has an effect on central banks' financial results. Correspondingly, in decisions on monetary policy-related interventions (in the foreign exchange, money or capital markets), the main emphasis is always on the macroeconomic consequences of the decisions.

In providing credit to banks to cover their short term liquidity needs under normal conditions , the central bank need not devote much attention to interest rate or liquidity risk, and exposure to credit risk is also minimal. As financial markets head towards a crisis, the central bank must have the resources and readiness to take measures that increase the risks to its balance sheet in the short term but are warranted for longer-term and macroeconomic reasons. For example, commitment to a policy of low interest rates for a longer period of time may, under certain circumstances, be necessary from the viewpoint of monetary policy, although it significantly impairs the central bank's earnings capacity and exposes it to interest rate risks. During the financial market crisis, the Eurosystem implemented a number of measures to ensure the liquidity of the banking system, as a result of which a significant part of financial intermediation normally handled by the interbank money markets was transferred to central banks' balance sheets. These measures led to a

In conducting monetary policy operations, central banks focus primarily on the macroeconomic implications of their actions.

considerable mitigation of the banking sector's liquidity risks. In practice, the risk premium accrued on money market interest rates was reduced so as to correspond to several normal-sized reductions in the policy rate. By conducting an active collateral policy, central banks can seek to manage their credit risks up to a certain point. However, in calibrating risk control measures, one needs to also consider the impact of the measures on financial stability. A policy that minimises risks could act procyclically, and the central bank as the monopoly supplier of liquidity must be able to cover the banking sector's need for emergency funding in the event of financial stability being jeopardised.

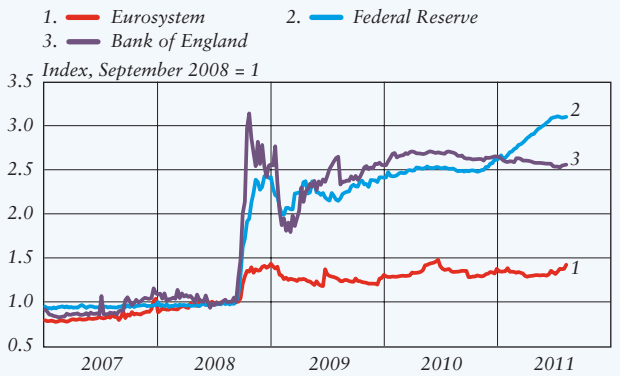
Central bank balance sheets from an international perspective

Public debate on central banks' non-standard monetary policy measures has often culminated in an analysis of changes in the size of central bank balance sheets. Despite an increase in the balance sheets of all major central banks as a consequence of the financial crisis, there are considerable differences in their development (Chart 3). The Eurosystem's balance sheet grew by almost half when peaking at the acute phase of the financial market crisis, compared with the level where it had been prior to the fall of Lehman Brothers. Following a reduction in the banking sector's excess liquidity demand, growth in the Eurosystem's balance sheet has been accounted for by the rising price of gold and the acceptance of deposits in relation to the Securities Markets Programme.[6]

The pace of growth in the Eurosystem's balance sheet has been moderate compared with the increases in the balance sheets of the Bank of England and the US Federal Reserve. Relative to the size of the economies, however, the central bank balance sheet totals differed markedly across the currency areas prior to the onset of the financial crisis. Therefore, a comparison of the growth rates of the balance sheets must also include an analysis of balance sheet changes relative to the size of the economy. The balance sheet totals of both the

Chart 3.

Developments in the balance sheets of the Eurosystem, the US Federal Reserve and the Bank of England



Sources: European Central Bank, Bank of England, US Federal Reserve and calculations by the Bank of Finland.

[6] Securities purchases, as such, do not enlarge central bank balance sheets, as banks could reduce their refinancing from the central bank by an amount equivalent to the liquidity created through the purchases. As the liquidity shortage is maintained by means of liquidity-absorbing operations, these operations enlarge the balance sheet of the Eurosystem.

