QUARTERLY REPORT ON THE EURO AREA

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Highlights in this issue:

- Recent economic developments and short-term prospects
- Household consumption: what are the risks attached to falling house prices and high debt?
- The fiscal stance and the stabilisation role of fiscal policy revisited
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Editorial

The most serious crisis to affect the international financial system since 1929 is unfolding before our eyes as this edition of the Quarterly Report of the Euro Area goes to print. Banks have lost confidence and all but stopped lending to each other. The decline in confidence has driven once renowned financial institutions in both the US and in Europe into bankruptcy. Since the crisis erupted in August 2007, the international financial system has been in the throes of a profound transformation – a process which has accelerated dramatically in recent weeks. International banking today looks quite different than it did just a few weeks ago. And we still do not have a clear idea of what it will look like tomorrow.

The economic authorities in the US, where the first signs of crisis emerged more than a year ago, have adopted an unprecedented rescue package for the ailing banking sector ('troubled asset relief programme' or TARP). Its objective is to remove illiquid "toxic" assets from banks' balance sheets with a view to restoring confidence in the financial sector, re-focusing markets on fundamentals and preventing the market from grinding to a standstill. In the euro area the situation initially appeared less acute. But European banks are not immune from the fallout, and national governments on this side of the Atlantic have had to come to the rescue of failing banks here too.

The financial market crisis is hurting the real economy. Risk premia are up, asset prices are falling and credit conditions are deteriorating as financial deleveraging works its way through the economy. Business and consumer confidence has declined markedly and activity has begun to weaken. The impact of the financial market corrections has been compounded by the inflationary pressure from high oil and commodity prices as well as by the severe housing market downturns in some Member States. Even though housing wealth and collateral effects play a less important role in most euro-area Member States than in the US, this report argues that the rapid accumulation of mortgage debt in recent years is likely to continue to put a damper on private consumption in the euro area for some time as households repair their balance sheets.

Overall, we expect economic activity to remain flat in the second half of 2008, with the risks to the growth outlook clearly tilted to the downside as we go forward into 2009. If there are no further adverse shocks we expect inflation to come down on the back of slowing demand. While there remain risks of second-round effects and wage settlements in conflict with current productivity growth prospects, their likelihood is receding given the weakness of economic activity. Moreover, the terms-of-trade losses experienced this year will also have an impact on both actual and potential growth. The higher energy costs and financing will make certain portions of our capital stock obsolete and thereby reduce the productive capacity of our economy.

What are the right policy responses in these challenging times? The key economic policy objective must be to help restore confidence through reliable, consistent and effective economic policies that are well coordinated at the European level. The euro and EMU's policy framework provide the means for the right policy response to the financial crisis. For instance, the very effective liquidity response by the ECB would have been impossible with 15 separate national monetary authorities. However, the ongoing turmoil has also revealed important weaknesses in the European financial market system as it exists today. The roadmap of regulatory actions adopted by the Ecofin Council in October 2007 contains essential elements for reform, and good progress is being made to make our system more resilient in case of future turmoil.

However, with the global financial system in such upheaval, swifter action is needed to restore stability and confidence in our financial markets. On 6 October, the EU Heads of State and Government committed in a joint statement to take whatever measures are necessary to maintain financial stability and acknowledged the need for close coordination and cooperation. While public intervention will be decided at national level,

Ecofin Ministers, building on the declaration of their Heads, agreed to common principles to guide their action. In particular, interventions should be timely and temporary; mindful of taxpayers' interests; existing shareholders should bear the consequences of the intervention and government should bring about a change of management if necessary; the management should not retain undue benefits – governments may have inter alia the power to intervene in remuneration; legitimate interest of competitors must be protected, in particular through the state aids rules; and negative spillover effects should be avoided.

The latest events in financial markets have made it clear that furthermore financial supervision – today still largely fragmented along national boundaries – needs to be brought into step with the reality of European integrated markets.

Regarding our macroeconomic response, we have learned the lessons from the 1970s and 80s, when inappropriate policy and wage responses to oil price shocks led to a long period of difficult economic adjustment characterised by slow growth, mass unemployment, and rising debt and inflation. Curbing inflation and restoring purchasing power must be the key elements of a common strategy for the euro area. Fiscal balances will come under pressure in the coming months as revenues fall due to weaker levels of economic activity and expenditure rises in line with greater calls on government support and insurance programmes. In the face of these pressures, it is important that Member States make every effort to ensure compliance with the reformed Stability and Growth Pact, which calls for sustainable fiscal positions to be reached and maintained, providing sufficient flexibility to respond to deteriorating economic activity in an orderly and coordinated manner to the extraordinary juncture. This will support economic confidence and foster an environment of sustainable growth.

European governments should also step up their dialogues with social partners to ensure that wage developments are in line with productivity and competitiveness. Together with a medium-term, stability-oriented monetary policy, this approach will help to anchor expectations and contribute to the objective of price stability.

Structural reforms have a specific importance in the current economic context of inflationary pressures against a backdrop of important external shocks. We need to avoid the danger of 'short-termism' in our response to today's economic woes. The Lisbon strategy provides the right framework for Member States to step up their structural reform efforts, which will help them adapt to the current shocks. Coordinated reform efforts, focusing on priority areas, can maximise the potential benefits by creating a mutually reinforcing dynamic across the euro area. Finally, the transition to a low-carbon and energy-efficient economy is more urgent than ever so as to reduce oil dependency and shield our economies from strong swings in energy prices. This strategy is fully in line with the co-ordinated EU response to the economic slowdown adopted by the Ecofin Council of 7 October. The unfolding slowdown in activity and the scale of the bail-out of the financial sector in some countries is again bringing fairness considerations to the fore. In many advanced economies we have observed rising income or wealth inequalities over the past two decades. The focus section of this report contributes to the debate by reviewing trends in income distribution in the euro area and by discussing their likely causes. It highlights the complexity of the interplay of the various factors influencing income inequality in euro-area Member States, which include not just global factors but also labour market institutions and redistribution policies. Solutions to rising income inequalities are not easy to devise. Successful strategies – of the 'flexicurity' type – require carefully designed labour market institutions and tax and benefit systems to minimise the market distortions and disincentive effects that are detrimental to growth while providing protection to the most vulnerable. Such strategies ensure that short-term needs are addressed without jeopardising longer-term objectives.

MARCO BUTI

ACTING DIRECTOR GENERAL

I. Economic situation in the euro area

Activity in the euro area has weakened notably with output contracting by 0.2% q-o-q in the second quarter. The financial turmoil, high commodity prices and significant housing market corrections in some euro-area countries are taking their toll on consumer and business confidence. Private consumption dropped modestly in the second quarter while capital formation registered a significant contraction (-1.2% q-o-q) suggesting that the investment slowdown is no longer restricted to the housing sector but is spreading to the corporate sector. Although oil and food prices and the external value of the euro have recently eased, leading indicators suggest that the euro area has entered the second half of the year with weak momentum. The Commission's September 2008 interim forecast projects a flat second half of 2008 for the euro area with average growth for 2008 as a whole slowing down to 1.3%, a 0.4 pp downward revision compared to the 2008 spring forecast. However, the economic situation remains characterised by an unusually high level of uncertainty, particularly regarding the extent and the effects of the financial turmoil. Conditions in the international financial system have deteriorated significantly since the summer and the financial crisis is now the most serious since 1929. Despite large government intervention in the US and Europe, the extent, duration and impact of financial turbulence on the euro-area economy remains difficult to gauge.

Part of the uncertainty surrounding the growth outlook in the euro area relates to the resilience of private consumption in a context of weak house price dynamics. Analysis presented in this report indicates that the sluggishness of consumption in the latest cycle can, in part, be explained by a change in savings behaviour which, in turn, can be related to adverse financial wealth effects. Risks attached to house prices appear low as housing wealth and collateral effects do not seem to play an important role in most euro-area countries. However, there is some evidence that households' rapid accumulation of mortgage debt over the past decade has been associated with some overshooting of the debt level. The consequent adjustment has curbed household spending, which probably somewhat dampened consumption in the past two years and will likely continue to do so in the short-term future.

Repeated episodes of pro-cyclical fiscal policy in the euro area have been an issue of debate. As argued in this report, a close examination of the data shows that at least some of these episodes should be interpreted with caution. Compared to the US, the track record of fiscal stabilisation in the euro area improves when, in addition to discretionary measures, automatic stabilisers are taken into account. Moreover, in several instances pro-cyclicality was not a deliberate part of fiscal plans. It rather resulted from an over-optimistic appraisal of medium-term growth prospects, an incorrect judgement of the prevailing cyclical conditions and, in turn a fiscal stance, which with the benefit of hindsight turned out to have been unwarranted. Nevertheless, in some cases spending of revenue windfalls exacerbated the pro-cyclicality of fiscal policy. These findings call for progress in two areas: stronger national budgetary institutions to prevent use of revenue windfalls and more cautious macroeconomic forecasts to reduce the risk of pro-cyclical policies in good times.

One factor behind the resilience of euro-area exports to the appreciation of the euro over the past few years is the increasing use, by euro-area exporters, of hedging strategies against exchange rate variations. While this practice is empirically well documented for the US and some individual European countries, little is so far known about hedging from a euro-area perspective. In order to shed some light on the hedging strategies and financial instruments used, this report presents a survey of self-reported hedging strategies of euro-area blue chip companies. It shows that euro-area exporters make ample use of instruments to protect themselves from exchange rate variations. This has probably contributed to the simultaneous strength of euro-area exports and corporate profits in the episode of euro appreciation. However, the effectiveness of currency hedges wears off over the phase of appreciation, and it is likely that trade flows will continue their adjustment to past euro appreciation.

1. Recent economic developments and short-term prospects[1]

Economic situation worsens in the second quarter as the effect of global headwinds intensifies

Output contracted in the euro area by 0.2% (q-o-q) in the second quarter. This was the first contraction since the inception of the monetary union and indeed since the early 1990s. The drop in output in the second quarter is explained by three main factors:

First, the euro area and the global economy continued to suffer from the financial market crisis with, for example, risk premia increasing and stock prices falling.

[1] The cut-off date for the statistics included in this issue was 30 September 2008.