Bank of England and the Federal Reserve relative to GDP at the end of 2010 were about 17%, ie around 10 percentage points larger than in September 2008. The corresponding euro area growth was 6 percentage points; however, the ratio of the Eurosystem's balance sheet to GDP, 22%, continued to be larger than those of the benchmark banks.

In the early phase of the financial crisis, the Federal Reserve's balance sheet was boosted by various liquidity facilities. However, the main explanatory factor behind the higher pace of growth in the balance sheets of the Federal Reserve and the Bank of England is that these central banks engaged respectively in a large scale asset purchase programme and quantitative easing.

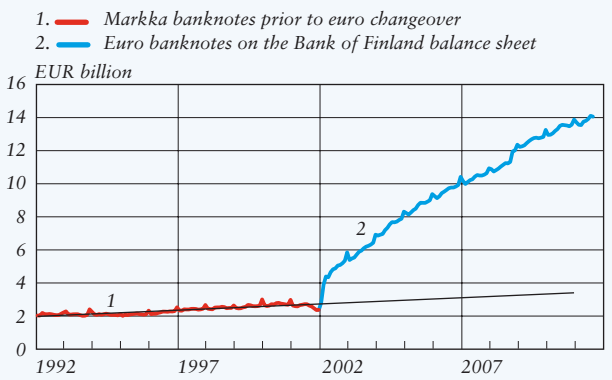
Experiences of the Bank of Finland

The Bank of Finland has been a member of the Eurosystem for a good 12 years. Belonging to a system of central banks in a large currency area has clearly changed the composition, dynamics and key risk factors of the Bank of Finland's balance sheet. Prior to the start of Stage III of Economic and Monetary Union, the Bank of Finland's foreign reserves were considerably larger than the amount of national markka banknotes it issued, meaning there was a liquidity surplus in the banking sector. As banks needed to deposit with, rather than borrow from, the central bank, monetary policy was mainly conducted by issuing liquidity-absorbing central bank certificates of deposit.

At that time, changes in the valuation of the foreign reserve portfolio was driving the Bank of Finland's annual financial result. When the markka strengthened (weakened), the Bank of Finland made imputed losses (profits). In the absence of domestic financial assets and net monetary policy lending, income on banknotes was determined by changes in the exchange rates of the reserve currencies and investment returns on these reserves. As the markka was the monetary unit of a small currency area and the foreign reserves were denominated in large and liquid currencies, the interest expenses for the Bank of Finland's certificates of deposit were often higher than the investment returns on the reserves.

Chart 4.

Bank of Finland's holdings of banknotes



Sources: Bank of Finland and calculations by the author.

Currently, Finland being part of the euro area, the Bank of Finland's assets are largely items related to monetary policy: monetary policy operations or intra-Eurosystem claims. In addition, the bulk of the Bank's financial assets are held in investments denominated in euro, with less than a third of investment assets denominated in foreign currency. This change has materially reduced variations in the Bank of Finland's annual financial result.

The main change in liabilities is the replacement of interest-bearing certificates of deposit by banknotes (Chart 4). Demand for euro banknotes is higher than the previous aggregate demand for the currencies of the countries that adopted the euro. As euro cash is allocated to each national central bank's balance sheet according to its capital key (determined by population and GDP), the increase in banknotes on the Bank of Finland's balance sheet has been faster than in other euro area countries, because the cash-to-GDP ratio was lower in Finland than elsewhere prior to monetary union. The importance of the introduction of euro cash for the Bank of Finland's balance sheet and its sustainability can be evaluated by comparing the Bank's euro banknote share with the trend-growth-based volume of markka banknotes prior to the euro changeover. According to this assessment, the non-interest-bearing item on the Bank of Finland's balance sheet is currently, thanks to the euro, more than EUR 10 billion higher than prior to the changeover. If income on banknotes is estimated to accrue at a nominal interest rate of 4%[7] in the long term, the Bank of Finland can expect to earn extra annual income of about EUR 400 million on euro banknotes, compared with the time prior to the euro changeover.