Table 1: **Euro-area growth components**

	2007 Q3	2007 Q4	2008 Q1	2008 Q2	Carryover to 2008
Percentage change on previous period, volumes					
GDP	0.6	0.4	0.7	-0.2	1.3
Private consumption	0.4	0.2	0.0	-0.2	0.4
Government consumption	0.5	0.3	0.3	0.5	1.2
Gross fixed capital formation	0.9	1.1	1.5	-1.2	1.9
Exports of goods and services	1.8	0.4	1.8	-0.4	3.0
Imports of goods and services	2.2	-0.4	1.9	-0.4	2.7
Percentage point contribution to change in GDP					
Private consumption	0.2	0.1	0.0	-0.1	0.2
Government consumption	0.2	0.2	0.3	-0.3	0.4
Gross fixed capital formation	0.4	0.0	0.3	0.2	0.3
Changes in inventories	0.2	-0.4	0.3	0.0	0.1
Net exports	-0.2	0.3	0.0	0.0	0.2

Source: Commission services.

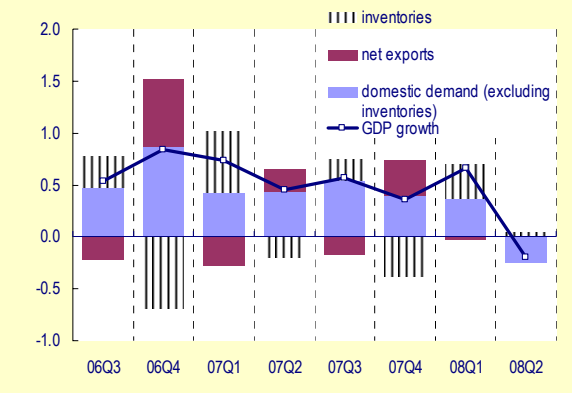
Second, the surge in inflation put a brake on private consumption. Soaring energy and food prices pushed up HICP inflation to 3.6% in the second quarter, which is higher than the 3.4% projected in the spring forecast.

Third, a certain payback was expected after an unusually strong first quarter. During the first quarter euro-area GDP expanded by 0.7% q-o-q, which was both above market expectations and above the Commission's spring forecast of 0.5%. This growth surprise was partly explained by weather-related effects as the favourable winter weather boosted construction investment, adding about 0.1-0.2 to q-o-q GDP growth. Another factor was a sharp inventory accumulation, which reached a pace not seen since the peak of the previous cycle in late 2000.

Nonetheless, the deceleration of activity in the euro area is genuine and not just a reflection of the short-term volatility of GDP data. Taking the last two quarters together, GDP expanded by 0.2% q-o-q during the first half of the year, a sharp deceleration compared with the 0.5% registered during the previous half year.

The disaggregation of GDP growth shows that the contribution of domestic demand (excluding inventories) weakened notably to 0.2% q-o-q in the second quarter, compared to 0.4% in the previous quarter (Graph 1). Net trade and change in inventories contributed only marginally to GDP growth.

Graph 1: **Contributions to real GDP growth, euro area**
(q-o-q contributions in % points – 2006 Q3 to 2008 Q2)



Source: Commission services.

The global financial turmoil escalates further

Conditions in the international financial system have deteriorated significantly since the summer and the financial crisis is now the most serious since 1929. There has been a need for unprecedented public intervention in the US financial system, but Belgium, France, Germany, Luxembourg, the Netherlands and the UK had to commit public funds to support several banks at the end of September, while Ireland announced a deposit and debt guarantee of its key banks.

Uncertainty remains about the extent, duration and impact of financial turbulence on the euro-area economy. More than one year since the outbreak of the current financial turmoil, the situation in the international financial system

Table 2: **Selected euro-area and national leading indicators, 2007-2008**

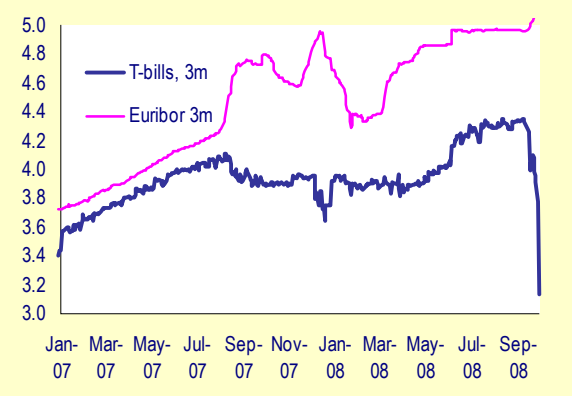
	SENT. IND[1]	BCI[2]	OECD[3]	PMI Man.[4]	PMI Ser [5]	IFO[6]	NBB[7]	ZEW[8]
Long-term average	100.6	0.0	85.4	52.8	55	96.8	-9.5	26.5
Trough in latest downturn	88.6	-0.92	98.1	46.6	47.7	90.3	-26.5	-41.6
September 2007	106.3	1.07	107.4	53.2	54.2	98.7	1.4	-18.1
October 2007	105.4	0.87	107.1	51.5	55.8	98.6	-1.8	-18.1
November 2007	104.1	1.03	107.2	52.8	54.1	98.3	-0.5	-32.5
December 2007	103.4	0.89	107.1	52.6	53.1	98.2	-1.8	-37.2
January 2008	101.7	0.77	106.9	52.8	50.6	98.9	-0.8	-41.6
February 2008	100.2	0.72	106.9	52.3	52.3	98.0	0.5	-39.5
March 2008	99.6	0.79	106.5	52.0	51.6	98.3	1.1	-32.0
April 2008	97.1	0.43	106.1	50.7	52.0	96.9	-7.4	-40.7
May 2008	97.6	0.58	105.5	50.6	50.6	97.1	0.0	-41.4
June 2008	94.8	0.14	104.7	49.2	49.1	94.5	-6.4	-52.4
July 2008	89.5	-0.20	103.6	47.4	48.3	89.9	-8.1	-63.9
August 2008	88.8	-0.28	106.5	47.6	48.5	87.0	-5.6	-55.5
September 2008	87.7	-0.79		45.6	48.2	86.5		-41.1

1) Economic sentiment indicator, DG ECFIN. 2) Business climate indicator, DG ECFIN. 3) Composite leading indicator. 4) Reuters Purchasing Managers Index, manufacturing. 5) Reuters Purchasing Manager Index, services. 6) Business expectations, West Germany. 7) National Bank of Belgium indicator for manufacturing. 8) ZEW Indicator of Economic Sentiment, Germany

continues to be fragile with several key credit markets still severely disrupted. There is no evidence of a recovery of investor confidence given the uncertainties about valuation, counterparty risks and the evolution of the deleveraging process.

Conditions in the money markets are still abnormal. Spreads on interbank markets remained quite elevated in the second quarter and have since widened even further (Graph 2).

Graph 2: **Euro-area money market**
(in % - 1 Jan 2007 to 17 Sep 2008)

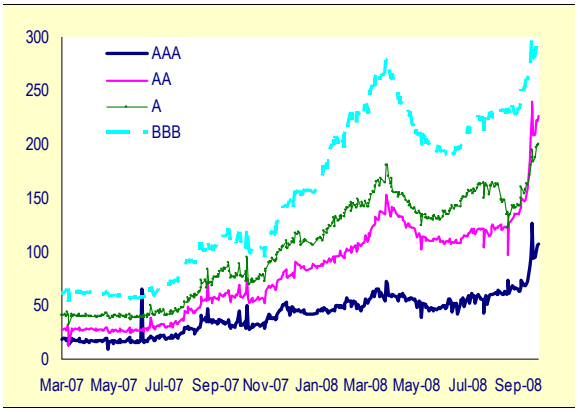


Source: Ecowin.

The international banking sector continues to be at the heart of the turmoil and its problems remain acute, driven partly by developments in the financial sector itself and partly by the implications of a deteriorating economic environment. Banks are required to deleverage and repair existing damage to balance sheets in a context of constrained profitability, high funding costs and deteriorating credit quality among clients. Total losses and write-downs disclosed by banks worldwide have now exceeded 500 billion US dollars, but remain below estimates for overall losses across the financial system. In these conditions, banks are increasingly being forced to recapitalise, often at very high cost and in difficult market conditions.

The implications of these developments in the global financial sector for monetary and financial conditions in the euro area are still unclear. On the one hand, bank lending standards have tightened markedly over the past year according to the September 2008 ECB's bank lending survey. The tightening of financial conditions is in any case not only confined to bank loans. Financial corporate bond spreads widened significantly across all rating classes in 2008. The persistently high spreads for the financial sector have also entailed an increase in bank funding costs, which is expected to have further repercussions for credit markets. Regarding the cost of equity capital, euro-area stock prices resumed their downward course in September, amid considerable volatility, and are now close to 30% lower than a year ago.

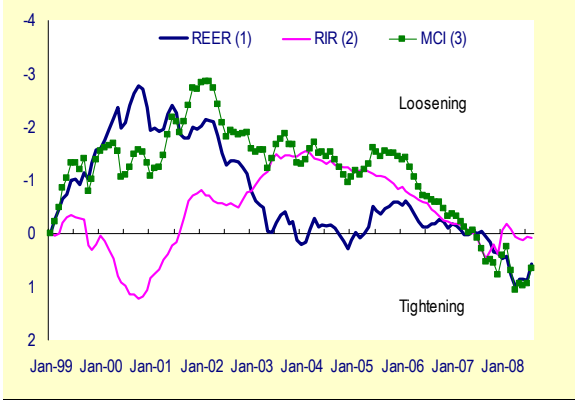
Graph 3: **Corporate bond spreads, euro area**
(basis points, 1 Mar 2007 – 24 Sep 2008)



Source: Commission services.

On the other hand, ECFIN'S Monetary Conditions Indicator (MCI) has loosened since the start of 2008 (Graph 3), as higher inflation and the development of the real exchange rate have more than offset the ECB's hike in interest rates. This has broken the tightening trend in the MCI observed until the end of 2007. Furthermore, banking rates have so far remained quite stable in the first half of 2008.

Graph 3: **Euro-area MCI and its contributors**
(Inverted scale Jan 1999 – August 2008)



Source: Commission services.

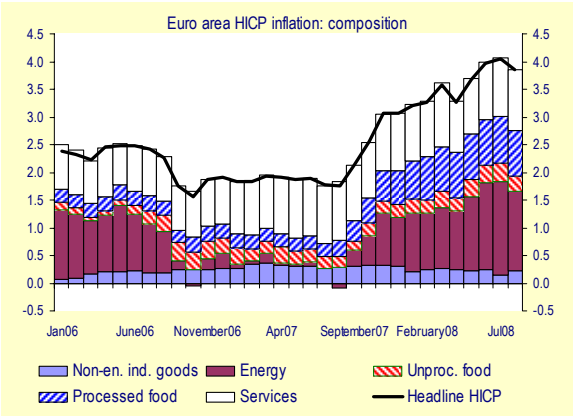
The extent to which deteriorating financial conditions have already affected the economy is difficult to assess. There has recently been a slowdown in lending to the private sector. However, the slowdown is mostly confined to households, with growth in bank lending for house purchases falling to its lowest levels on record since the start of these data series (1981). Whether this mostly reflects the demand effect of the ongoing downturn in the housing sector or a tightening of lending standards is difficult to say at this stage.