The single monetary policy of the Eurosystem is formulated and will continue to be formulated so as to ensure price and financial stability. Decision-making is primarily guided by macroeconomic considerations, for which reason the financial results of the national central banks may vary significantly over time. Despite the primacy of policy objectives, central bank independence in decision-making can best be ensured if financial risks do not become unreasonably high relative to the resilience of the Eurosystem balance sheet. Consequently, the Eurosystem has retained an increasing share of its monetary income on its balance sheet as a buffer against a variety of financial crises.

Keywords: monetary policy risks, Eurosystem balance sheet, Bank of Finland

[7] The 4% nominal interest is based on 2% real interest and inflation.

Macroprudential policy tools

7 September 2011

The financial crisis that began in 2007 has demonstrated that financial market disruptions can have substantial effects on the economy. There have been calls for reform of the regulations governing credit institutions, insurance companies, derivative markets and securities trading, in order to foster financial stability. This article explores various means available to government for both preventing financial market crises and mitigating the economic consequences of any disruptions that do occur. The main focus is on identifying means for enhancing the stability of the banking system.

Juhana Hukkinen
Economist
Monetary Policy and Research

Karlo Kauko
Research economist
Monetary policy and Research

Macroprudential policy and tools

The operation of financial markets is often said to reinforce cyclical fluctuations. Strong credit supply and rising asset prices further bolster economic growth in an upswing, while financial market problems aggravate the negative state of the economy in a downswing. These movements have a strong impact, as banks tend to encounter similar difficulties at the same time. Banks are exposed to the same cyclical fluctuations, with the problems of troubled banks spilling over to healthy ones through the complex interlinkages within the banking system. Asset and real estate bubbles appear occasionally in the markets as speculative demand is sustained by expectations of price increases. Such bubbles are bound to be temporary in nature and will inevitably burst, often putting the functioning of the whole banking system in jeopardy.

According to the capital adequacy requirements for banks, the own funds held by banks must amount to at least 8% of their calculated risks. In a downturn, individual banks may improve their capital adequacy by reducing their lending and selling securities, thus being relieved of the imputed risks inherent in these assets. Following this reduction in assets and holdings, the amount of own funds held by the banks remains practically unchanged, with a resulting improvement in their capital-to-risks ratio. However, this is a dangerous approach in terms of macroprudential stability, as large-scale recourse to this practice will tend to turn a recession into a depression. Declining credit supply during a recession will further discourage investment by companies dependent on bank financing, while the sale of securities will serve to lower asset prices, causing problems for pension funds and other investors.

Government has not previously attempted a systematic approach to reducing the procyclical tendencies of banking operations, but this is changing, with increasing importance being attached to macroprudential policy.

A report by the G30[1] defines macroprudential policy as the means

[1] G30 (October 2010).

for mitigating systemic risk in the financial system. Effective promotion of macroprudential stability requires the identification of appropriate instruments. This article introduces both existing macroprudential tools and new tools currently being formulated for the conscious pursuit of macroprudential stability.

The above-mentioned G30 report distinguishes between fixed and variable tools of macroprudential policy. A fixed approach is designed to interfere with the operation of the financial system so as to reduce its procyclicality. It does not provide any easy recourse to regulatory intervention, nor is it geared towards adjusting regulations, for example in response to changes in the economic outlook. For example, accounting or tax legislation can scarcely be fine-tuned on a quarterly basis to reflect cyclical conditions, even though such regulatory change could be in the interest of macroprudential stability.

The operating principle of a countercyclical capital buffer: capital requirements are tightened during credit cycle upswings and relaxed during downswings.

Variable tools, in contrast, are based on ongoing monitoring and regular adjustment of government requirements. Decision-makers' understanding of the prevailing situation and the measures required is a necessary prerequisite for the success of a variable macroprudential policy regime.[2] The countercyclical capital buffer currently being developed is a typical example of a variable policy tool.