Overall, the situation remains precarious. The interaction between accumulating losses in the financial system and a deteriorating global economic outlook make it very difficult to predict when the financial turmoil will end.

Despite the recent easing, commodity prices remain a major reason of uncertainty

In the second quarter, HICP inflation continued rising from 3.3% in April 2008 to slightly below 4% in June. These high figures were driven by commodity prices, especially energy and food prices, which continued to surge substantially during this second quarter (Graph 5). The acute increase in the food component of the HICP reflects in particular the evolution of processed food while that of energy is clearly the result of the evolution of oil prices.

Graph 5: **HICP composition, euro area**
(Jan 2006 – Aug 2008)



Source: Commission services.

Moving beyond the second quarter, headline euro-area inflation fell slightly to 3.8% in August and again to 3.6% in September (based on the Eurostat's flash estimate), having surged to a record high of 4.0% in July. The high July reading was largely due to the price of crude oil, which reached its highest level ever recorded in mid-July 2008 (the World ICE crude oil Index reached 145.5 USD on 14 July). Since the second half of July, oil prices have receded substantially and stood at 107 USD on 4 September, a decline of about 25% from the peak. However, despite

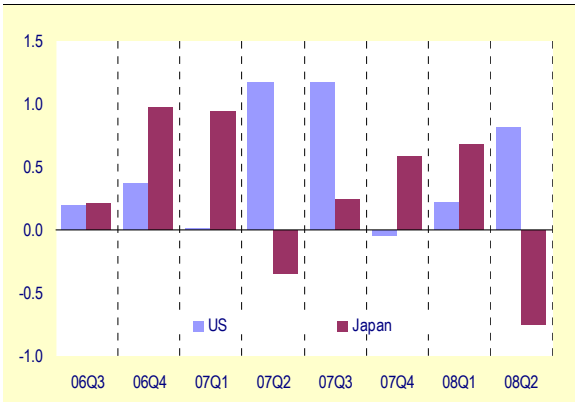
recent falls, the lagged effect of past oil price continues to exert upward pressure on energy inflation, although the contribution from energy declined significantly in August in comparison to July.

Measures of core inflation continued to rise in August: headline inflation excluding energy and unprocessed food increased to 2.6% (+0.1 pp.) and the trimmed mean increased to 3.2%. Depending on how consumers react, the recent decline in headline inflation may be an encouraging sign for the growth outlook at the current juncture. Nonetheless, euro-area inflation is likely to remain elevated for longer than initially anticipated and should begin to show a significant deceleration only around the end of this year.

A global slowdown is unfolding

Euro-area exports contracted by 0.4% in the second quarter reflecting, in particular, the weakening of global demand and world trade. According to CPB statistics, world trade growth is now on a clear downward trajectory. In the second quarter – last available data – world trade registered its weakest q-o-q growth performance since the drop in world trade at the end of 2001.

Graph 6: **Growth developments in the US and Japan** (q-o-q % change, 2006Q3 – 2008Q2)



Source: Commission services.

The international economy expanded at a fast pace in 2007 and in the first quarter of 2008, but the momentum has now turned. Short-term indicators for most regions of the world point to a marked deceleration in the second half of 2008. Economic activity has already started to weaken in several advanced economies outside Europe, notably in Japan (Graph 6), although growth in Asia remains relatively robust.

Despite the recent downturn, the US economy performed surprisingly well in the second quarter boosted by a sizable but temporary macroeconomic stimulus – worth about 1% of GDP – and by a weakening dollar. The tax rebate supported domestic demand, while the dollar depreciation helped exports. The stimulus has probably enabled the US to avoid a recession – at least temporarily – but at the cost of a swelling budget deficit. The economy now seems to be entering a contractionary phase as the effect of the fiscal stimulus is reversing and residential investment is continuing to contract steeply.

Uncertainty and external conditions are weighing on confidence….

Soaring commodity prices, the deepening financial turmoil and a housing shock in several euro-area countries are weighing on consumer and business confidence, and survey data paint a rather weak picture. Whilst there are differences across countries and sectors, the overall development points to a marked weakening of business and consumer sentiments. Survey indicators have deteriorated sharply since the spring. The Commission's overall Economic Sentiment Indicator (ESI) – which summarises developments in five sectors (industry, services, consumer, retail and construction) – continued to decline in August and September, to 87.7 in the euro area. The indicator has been below its long-term average since March 2008. The Business Climate Indicator (BCI) for the euro area, which has been below its long-term average since July, registered its sharpest month-on-month drop since 2001 in September.

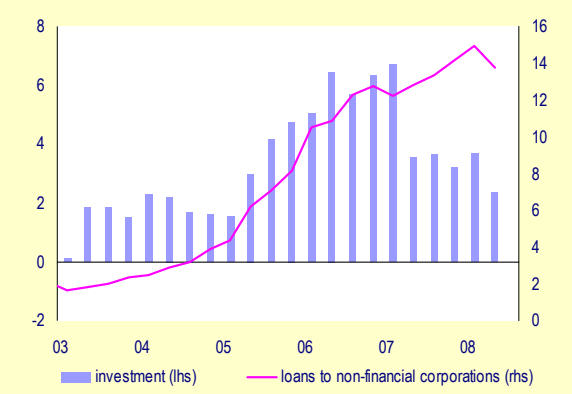
The current weakness in business and consumer confidence partly reflects the persistent uncertainty on the short-term outlook for the euro area and the global economy. However, it also signals a genuine loss in the underlying momentum of the euro-area economy. While surveys show a marked deterioration of their forward looking components, the weakening in confidence is broad-based and households' and companies' assessments of the current situation are on a clear downward path as well.

Overall developments in confidence surveys signal that the marked deceleration in growth in the second quarter of 2008 was more than just a technical correction in response to the strong first quarter. They also suggest that the euro-area economy has entered the third quarter with a further loss in underlying momentum, particularly in the manufacturing sectors. Such an assessment is consistent with the disappointing reading of industrial production in July which showed a contraction in industrial activity by 1.7% compared with a year before.

…and domestic demand was a significant drag on economic activity in Q2

Domestic demand was a significant drag on growth in the second quarter with investment in particular showing worrying signs of weakness (Graph 7). Capital formation, which had been a key driving force of the recovery in 2006-07, fell sharply in the second quarter, contracting by 1.2% q-o-q. This can partly be explained by a setback in the construction sector after the weather-related strong reading of the first quarter, but also reflects subdued demand in corporate investment.

Graph 7: **Investment and loans to non-financial corporations, euro area**
(2006Q3 – 2008Q2, y-o-y changes in %)



Source: Commission services.

Evidence of a loss in momentum in corporate investment is not restricted to national account data. Annual growth of loans to non-financial corporations decelerated to 13.2% in July 2008 from 14.9% in April. The ECB's Bank Lending Survey also points to a significant deterioration of corporate loan demand for fixed investment in the past two quarters. Furthermore, capacity utilisation decreased by almost 1 pp between April and July 2008 in the euro area and industrial new orders have sent signs of a weakening since the spring. Finally, there is also some evidence of tensions on profit margins related to persistently sluggish growth in labour productivity. Based on national account data for real unit labour costs, enterprises seem to have shed much of the gains in profitability registered during the cyclical upswing in 2006 and 2005, with margins now back at their (admittedly high) early 2006 level.

The weakening in corporate investment is adding to the ongoing downturn in the housing sector. The second quarter witnessed corrections in housing and construction markets in some Member States, notably in Ireland and particularly Spain where the contraction of the housing sector largely explains the recent sharp GDP slowdown. The downturn was also visible at the euro-area level with a 3% drop in real housing investment in Q2, a contraction which exceeds any possible weather-related effect and reflects genuine weakness.

Private consumption in the euro area was also sluggish in the second quarter, contracting by 0.2% (q-o-q) and pushing y-o-y growth down to a meagre 0.4% (Graph 8). Household spending decreased in Germany (for the third quarter in a row) and was very weak or flat in other large euro-area countries such as France and Spain. Consumers' confidence stabilised in August, after reaching (in July) its lowest value since early 1994. Hard and soft data on retail trade now convey the same gloomy message of a continuing weakness in consumption.

The poor performance of household consumption in the first half of the year reflects weak real incomes growth due to the sharp increase in oil and commodity prices and some moderation in the pace of job creation. Eurostat estimates show that the households savings ratio has remained broadly stable since the middle of last year. However, no estimate is currently available for the second quarter. In that quarter, the observed drop in consumption combined with a significant expansion in total real compensation (0.5% q-o-q) suggest that households may have eventually responded to

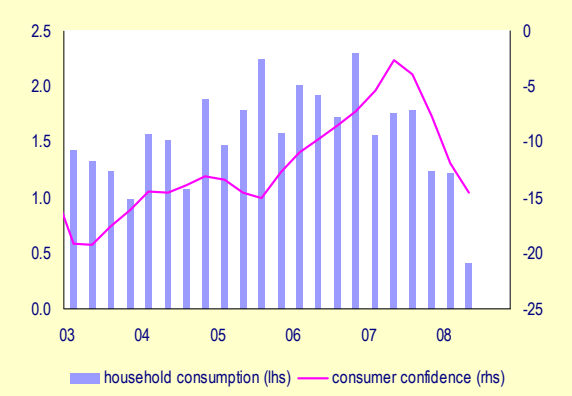
Table 3: **Real GDP growth**
(Interim forecast Sep. 2008) (1)

	Quarterly GDP forecast (%, quarter-on-quarter)				Annual GDP forecast (%, year-on-year) 2008	
	2008/1	2008/2	2008/3	2008/4	Spring forecast April 2008	Interim forecast Sep. 2008
Germany	1.3	-0.5	-0.2	0.2	1.8	1.8
Spain	0.3	0.1	-0.1	-0.3	2.2	1.4
France	0.4	-0.3	0.0	0.1	1.6	1.0
Italy	0.5	-0.3	0.0	0.1	0.5	0.1
Euro area	0.7	-0.2	0.0	0.1	1.7	1.3

(1) Where possible, the quarterly growth rates are working-day and seasonally-adjusted, whereas the annual projections are unadjusted.
Source: Commission services.

the persistent uncertainty in the global economy with a rise in their savings ratio.

Graph 8: **Private consumption and consumer confidence, euro area**
(2003Q3 – 2008Q2)



Source: Commission services.