Countercyclical capital buffer

The countercyclical capital buffer is probably the most important policy tool currently being developed. Adoption of this tool was proposed in a Bank of England Discussion Paper,[3] and the Basel Committee arranged its own public consultations on the proposed tool in July 2010. The European Commission also published its own consultation document in the same year.[4] A countercyclical capital buffer is likely to be adopted as a policy tool in, for example, the EU. In an economic upswing, the authorities would require banks to accumulate capital well above the normal minimum requirement, allowing them to reduce this capital in a downturn to avoid them having to cut lending and dispose of securities. The additional requirement would amount to a maximum 2%.

The buffer requirement would reflect a bank's country-specific exposures. For banks with exposures in several countries, the buffer add-on would represent the risk-weighted average of country-specific exposures. Each country would itself define the capital buffer add-on for credit granted to entities within the country. Only the most indisputable Tier 1 capital, eg share capital, would qualify as eligible assets for meeting the additional capital requirement.

[2] Heidi Schauman and Katja Taipalus discuss the identification of risks to macro stability in issue 1/2011 of the Bank of Finland Bulletin.

[3] Bank of England (November 2009).

[4] European Commission (October 2010).

As a general rule, decisions on the capital requirement should be based on the deviation from the trend of the credit/GDP ratio. The capital add-on could, in principle, also be related to other factors, such as asset price developments.[5]

There could be problems in applying the capital buffer. In an economic upswing, it could be difficult to introduce a buffer requirement that restricts profitable business opportunities and public access to credit, as this would meet with fierce opposition considering the apparently low level of risk. In a downswing, other problems would surface: banks dependent on market confidence may not wish to very openly communicate lower reported capital ratios despite a reduction in the regulatory minimum requirement. As the duration of a recession is hard to predict, banks could not make optimal use of their buffers by exhausting their excess capital just as the economic cycle begins to climb.

Minimum reserve requirement

In the late 1980s, Finland experienced excessive growth in bank lending. Among the responses considered, adoption of an additional minimum reserve requirement was finally chosen as the way to contain credit growth.[6] In March 1989, the Bank of Finland was authorised to raise the minimum reserve requirement to 12%, with no interest being payable on deposits above 8%. The additional reserve requirement was to be set individually for each bank, reflecting developments in lending volumes. Thus, this requirement had the nature of a fine, as the banks would have been required to tie up assets in interest-free deposits, instead of investing them productively.[7] Given that the additional reserve requirement was set individually for each bank, this was not purely a macroprudential measure.

The measure may have had the desired effect, judging from the marked deceleration in the rate of lending growth witnessed in nearly all banks around the same time.[8] The housing price bubble also began to unravel at around the same time.

It is, in principle, possible for example in the euro area to apply an interest-free additional minimum reserve requirement related to the lending growth of the banking group and based on certain indicators measuring the overheating of the macro economy. This measure would probably be less effective now than in the late 1980s, as the prevailing much lower level of nominal interest rates means the additional costs of the compulsory interest-free deposit would be lower. Off-balance-sheet financial

When nominal interest rates are low, a minimum reserve requirement is not a very effective macroprudential tool.

[5] Goodhart, C (2005).

[6] Korhonen, T (2011), p. 187.

[7] Aaltonen, E – Aurikko, E – Kontulainen, J (1994), pp. 76–77 and Bank of Finland Monthly Bulletin (4/1989), p. 13.

[8] Kullberg, R (1996).

intermediation would not be covered by this scheme, which would make it less effective. It would, of course, be possible to come up with another method of imposing additional burdens on banks whose credit growth appears exuberant in an economic upswing.