The outlook for private consumption, the largest component of GDP, appears rather uncertain at this stage, not least in some Member States where corrections in housing markets appear to be moving faster than expected. As discussed in greater detail in Section 2 below, housing wealth effects are generally estimated to be small in the euro area and are therefore not a major source of concern in most Member States. However, the past housing booms have been associated with a surge in mortgage debt. There are indications that the level of debt may have somewhat overshot its fundamental value over the past two years in the euro area and that, in the past, the correction of overshooting periods was generally associated with some compression in consumption spending.

Commission's interim forecasts point to a significant deceleration of growth in 2008

The Commission's September 2008 interim forecasts project a flat second half of 2008. For 2008 as a whole, economic growth in the euro area is forecast to slow down to 1.3%. This represents a 0.4 pp downward revision compared with the 1.7% projected in the spring forecasts. The downward revision is relatively broad-based with significant revisions for Spain. The revisions mainly reflect the impact of the ongoing financial turmoil, the sharp slowdown in the US and high commodity prices.

Inflation in 2008 is projected to average 3.6% in the euro area, an upward revision from the 3.1% projected in the spring forecast. Future markets predict that oil prices will remain high in 2008-09, so energy HICP inflation will stay elevated in 2008. However, with the impact of past increases in energy and food prices on the year-on-year rate of change in consumer prices declining in the coming months, inflation could be at a turning point. Future developments in commodity markets, as well as the capacity to contain second-round effects, will be key for the inflation outlook in the euro area. Uncertainty is still the dominant force in the economic situation and risks remain significant. Developments in commodity and financial markets will largely shape the growth outlook for the euro area and the global economy.

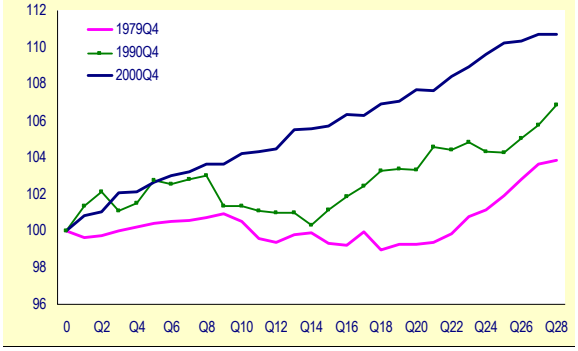
2. Household consumption: what are the risks attached to falling house prices and high debt?

This section tries to shed some light on the reasons behind the disappointing growth in household consumption in recent years. Looking ahead, it also discusses the potential impact of increasing household debt and weakening house prices on the short-term outlook for consumer spending.

Disappointing consumption growth…

The euro-area economy has shown clear signs of improved resilience, at least when compared with the major downturns of the 1980s and 1990s. However, whereas investment and employment have been an important source of resilience during the latest cycle, consumption has remained disappointing.[2] Between 2001 and 2007, annual consumption growth averaged a moderate 1.5%, compared with 1.9% for GDP. The difference with GDP growth was even more striking during the latest recovery in 2006-2007 when GDP expanded robustly at about 2.7% annually while private consumption growth remained subdued at 1.6%.

Graph 9: **Real disposable income after cyclical peaks, euro area**
(index 100 at cyclical peak)



Source: Commission services.

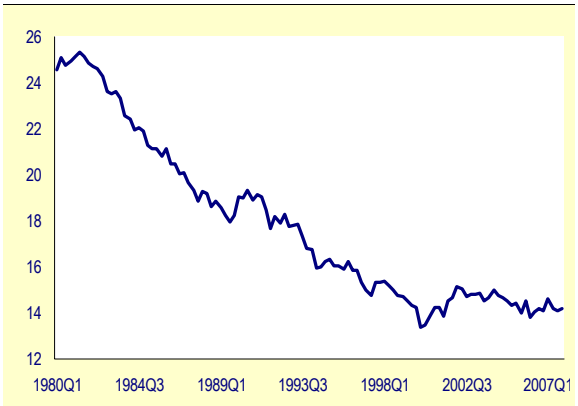
Sluggish consumption growth largely reflects similar developments in disposable income. But a striking feature of the latest cycle has been the relative resilience of disposable income, particularly during the early stages of the downturn (Graph 9). This development, which is sometimes overlooked when analysing consumption, can be explained by strong employment growth.

… partly due to a change in saving behaviour…

Part of the explanation for sluggish consumption growth in recent years is therefore related to unfavourable developments in the saving rate.

Developments in the saving rate during the latest cycle clearly contrast with previous cycles, when households tended to offset adverse developments in disposable income by cutting their savings. During the latest cycle, households responded to the slowdown in activity in the early 2000s by raising their saving rate. More importantly, this more cautious behaviour coincided with a structural break in the savings ratio series (Graph 10). Whereas the savings ratio decreased steadily in the 1980s and 1990s – from about 25% of disposable income to less than 14%, since 2002 it has stayed broadly stable. The impact of this change in saving behaviour has been significant, shaving more than 0.5 pp off annual consumption growth in the current decade.

Graph 10: **Household saving rate, euro area**
(in % of real disposable income – 1980Q1-2007Q4)



Source: Commission services and ECB.

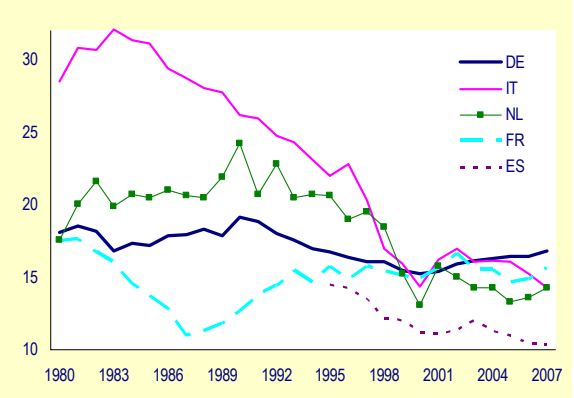
The downward trend in the saving rate during the 1980s and 1990s was observed in most euro-area countries. However, its magnitude and dynamics varied across countries. For instance,

[2] For a more detailed analysis of economic resilience, see the Focus section of QREA, Vol. 6, N°3 (2007), "The resilience of the euro-area economy".

Italy's household saving rate began to fall substantially already in the 1980s while the decline in Germany only started in the 1990s and was much smaller (Graph 11).

A clear break in the saving ratio in the early 2000s, similar to that registered for the euro area as a whole, can be identified in the case of Italy, Germany and the Netherlands. In these countries, the downward trend was interrupted around that same year. In the case of Germany, the inflexion in the saving rate was even followed by an increase rather than a stabilisation. In France, however, the savings ratio has remained broadly stable since the start of the 1990s.[3]

Graph 11: **Household saving rate** (in % of real disposable income)



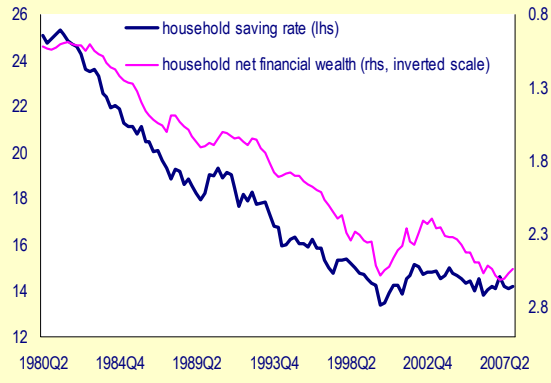
Source: Commission services.

…caused by changes in net financial wealth

The break in the saving ratio has coincided with a parallel break in the upward trend of households' net financial wealth. Graph 12 shows a strong negative correlation between the two series (the scale for household net financial wealth is inverted in the graph). Real net financial wealth is here defined as financial assets minus financial liabilities, other than mortgages. The strong rise in household financial wealth in the 1980s and the 1990s was accompanied by a simultaneous sharp drop in the household saving rate. This seems to suggest that households have taken the increase in wealth caused by the long expansion in stock markets as a substitute for personal saving. The broad stagnation of financial asset values since the beginning of the 2000s seems to have triggered a stabilisation in the saving ratio.

This analysis is confirmed econometrically by estimations which show a cointegrating relationship between the two variables at the euro-area level (Box 1). The long-run elasticity of the savings rate vis-à-vis financial wealth as a percentage of real disposable income is estimated at about -0.6%. Further analysis at Member State level would probably reveal cross-country differences.

Graph 12: **Household net real financial wealth and saving rate, euro area** (in % of real disposable income)



Source: Commission services and ECB.

Changes in house values are unlikely to have strong wealth effects on consumption…

After a notable long-term rising trend since the mid-1990s, house prices started to moderate in the euro area in 2007Q1 and have even begun to drop in some Member States (Graph 13). Looking ahead, this raises the question of possible downside risks to private consumption related to unfavourable developments in housing markets.

House price changes are considered to be potentially linked to consumption either through the wealth channels – which directly affect personal spending – or through the collateral channel – which affects consumption indirectly through households' borrowing constraints.

[3] Data for Austria, Greece, Spain and Portugal are only available since 1995, which is not sufficient to provide a long-term perspective.

Box 1: Household savings and net financial wealth

According to the permanent income theory, households' savings decisions depend on their wealth rather than on disposable income alone. The estimated household savings function presented in this box is composed of two elements: a long-term and a short-term equation. The long-term equation relates the household saving ratio to selected long-term determinants. The short-term dynamics links changes in savings to a few variables and the lagged deviation of savings from its long-term value (the error correction term). The analysis is carried out for the period 1980Q1-2007Q4 for the euro area.

Net financial wealth as a percentage of gross disposable income comes out as the main determinant of the saving ratio in the long-term equation. In contrast, housing wealth was found to be non-significant. The estimated long-run elasticity is presented in the left-hand table below. In the long-run, a 1 pp increase in net financial wealth as a share of disposable income will lead to a decrease of 0.6 pp in the saving rate. The error-correction mechanism in the dynamic relationship has the expected negative sign. This means that when the saving rate deviates from its long-term value, there is a reversion in the following quarter. However, the value of the estimate implies a relatively slow adjustment towards long-run equilibrium (most of a deviation being eliminated after 2 years).

Co-integrating equation: Long-run elasticities of household savings (1)

Variable	**Elasticity estimated** (2)
Savings/Yd	1.00
Net financial wealth/Yd	0.63
Constant	1.38

(1)The variables are all non-stationary. The Johansen approach was used to test for cointegration and to estimate the equation.
(2)All estimated coefficients are significant at 1%
Source: Commission services.

Short-run elasticities of household savings

Variable	**Elasticity estimated**
Error-correction term	- 0.23***
Change in net financial wealth/Yd *(lagged by 1 quarter)*	-0.16*
Change in housing wealth/Yd *(lagged by 1 quarter)*	0.44**
Change in unemployment rate *(lagged by 1 quarter)*	-0.02**
Constant	-0.006***

*Notes: ***, ** and * denote respectively statistical significance at 1, 5 and 10%*
Source: Commission services.

The estimated parameters in the short-term dynamics are displayed in the right-hand table. Changes in net financial wealth also have an impact, though a much smaller one, on savings in the short run. More interestingly, housing wealth effects seem to be at play in the short run but with a positive sign. This means that a positive change in housing wealth will increase savings in the short term. Changes in unemployment, used as a proxy for uncertainty, are also found to have an impact on the household saving rate in the short run.

Housing assets are different from financial assets as they also render services to the owners. As households are also consumers of housing services, capital gains from house-price increases tend to be partly or fully offset by the higher discounted value of future rents. Persistent long-term net housing wealth effects are therefore not likely to be very strong on the aggregate at a country level.[4] Housing wealth effects on consumption could result from wealth redistribution between renters and landlords with different marginal propensities to consume. But the empirical evidence shows that these redistribution effects are weak.[5]

….but can have transitory effects on consumption through the collateral channel

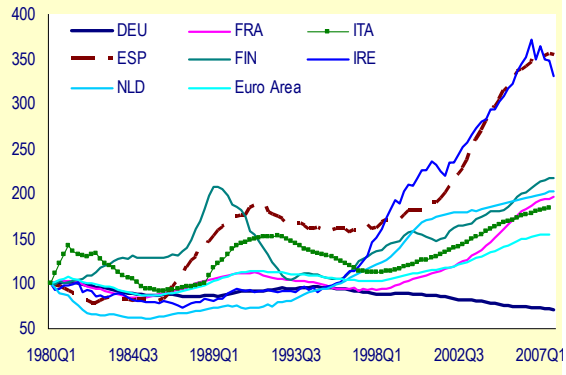
Increases in the value of housing property improve credit-constrained households' position by increasing their collateral value. However, the effect on private consumption is heavily dependent on the level of mortgage market development and possibilities for mortgage re-

[4] Buiter, W. (2008), 'Housing wealth isn't wealth', *NBER Working paper* no 14204.

[5] Campbell, J. and J. Cocco (2005), 'How do house prices affect consumption? Evidence from micro data', *Journal of Monetary Economics*, Elsevier, vol. 54(3), pages 591-621, April. Attanasio, O., L., Blow, R. Hamilton and A. Leicester (2005), 'Consumption, House Prices, and Expectations', *Bank of England Working Paper* No. 271.

financing and mortgage equity withdrawal (MEW).[6] The use of MEW remains limited in most euro-area countries (with the exception of the Netherlands) due to prohibitive transaction costs and regulatory constraints. Moreover, the short-run effect on consumption is limited as MEW in many cases goes back into housing as house improvements. Additionally, the impact varies over time as the availability and price of unsecured credit changes, making the relation very unstable.[7]

Graph 13: **Real house prices**
(index 1980Q1=100 ; 1980Q1-2007Q4)



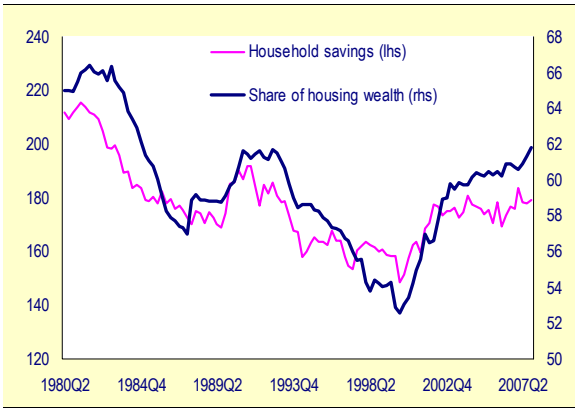
Source: OECD.

The empirical evidence on wealth effects in the euro area is limited

Available econometric studies point to limited housing wealth effects in euro-area Member States. For instance, a comprehensive study by the OECD concludes that in France, Germany, Italy and Spain, the propensity to consume out of financial wealth is of 1 to 2 per cent.[8] In contrast, housing wealth effects vary significantly across countries: they are insignificant in Germany and France whereas in Italy and Spain they are of a similar order of magnitude as financial wealth effects.

Graph 14 supports the conclusion that housing wealth effects do not play an important role for private consumption at the level of the euro area. Indeed, the strong correlation between household savings and the share of housing wealth (and de facto of financial wealth) in total wealth is particularly striking.[9] From 2000, coinciding with the break in the savings ratio series, the share of housing wealth has risen continuously and as a result the share of financial wealth has decreased. This suggests that households consider only financial wealth to be a substitute for savings. This conclusion is backed up by the empirical estimations presented in Box 1 where housing wealth is found to be non-significant in the long run. The fact that housing wealth enters with the wrong sign in the estimated short-term equation of the savings ratio also suggests that the effect of house prices on consumption via the collateral channel is, at this stage, not an issue in the euro area.

Graph 14: **Household savings and share of housing wealth** (in billion euro and in % of total wealth)



Source: Commission services and ECB.

High household debt is probably weighing on consumption

The increase in housing wealth since the late 1990s has been associated with a surge in mortgage loans. In the last few years, household debt has been accumulated at very high rates by

[6] Calza, A., T. Monacelli, and L. Stracca (2007), 'Mortgage markets, collateral constraints, and monetary policy: Do institutional factors matter?', *CEPR Discussion Paper* No. 6231.

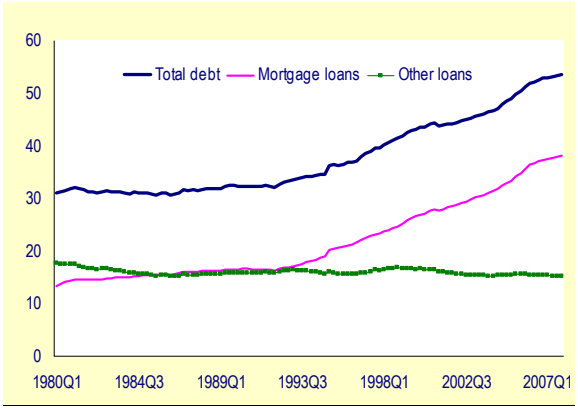
[7] Bridges, S, R. Disney, and J. Gathergood (2006), 'Housing collateral and household indebtedness: is there a household financial accelerator?', *Czech National Bank, Working paper* 2006/12.

[8] Catte, P., Girouard, N., Price, R. and C. Andre (2004), 'Housing markets, wealth and the business cycle', *OECD Economics department Working Paper* n. 394.

[9] The share of housing was used because according to the permanent income theory, household savings are a function of income and wealth.

historical standards. At the end of 2007, the total level of household debt had climbed to 53% of GDP and 80% of disposable income. More than 70% of total debt was held in the form of mortgage credit. The increase in the debt-to-GDP ratio since the mid-1990s can be fully accounted for by the rise in mortgages (Graph 15).

Graph 15: **Household debt**
(in % of GDP – 1980Q1-2007Q4)



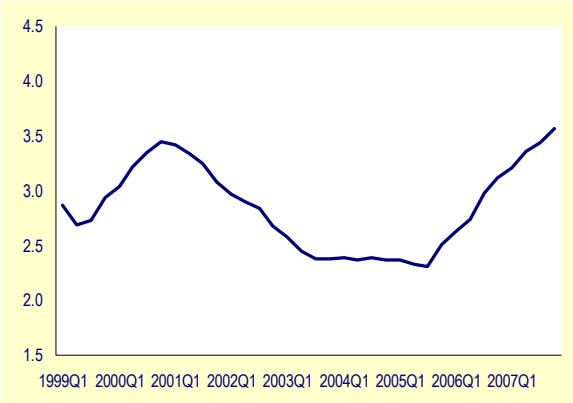
Source: Commission services.

While surging house prices have contained the effect of debt accumulation on household balance sheets,[10] there are three channels (on top of the housing wealth effects already discussed) through which higher debt may affect the cyclical response of consumption.

A first important channel is the sensitivity of households' debt burden to changes in interest rates. The effect on consumption will depend on the share of loans taken at variable interest rates. Only in Spain and Ireland do mortgages with variable interest rates represent a significant share of outstanding mortgages. Italy has introduced adjustable-rate mortgages only since 2006, while Germany, France, the Netherlands and Belgium still have mostly fixed-rate mortgages.[11] At the euro-area level, due to the high volume of mortgages taken at fixed interest rates, the debt burden is not very sensitive to changes in the short-term nominal interest rate. The estimated semi-elasticity has a value of 0.15, meaning that a 1 pp increase in the short-term nominal interest rate will increase households' debt service by 0.15% (see Box 2).

A second channel relates to households' capacity to withstand adverse income shocks. To the extent that it raises the burden of debt servicing, a higher level of debt will increase households' vulnerability to income shocks (and hence the possibility of default). The ratio of debt services (i.e. interest paid by households) to disposable income has shown a rapid rise since 2005, indicating a higher exposure to income shocks although the level reached remains broadly comparable to the previous cyclical peak in 2000 (Graph 16).

Graph 16: **Households interest-only debt service (1)**
(in % of disposable income – 1980Q1-2007Q4)



(1) Interest paid by households, Quarterly Sector Accounts, Eurostat.
Source: Commission services.

Finally, it cannot be excluded that the recent rapid pace of debt accumulation does not just represent an optimal response by households to better access to cheap credit but also some element of overshooting.[12] The correction of a debt overhang could then imply cuts in consumer spending. Box 2 tests this hypothesis by estimating a mortgage-debt equation and checking to what extent departures of the debt level from its fundamental value may be followed by slower mortgage growth and by a correction in private consumption. The econometric work suggests that this is indeed the case in the euro area: when the ratio of mortgage to net housing wealth exceeds its long-run value, consumption is

[10] Real non-financial households' leverage defined as the ratio of mortgage debt to net real housing wealth has been stable in the euro area at 14% over the last decade.

[11] European Mortgage Federation (2006).

[12] For instance due to unrealistic expectations regarding future growth in house prices or the persistence of low interest rates.

Box 2: Consumption and household debt in the euro area

Sensitivity of the debt burden to changes in the short-term interest rate.

Households' debt burden (i.e. the interest paid on the debt) is determined by the stock of debt and the interest rate. The estimated semi-elasticity of the debt burden to the interest rate in the euro area is 0.15, meaning that a 1 percentage point increase in the short term nominal interest rate increases the debt burden by 0.15%.