Through-the-cycle credit risk models

Under the Basel II and III regulatory frameworks, banks may choose not to apply the fixed risk weights and, subject to the regulator's consent, assess for themselves the credit risks of individual debtors. Given the cyclical sensitivity of credit risks and capital charges for credit risk, this approach has been presumed to involve a problem of cyclical escalation. Credit risk modelling points to rising credit risks in the wake of economic downturns, which impairs the banking system's lending ability, causing the recession to deepen further. In an upswing, a reverse spiral may develop.[9]

Adoption of a through-the-cycle approach to capital adequacy calculations could be one solution to the problem. The concept of through-the-cycle could mean the following approaches, among others:

1) Assessment of each debtor's loan loss risk in a downturn taken as the basis for the risk weight assigned to the debtor, ignoring the actual, prevailing cyclical conditions.

2) Assessment of each debtor's loan loss risk during average cyclical conditions taken as the basis for the risk weight assigned to the debtor.

3) Consideration of not only the current loan loss risk but also the cyclical sensitivity of the debtor: debtors whose creditworthiness is likely to suffer more from a recession will be assigned a higher risk weight.

In the through-the-cycle approach to ratings, it should be possible to rapidly filter out temporary, cyclical fluctuations from permanent changes with an acceptable degree of precision. However, there is very little evidence to the effect that the probability of default of an individual company includes a separate wave-like cyclical component that does not cause permanent changes to the probability of default.[10] Available through-the-cycle ratings are often based on historical averages the justified application of which is conditional on genuine cyclical recurrence. Public rating agencies in principle adopt a through-the-cycle approach to credit ratings, but the ratings change sluggishly in response to new information, hence providing an outdated picture of the situation, rather than balancing off temporary fluctuations in credit risk.[11]

The Tobin tax

In 1972, James Tobin proposed the introduction of a tax on foreign

[9] This topic has been discussed by Gordy and Howells (2006) and Drumond (2009).

[10] Kauko, K (2010).

[11] Altman, E – Rijken, H (2005).

exchange transactions. The idea originated in a need to safeguard monetary autonomy and discourage speculative trading in foreign currencies, which is assumed to amplify market fluctuations. As the stabilisation of exchange rate movements may well serve to reduce banks' risks, too, the tax could also qualify as a macroprudential tool. The idea of a transaction tax has attracted widespread support.

The proposal has, however, also met with criticism. Profits on successful foreign exchange speculations would not be curtailed much by the tax in the case of very large exchange rate movements. Furthermore, the tax could easily be avoided though recourse to tax havens.[12] The potential impact of the tax on market volatility is difficult to predict, as it would encourage the market exit of not only noise traders who cause volatility, but also well-informed rational actors whose presence in the market is likely to reduce volatility.[13] In an artificial foreign exchange market created under laboratory conditions, the transaction tax was, in fact, observed to increase exchange rate volatility, and would therefore have had a negative, rather than positive, effect on market stability.[14] In Finland, stamp duty on stock exchange transactions was abolished in May 1992, but no level shift in the volatility of share prices occurred at that time.

Convertible debt and capital insurance

One potential macroprudential instrument could be the conversion of banks' debts into equity, where necessary. The conversion would only apply to debt instruments whose terms of issuance provide for this option. Such instruments have been issued by Lloyds Bank, among others. In December 2009, Lloyd's exchanged subordinated debt for bonds that are automatically converted into equity if the bank's Tier 1 capital ratio falls below 5%. In early 2011, Credit Suisse issued convertible debt instruments providing for debt to equity conversion if its Tier 1 capital ratio falls below certain predefined levels. The Dutch Rabobank has also issued a similar instrument. These instruments have met with strong demand, but Goodhart[15] has made some sceptical comments about the scheme, arguing that the only immediate cash flow effect of conversion is termination of compulsory interest payments, and that the experience gained of hybrid instruments of debt and equity in the financial crisis was negative.

Kashyap, Rajan and Stein have proposed some kind of bank crisis insurance.[16] If the losses sustained by

[12] Suvanto, A (2001).

[13] Shi, K – Xu, J (2009).

[14] Mannaro, K – Marchesi, M – Setzu, A (2008).