Variables (1)	**Dependent variable: Households' debt burden**
Short-term nominal interest rate	0.15
Stock of debt	0.62

Notes – *Estimation method: Dynamic OLS. Sample: 1999Q1 to 2007Q4, Eurostat. (1) All estimates are significant at 1% level.*

Mortgage loans and consumption

There is no long-run cointegrating relation between mortgage loans and consumption. In a long-run equation that relates the mortgage loans ratio to net real housing wealth to its long-run determinants, the consumption ratio to net housing wealth does not appear statistically significant. The long-term real interest rate is found to be the main long-run determinant for the mortgage loans ratio to net housing wealth.

	Mortgage loans to net housing wealth ratio (1)	Consumption to net housing wealth ratio	Long-term real interest rate	Constant
Co-integrating equation (1)	1.000	-0.066	1.277***	-14.47
	D(Mortgage loans to net housing wealth ratio)	D (Consumption to net housing wealth ratio)	D(Long term real interest rate)	
Error Correction Term *(lagged)*	-0.0003	-0.021**	-0.087***	

(1)The variables are all non-stationary.
Notes – *Estimation method: Johansen procedure for the first step. The VAR in first differences has 2 lags and includes the error correction term, a constant and changes in short-run nominal interest rate as an exogenous variable. Sample: 1980Q1 to 2007Q4. ***, **, * denote, respectively, statistical significance at 1, 5, and 10% level.*

The error correction term above gives the short run correction in the endogenous variables for 1pp deviation of mortgage loans ratio from its long-run determinants. The results show that if the ratio of mortgage to net housing wealth had previously been larger than the long-run value determined by the long-term real interest rate then this disequilibrium would cause a decrease in the short run in the ratio of consumption to net housing wealth of 2.1% for 1 pp of overshooting. By comparing the actual mortgage loans ratio to that predicted by the cointegrating equation, there seems to have been some overshooting in the years 1995 to 2003 and in the years 2006 and 2007. The magnitude of overshooting since 2006Q4 has affected the ratio of consumption to net housing wealth by decreasing its annual growth rate with 0.3 pp on average over the period 2006Q4 to 2007Q4.

subsequently reduced, with a 1 pp of debt overshooting leading to a decrease in the ratio of consumption to net housing wealth of about 2.1% in the short run. The econometric evidence also shows that mortgage debt in the euro area seems to have somewhat overshot its fundamental level since 2006Q4. This may have weighed on consumer spending, shaving on average 0.3 pp off annual consumption growth, and is likely to continue to rein in consumer spending in the short term. Even if the magnitude of the estimated overshooting remains moderate so far, it will probably continue to grow as the downward correction in real house prices leads to decreasing housing wealth value.

Conclusion

Household consumption dynamics have been weak in the euro area in recent years. Part of this weakness may be attributed to a change in the households' savings ratio after the turn of the century on the back of less supportive growth in financial wealth. After three decades of continuous decline, the saving ratio has stabilised at its 2000 level. This development can be explained by a similar inflexion in the rapid rise of household financial wealth.

Looking forward, the risks attached to falling house prices seem to be rather limited as housing wealth and collateral effects do not seem to play an important role for private consumption in the euro area. However, the rapid accumulation of household mortgage debt over the past decade has probably been associated with some overshooting. This may have weighed on consumption in recent years and will likely continue to hamper consumption growth in the immediate future. Even if estimates of this effect remain moderate, the risk of overshooting is likely to continue to be present as real housing wealth value decreases.

3. The fiscal stance and the stabilisation role of fiscal policy revisited

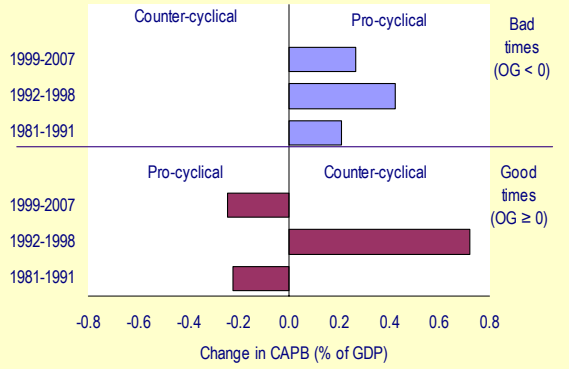
Repeated episodes of pro-cyclical fiscal policy in the euro area have been an issue of debate. Prima facie, these experiences with fiscal policy in the run-up to and during EMU seem to have vindicated critics who have argued that the Stability and Growth Pact would hamper the stabilisation function of fiscal policy.[13] However, as argued in this note, a closer examination of the data shows that at least some of these episodes should be interpreted with caution. To begin with, compared to the US, the track record of fiscal stabilisation in the euro area improves when, in addition to discretionary measures, automatic stabilisers are taken into account. Moreover, in several instances pro-cyclicality was not a deliberate part of fiscal plans. It rather resulted from an over-optimistic appraisal of medium-term growth prospects, an incorrect judgement of the prevailing cyclical conditions and, in turn a fiscal stance, which with the benefit of hindsight turned out to have been unwarranted. Nevertheless, in some cases spending of windfall revenues also played a role and exacerbated the pro-cyclicality of fiscal policy.

At first glance, the stabilisation function of discretionary fiscal policy has been rather poor in the euro area…

Pro-cyclicality of fiscal policy is a widespread phenomenon around the world. Studies find that in developing and middle income countries fiscal policy has frequently moved with the cycle. For developed economies the findings are more nuanced and depend on the time period and countries considered. When fiscal policy has been pro-cyclical in industrial countries, it has mostly been in good economic times.[14] The deficit bias in good times has largely been attributed to political economic motives as policy makers attach more weight to other objectives than the stabilisation of output. In particular, when competing for public resources ministers tend to neglect the repercussions of their decisions on overall public finances. This 'common pool problem' gets worse in good economic times as more overall resources are available.

Pro-cyclicality of fiscal policy has also emerged as a key characteristic of the euro area. The introduction of the euro does not seem to have weakened the ability of fiscal policy to stabilise cyclical swings in general, but it has been possible to observe a change in the fiscal behaviour across the different phases of the economic cycle.

Graph 17: **Fiscal stance in good and bad times, euro area** (1)



(1) Good times correspond to periods of positive output gaps and bad times to periods of negative output gaps. The graph shows the average change in the cyclically adjusted primary balance (CAPB). Caution is only needed for the interpretation of the period 1992-1998 in good times, since it includes only a single year (1992).
Source: Commission services.

Graph 17 shows the fiscal stance, as measured by the average change in the cyclically-adjusted primary balance (CAPB), in the EU-11 countries (euro area excluding CY, LU, MT and SI) for three different sub-periods. The cyclical conditions dimension is captured by differentiating between years in which the output gap is estimated to have been positive (good times) or negative (bad times). In the period

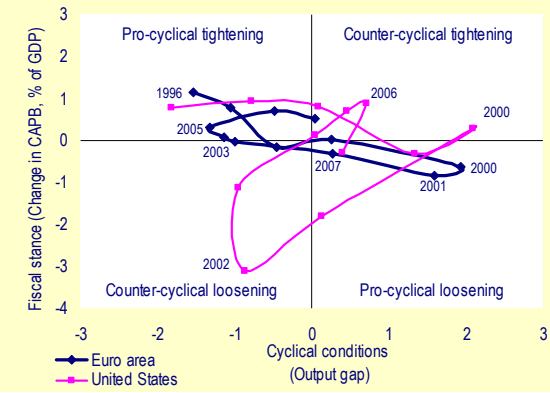
[13] The first concern was that the Stability and Growth Pact would limit stabilisation efforts in cyclical downturns (see for example European Commission (2008), 'Successes and challenges after 10 years of EMU', European Economy No. 2, 2008; Canzoneri, M.B. and B.T. Diba (2001) 'The SGP: delicate balance or albatross?', in: A. Brunilla, M. Buti and D. Franco (eds.), 'The Stability and Growth Pact', Basingstoke: Palgrave, p. 53-74).

Moreover, it was argued that the fiscal rules of EMU would not provide sufficient incentives for fiscal consolidation in economic good times (see for example, Buti, M. and G. Giudice (2002), 'Maastricht's fiscal rules at ten: an assessment', *Journal of Common Market Studies*, Vol. 40, No. 5, pp. 823-848).

[14] See for example Manasse, P. (2006), 'Procyclical fiscal policy: shocks, rules, and institutions—A view from MARS', *IMF Working Paper* 06/26 and Alesina, A. and G. Tabellini (2005), 'Why is fiscal policy often pro-cyclical?', *NBER Working Paper*, No. 11600.

preceding Maastricht (1980-1991), there is a clear pro-cyclical stance in both stages of the cycle: the fiscal stance is on average expansionary in good times and contractionary in bad times. The pattern changed in the second sub-period (1992-1998) when the eleven countries, in an effort to fulfil the Maastricht criteria for adopting the euro, ran on average tight fiscal policies irrespective of the cyclical position.[15] After the introduction of the Stability and Growth Pact in 1997 and the single currency in 1999, the pattern has shifted back to what it was in pre-Maastricht times with pro-cyclicality in good times being particularly pronounced.

Graph 18: **Ex-post fiscal stance (discretionary changes) and cyclical conditions, euro area and United States**



Sources: Commission services and OECD.

Based on the traditional analysis, which looks only at the role of discretionary fiscal policy, the euro-area's fiscal policy emerges as having been more pro-cyclical than that of the United States. Graph 18 depicts the discretionary fiscal stance and the cyclical conditions for both areas. All data points that lie in the upper left and lower right quadrants indicate times in which fiscal policy has been pro-cyclical, while the other two quadrants depict counter-cyclical periods. As mentioned above, euro-area fiscal policy was characterised by strong pro-cyclical fiscal tightening in the run-up to EMU, followed by an adjustment fatigue that created a pro-cyclical fiscal loosening despite sustained economic growth (2000-2001). When economic conditions deteriorated from 2002, fiscal policy tightened again and then moved towards a neutral stance during the upswing in 2005-2007. This pattern seems to be in contrast with the experience recorded in the US where the discretionary fiscal policy has turned out to be counter-cyclical ex-post even though this was not its prime objective in every year. In particular, the sharp turnaround from a cyclically-adjusted primary surplus in 2000 to a deficit of more than 3% of GDP in 2002 was not only a response to the economic slowdown following the bursting of the ICT bubble in 2001 but it largely reflected (i) the increase in defence spending and (ii) tax cuts with an electoral motive.

… but automatic stabilisers have helped to smooth cycles

To fully assess the stabilisation function of fiscal policy, also the role of automatic stabilisers needs to taken into account. They include those budgetary arrangements which lead to an automatic change of government revenue and expenditure as a per cent of GDP over the cycle. In view of the generally larger size of governments and more progressive tax systems, automatic stabilisers are more important in the euro area than in the US. Commonly used estimates indicate that a cyclical decline of GDP of 1% in the euro area raises the fiscal deficit ratio by ½ a percentage point as opposed to an increase by ⅓ of a percentage point in the US. [16]

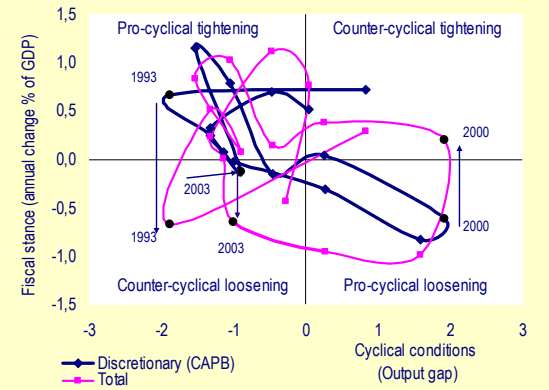
What this important difference implies for fiscal stabilisation is shown in Graphs 18 and 19. The blue lines depict the discretionary fiscal policy stance as measured by the cyclically-adjusted primary balance, while the red lines depict the total 'first-round impact' of fiscal policy as measured by the annual change of the primary deficit. When this full fiscal impact is considered (discretionary and automatic stabilisers), the stabilisation record of the euro area improves visibly (Graph 19). This is especially the case in years, when the cycle was particularly good or bad. In 1993, for instance, when economic activity in the euro area was 2 pp below potential, the counter-cyclical effect of the automatic fiscal stabilisers more than offset the pro-cyclical stance of discretionary fiscal policy. This gave rise to an overall expansionary fiscal impulse. A

[15] The on average counter-cyclical stance in good times in 1992-1998 must be interpreted with caution since the output gap was positive only in a single year (1992).

[16] Girouard, N. and C. Andre (2005),'Measuring cyclically-adjusted budget balances for the OECD countries', *OECD Working Paper*, No. 434.

similar observation applies to the year 2003, after the bursting of the ICT bubble. An example of exceptionally good economic times in which automatic stabilisers helped to dampen the fiscal stance was the year 2000. In the US, by contrast, the relative weakness of automatic stabilisers did not modify the pro- or counter-cyclicality of discretionary fiscal policy. In Graph 20 the blues and red lines therefore lie very closely together.

Graph 19: **Ex post fiscal stance: discretionary changes and automatic stabilisation, euro area**



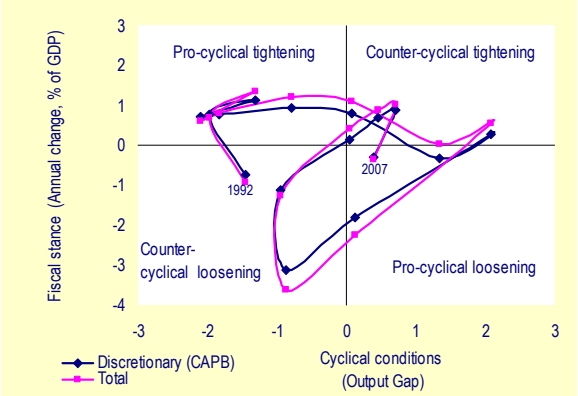
Sources: Calculations by Commission services and OECD.

The lessons to be drawn from this analysis are two-fold. Firstly, the higher and more counter-cyclical fiscal activism in the US could be interpreted as an attempt to make up for weaker automatic stabilisers. And secondly, the comparatively large automatic stabilisers in the euro area can make a difference and help partially counteracting discretionary fiscal policy making when the cycle turns particularly soar or particularly buoyant.[17]

Policy plans were sometimes build on too optimistic growth projections

When assessing discretionary fiscal policy making, not only the outcomes but also the policy intentions should be considered, based on information about the economic cycle at the time. Since output gap estimates are derived from expectations about future economic growth, policy makers are faced with a forecasting problem (see Box 3).[18] This uncertainty surrounding the economic cycle in real time can drive a wedge between plans and outcomes.[19]

Graph 20: **Ex post fiscal stance: discretionary changes and automatic stabilisation, United States**



Sources: Calculations by Commission services and OECD.

To shed light on the difference between outcomes and how things looked at the time, Graphs 21-22 depict the information available in real time of both the economic cycle and the budget balance.[20] Two important points follow for the euro area. Firstly, Graph 21 confirms the

[17] While this last point seems to argue for large governments from a stabilisation point of view, experience suggests that there is an upper limit at which the beneficial effects of automatic stabilisers are being outweighed by long-run costs for economic growth through additional tax burden and inefficient public administrations. Simulations put this threshold at a maximum of 50% of GDP, but depending on economic structures it can also be significantly lower (see for example, Buti, M., C. Martinez-Mongay, K. Sekkat and P. Van den Noord (2003) 'Automatic fiscal stabilisers in EMU: A conflict between efficiency and stabilisation?', *CESifo Economic Studies*, 49(1), 123-140 and X. Debrun, Pisani-Ferry, J. and Sapir A. (2008) 'Government size and output volatility: Should we forsake automatic stabilization', *Economic Papers*, N.316, *European Commission*, April).

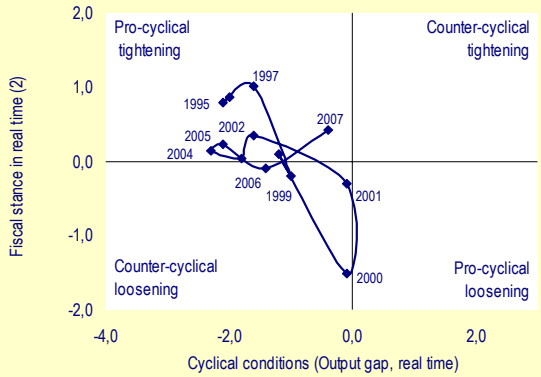
[18] Statistical data revisions can also explain the difference between real-time and ex post output gaps. In practice, however, their impact is relatively small compared to forecast errors.

[19] For a detailed assessment of the forecast errors of the output gap in the euro area see European Commission, 'Adjustment dynamics in the euro area – Experience and challenges', European Review 2006, *European Economy* No. 6, January, pp. 306-307.

[20] The two graphs are based on real-time OECD estimates of the output gap for two reasons. Firstly, OECD real-time output gap estimates are available since 1995. And secondly, the OECD growth forecasts, which enter the real-time estimates of the output gap, should a priori be free of the calculated optimism to which governments' forecasts may fall pray. The graphs show the OECD estimates for the output gap in t produced in spring of the same year. This allows to match them with the real-

pro-cyclical stance in the second half of the 1990s reflecting the policy priorities of the EU fiscal framework in the run-up to the euro, notably to bring the government deficit below the 3% of GDP threshold. Secondly, the pro-cyclical loosening recorded in 2000 and 2001 was not in the plans. Based on the assessment at the time, the fiscal stance could be taken as a 'reasoned' response to a cyclical position that was perceived to be moving from potential to below-potential while, over the medium term, the economy was expected to return to the high-growth path of the late 1990s.

Graph 21: **Real-time fiscal stance and cyclical conditions, euro area** (1)



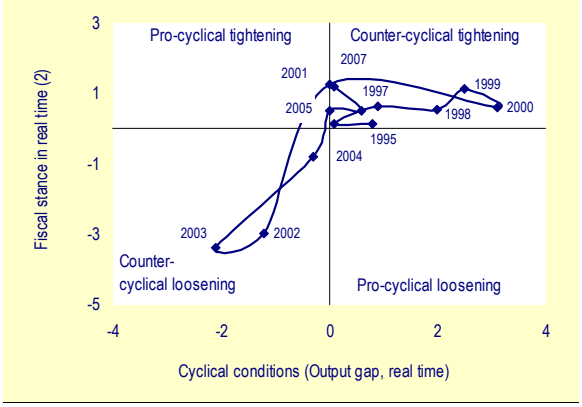
(1) OECD estimates of the output gap for year t produced in spring of the same year.
(2) Change in CAPB, % of GDP.
Sources: Commission services and OECD.

By contrast, the gap between the real-time and ex-post fiscal stance was generally smaller in the US and, more importantly, did not markedly alter the overall thrust of fiscal policy. The counter-cyclical nature of fiscal plans was largely realised.

Negative growth surprises (genuine and not) are largely to blame

For the euro area negative growth surprises are one of the culprits in turning well-behaved plans into pro-cyclical fiscal policy. Fiscal plans were often built on a rather optimistic view about potential future growth. This translated into growth projections that positioned current GDP levels below potential. Thus, real-time estimates of the output gap were on the pessimistic side and seemed to justify an expansionary fiscal stance.[21] In most cases this macroeconomic assessment was in line with the consensus view, but in some cases, macro-forecasts have been used strategically to bring budgetary plans in line with the requirements of the SGP from an ex-ante point of view, thereby contributing to systematic slippages from targets ex post.[22]

Graph 22: **Real-time fiscal stance and cyclical conditions, United States** (1)



(1) OECD estimates of the output gap in for year t produced in spring of the same year.
(2) Change in CAPB, % of GDP.
Sources: Commission services and OECD.

In the euro area during 1996-2006, the output gap was on average underestimated by 0.7% of GDP (Graph 23) based on OECD forecasts. This underestimation was even bigger based on government projections. The consistent overestimation of the euro-area trend growth partly reflects the overestimation of the adjustment capacity of the European economies to shocks which were not factored into the projections.[23] As medium-term growth

time fiscal stance of the same year, which includes both the budget adopted at the end of t-1 plus any additional measures taken or adopted at the beginning of t.

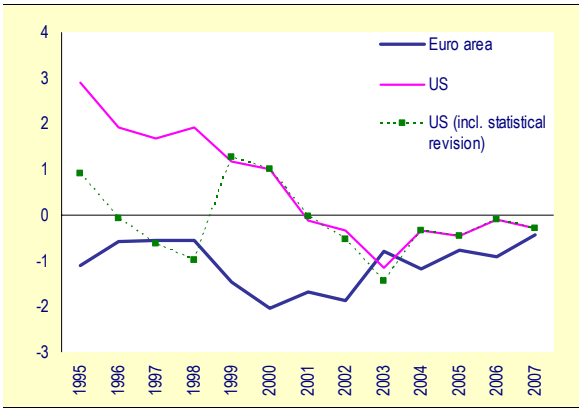
[21] Real-time output gap estimates are derived from expectations about future economic growth. To the extent that medium-term growth prospects are overestimated (or underestimated) the real-time estimate of the output gap in the current period will be on the pessimistic (or optimistic) side.