[15] Goodhart, C (June 2010).

[16] Kashyap, A – Rajan, R – Stein, J (2008).

Capital insurance would offer banks protection against losses across the banking sector as a whole, but not against their own difficulties.

the banking sector were to exceed a certain limit, the insurer would pay the agreed compensation to the policyholder (bank). In other words, banks could take out insurance against banking sector-wide losses, but not against their own difficulties, so as not to be encouraged to take an indifferent attitude to their own losses. The insurer would be required to post collateral in the form of interest-bearing securities carrying as little risk as possible and deposited in a custodian account. A certain amount of the capital insurance taken out by a bank would already under normal conditions qualify as own funds in the calculation of capital adequacy. To investors, the instrument would represent a largely stable fixed-income investment yielding an additional return on premiums on top of the regular rate of interest, but also involving the risk of massive loss upon materialisation of the unlikely scenario. The advocates of this instrument presumed that there would be ample market demand for an instrument yielding a rate of return above the risk-free interest rate in most cases, but generating massive loss in certain unlikely scenarios. However, Goodhart, for example, thought this to be a highly unattractive yield profile for convertible debt.[17]

Especially in the case of bank crisis insurance, it may prove challenging to find investors willing to participate in the scheme whose participation would not jeopardise stability elsewhere, and whose potential losses would be fairly harmless in their implications for society. If, for example, the employee pension funds were to sell these insurance policies, the costs of a potential banking crisis would have to be borne by the pension funds concurrently with losses on many other investments. Preferably, the insurer should be an entity whose other business involvement is all located in a far-away country showing as little cyclical correlation as possible with the home country of the policyholder, and whose potential losses would be fairly harmless to society as a whole.

Focus on influencing EU regulations

Most of the potential instruments could not be implemented in Finland as a national solution alone. In many areas, the existence of EU-level regulations poses a legal impediment to national approaches. In addition, the Finnish banking sector is dominated by subsidiaries of Nordic banking groups. The operations of these groups are largely in the hands of units based in countries beyond the reach of Finnish law. Moreover, there has been little Nordic–Baltic cooperation on issues that come under national rather than EU competence. Thus, for Finland, the reasonable approach is to seek to influence EU regulations.

Keywords: macroprudential policy, systemic risk, bank regulation, cyclical fluctuations

[17] Goodhart, C (June 2010).

Bibliography

Aaltonen, A – Aurikko, E – Kontulainen, J (1994) Monetary Policy in Finland (in Finnish). Expository studies A:90. Bank of Finland.

Altman, E – Rijken, H (2005) The impact of the rating agencies' through – the – cycle methodology on rating dynamics. Economic Notes by Banca Monte dei Paschi de Siena vol 34, 127–154.

Bank of England (November 2009) The role of macroprudential policy. Discussion Paper.

Bank of Finland Bulletin (4/1989) Supplementary Cash Reserve Requirement. Bank of Finland.

Drumond, I (2009) Bank capital requirements, business cycle fluctuations and the Basel accords: a synthesis. Journal of Economic Surveys 23, 798–830.

European Commission (October 2010) SEC/GovC/10/302/09b-SEC/GenC/10/59/08b.

Goodhart, C (2005) Financial regulation, credit risk and financial stability. National Institute Economic Review nr 192.

Goodhart, C (June 2010) Are CoCos from Cloud Cuckoo-Land? Article, VoxEU.

Gordy, M B – Bradley, H (2006) Procyclicality in Basel II: Can we treat the disease without killing the patient? Journal of Financial Intermediation 15, 395–417.

G30 (October 2010) Enhancing financial stability and resilience. Macroprudential Policy, Tools and Systems for the Future.

Kashyap, A – Rajan, R – Stein, J (2008) Rethinking Capital Regulation. Working paper presented at the Jackson Hole symposium 'Maintaining Stability in a Changing Financial System'.

Kauko, K (2010) The feasibility of through-the-cycle ratings. Discussion Papers 14/2010. Bank of Finland.

Korhonen, T (2011) Säännöstelystä markkinoille. Expository studies A:114. Bank of Finland.

Kullberg, R (1996) Ja niin päättyi kulutusjuhla. WSOY.

Mannaro, K – Marchesi, M – Setzu, A (2008) Using an artificial financial market for assessing the impact of Tobin-like transaction taxes. Journal of Economic Behavior and Organization, vol 67, 445–462.

Shi, K – Xu, J (2009) Entry Cost, the Tobin tax and noise trading in the foreign exchange market. Canadian Journal of Economics, vol 42, 1501–1526.

Suvanto, A (2001) Currency trade, capital flows and the Tobin tax. Finnish economy and society 3/2001.

Organisation of the Bank of Finland

5 July 2011

PARLIAMENTARY SUPERVISORY COUNCIL

Ben Zyskowicz, Chairman, **Pirkko Ruohonen-Lerner,** Vice Chairman, **Mari Kiviniemi, Jouni Backman, Timo Kalli, Marjo Matikainen-Kallström, Lea Mäkipää, Jan Vapaavuori, Pia Viitanen**

Anton Mäkelä, Secretary to the Parliamentary Supervisory Council

BOARD

Erkki Liikanen
Governor

Monetary policy preparation and implementation, domestic economic policy, membership of the Governing Council and General Council of the ECB.

Member of the Board to whom the Heads of the General Secretariat, Banking Operations, and Internal Audit report.

Pentti Hakkarainen
Deputy Governor

Financial stability issues, currency supply services, financial administration and procurement, risk control, Chairman of the Board of the Financial Supervisory Authority.

Member of the Board to whom the Heads of Financial Stability and Statistics, and Currency report.

Seppo Honkapohja
Member of the Board

Research, investments of financial assets, administration.

Member of the Board to whom the Heads of Monetary Policy and Research, and Administration report.

Arno Lindgren, Secretary to the Board

DEPARTMENTS

Monetary Policy and Research *Tuomas Saarenheimo*	• Forecasting • International and Monetary Economy • Information Services	**Institute for Economies in Transition (BOFIT)**	**Research**
Financial Stability and Statistics *Kimmo Virolainen*	• Macroprudential Analysis • Oversight of Market Infrastructure	**Statistics** • Balance of Payments • Financial Statistics	• Information Management
Banking Operations *Harri Lahdenperä*	• Market Operations	• Investments	• Payment and Settlement Division
Currency *Mauri Lehtinen*	• Regional Offices Kuopio, Oulu, Tampere, Vantaa	• Currency Operation Division	• Currency Technology Division
General Secretariat *Antti Suvanto*	**Communications** **European and International Affairs** **Legal Affairs**	Strategy and Organisation	Senior Secretarial Staff
Administration *Pirkko Pohjoisaho-Aarti*	• Financial Administration and Procurement • In-House Services • Language and Publication Services	• Personnel • Risk Control	**Information Technology Security and Property Management**
Internal Audit *Erkki Kurikka*			

The Financial Supervisory Authority, headed by Anneli Tuominen, operates in association with the Bank of Finland.

Publications

A complete list of publications is available on the Bank of Finland website (www.bof.fi > Publications).

The Bank of Finland has introduced a free electronic subscription service on its website, through which it is possible to order the Bank's publications in electronic form. Subscribers are sent an email alert whenever the publications subscribed to are newly released. Publications can be subscribed to at www.bof.fi > Publications > Order and subscribe to electrionic publications and reports.

Back copies of older printed publications still in stock can be ordered from the Bank of Finland (www.bof.fi > Publications > Orders and subscriptions, printed publications).

Suomen Pankki
Bank of Finland
PO Box 160
FI-00101 HELSINKI
FINLAND

Itella Posti Oy

Itella Green

2341

BANK OF FINLAND BULLETIN 4 • 2011