[22] More generally, studies find a bias for optimism in government growth and budget forecasts (e.g., Jonung L. and M. Larch (2006), 'Fiscal policy in the EU. Are official output forecasts biased?', *Economic Policy*, July, pp. 491-534 and Strauch, R., M. Hallerberg and J. von Hagen (2004). 'Budgetary forecasts in Europe: The track record of stability and convergence programmes', *ECB Working Paper* No. 307).

[23] While the euro area's cumulated loss in the output gap that followed the bursting of the ICT bubble in 2000 was

projections did not materialise, especially after 1999, and taking into account that it is generally easier to cope with positive growth surprises, the planned fiscal stance turned out to be inappropriate from a stabilisation point of view. In hindsight, the output gap was positive in the years 1999-2001, rather than negative as perceived at the time. Thus, the fiscal stance was pro-cyclical rather than counter-cyclical as envisaged.

Graph 23: **Forecast errors of the output gap, euro area and United States** (1) (2) (% of potential GDP)



(1) Real-time output gap minus ex-post estimates by the OECD.
(2) The large difference between real-time and ex post estimates for the US in the second half of the 1990s also reflects statistical revisions of national accounts data. The largest revision took place in 1999, when GDP was raised by 1 to 2%. However, assuming that this revision had a full impact on the output gap estimate would not alter the policy implications of the real-time estimates for the US.

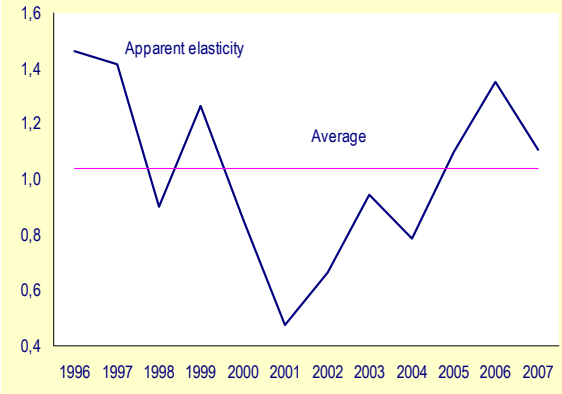
Sources: Calculations by Commission services and OECD.

The US, on the other hand, grew more strongly than projected in the late 1990s but since then growth surprises have been small (Graph 23). This reflects a more realistic or conservative assessment of growth prospects, explaining the greater match between the planned and ex-post fiscal stance.

Moreover, spending of revenue windfalls has exacerbated pro-cyclicality of fiscal policy

In 2000-2001, when the pro-cyclical nature of fiscal policy in the euro area was particularly evident, fiscal loosening went beyond the effect stemming from the incorrect assessment of the cyclical position in real time. Policy makers had been confronted with buoyant inflows of tax revenues since 1996, which went beyond the expansion of aggregate economic activity and led to an increase of implicit tax rates above the long-term average (Graph 24). Although due diligence should have led to the conclusion that the above average tax content of growth was unlikely to be permanent, the policy response was to reduce taxes or to increase expenditure at a moment when the economy was de facto operating above its potential. This choice turned out to be particularly unfortunate also for the following years, as it substantially reduced the room for macroeconomic stabilisation during the economic slowdown.

Graph 24: **Apparent and average tax elasticities, euro area (in % of GDP)**



(1) As estimated for the euro area-11 by the OECD (see Girouard, N. and C. André (2005), 'Measuring cyclically-adjusted budget balances for OECD countries' OECD Working Paper 434).

Sources: Commission services and OECD.

Progress in two institutional areas could help limit the pro-cyclicality of fiscal policy

Even though this closer look at fiscal policy has revealed that fiscal policy in the euro area has been more successful in stabilising output than commonly perceived, a number of elements could be further improved to support the stabilisation function of fiscal policy.

Stronger national budgetary institutions: Experience has shown that strong budgetary institutions, in particular numerical fiscal rules and medium-term budgetary frameworks, can contribute to greater fiscal discipline. Certain types of fiscal rules, especially medium-term nominal

very similar to the one observed in the US, the more protracted economic slowdown in the euro area was not expected. This higher degree of sluggishness in the euro-area cycle reflects higher market rigidities, which weigh on an economy's capacity to adjust to shocks.

Box 3: The difficulties in assessing the output gap in real time

The output gap is an unobservable variable since it measures the percentage deviation of actual from potential output, with the latter being a theoretical construct. Most methods to estimate potential output (y) for year *t* involve a centred and symmetric function of GDP or parts of GDP (TFP in the case of the production function method).(*)

$$y_t = b_0 + \sum_{j=1}^{\infty} b_j y_{t-j} + \sum_{j=1}^{\infty} b_j y_{t+j}$$

where, on the right hand side of the equation, output figures of the current year (which one may denote as T) and beyond typically represent forecasts, i.e. for t+j > T. In plain words: the current position of the economy in the cycle very much depends on where it is expected to be headed in the future. Consequently, forecast errors for real GDP translate into revisions of the output gap as historical data become available.

A possible way to improve the real-time output gap estimate: As discussed in this section, there have been substantial differences between real-time and ex post output gap estimates. For 2005-2006, this gap has narrowed, but the estimates that the output gap was still negative for that period have been questioned since many other economic variables, such as capacity utilisation, employment rates, labour productivity and inflation, have indicated that the euro area reached the peak of the cycle. Thus eventually, the output gap may be revised as the above calculations are applied, and they could reveal once again large differences in real-time and ex post figures.

A way forward to address the uncertainty attached to real-time output gap estimates could be to complement the assessment of cyclical conditions with other economic indicators that can reflect cyclical developments. This would be in line with the provisions of the Code of Conduct of the Stability and Growth Pact according to which 'the identification of periods of economic 'good times' should be made after an overall economic assessment.' First estimates for the output gap using the principal component approach, applied to a battery of leading indicators of the economic cycle, show some promising results. When simulating real-time output gap estimates for 2000-2006, the forecast accuracy of the real-time output gap (measured by the root mean squared error) can be improved for eight of the EU-11 countries (see table below). However, the size of improvements varies strongly and depends on the model used. This suggests that a case-by-case approach is needed for a better real-time assessment of the cycle.

Accuracy of real-time output gap estimates based on complementary indicators: simulations for 2000-06

	Complementary indicators, without production capacity	Complementary indicators, with production capacity	Output gap, real time (AMECO 2007)
	Root mean squared error	Root mean squared error	Root mean squared error
Austria	1,41	na	**0,85**
Belgium	0,78	**0,74**	0,75
Finland	2,02	1,48	**0,60**
France	**0,92**	0,99	0,99
Germany	1,56	**1,10**	1,11
Greece	1,47	**0,81**	1,21
Ireland	2,77	3,05	**1,77**
Italy	**1,31**	1,75	1,45
The Netherlands	0,95	**0,93**	1,21
Portugal	**1,54**	2,29	1,83
Spain	**1,14**	1,33	1,32

Note: Lowest RMSE is indicated in bold for each country.
Source: European Commission, 2007.

(*) For the European Commission's method see Denis, C., D. Grenouilleau, K. Mc Morrow and W. Röger, 2006, 'Calculating potential growth rates and output gaps—A revised production function approach', *Economic Paper*, No. 247, Directorate General for Economic and Financial Affairs, European Commission.

expenditure rules and revenue rules that pre-define the use of revenue windfalls, have helped contain pressures for additional expenditure or tax cuts in good times, thereby reducing pro-cyclicality. [24] This success has built on strong political commitment and effective monitoring and enforcement mechanisms.

More cautious macroeconomic forecasts: Better fiscal governance could also help remedy the macroeconomic forecast bias. One option would be to involve independent fiscal institutions in preparing macroeconomic assumptions for the budget.[25]

[24] See for example *European Commission*, *Public Finances in EMU* 2006 and 2007.

[25] For a discussion on the role of independent fiscal agencies, see for example Jonung and Larch (2006), op. cit., and Debrun, X., D. Hauner and M.S. Kumar (2007), 'The role of fiscal agencies', in: Kumar, M.S. and T. Ter-Minassian (eds.), *Promoting fiscal discipline, IMF.*

4. Exporters' hedging strategies against exchange rate fluctuations

This section sheds light on one of the elements that have contributed to the euro area resilience of exports to the appreciation of the euro over the past years, namely the hedging strategies of euro-area exporters against exchange rate variations.[26] We first discuss exchange-rate related risk and hedge design and then survey the literature on the use of hedging. We find that the use of hedging strategies and instruments is empirically well documented for the US and some individual European countries, but little is so far known about hedging from a euro area perspective. With a survey of self-reported hedging strategies and instruments of euro-area blue chip companies this section contributes to closing that gap.

Types of risk and hedge design

Classifications of exchange rate risk in the literature differ somewhat. Here, the following taxonomy is used: *Transaction risk* refers to the impact of exchange rate variations on committed cash flows (where the nominal amount and the date of the payment are already certain). *Economic risk* refers to the impact of the exchange rate on uncertain future cash flows. Importantly, this includes the risk of changes in demand for exported goods as the exchange rate varies. Finally, *translation risk* refers to the impact of exchange rate variations on the valuation of foreign assets or liabilities on a multinational firm's balance sheet.

Exchange rate risk can be eliminated, at least partly, though appropriate hedging. Protection against exchange rate risk can be achieved through geographical diversification in a way to match revenues and expenditure in various currencies ('*operational hedging*') or through the use of financial instruments ('*financial hedging*'). Financial hedges can be divided into hedges based on exchange rate derivatives such as forwards/futures, options and swaps and hedges building on foreign-currency borrowing or lending. An alternative categorisation distinguishes between '*derivative hedges*' and '*natural hedges*' where the latter comprise all non-derivative strategies, i.e. operational hedges as well as borrowing/lending.

Financial derivatives have today become standard tools for hedging exchange rate risk. Table 4 illustrates the rapid increase in the use of exchange rate derivatives as reported by the BIS for products that are traded 'over-the counter'.

Table 4: **Over-the-counter foreign exchange derivatives**
Notional amounts outstanding (bn US$)

by instrument and maturity			**by currency** (1)	
	déc-04	déc-07		déc-07
total contracts	29.298	56.238	USD	46.947
forwards and swaps	23.174	43.490	EUR	21.806
maturity < 1y	17.522	31.172	JPY	12.857
maturity 1-5y	3.676	6.176	GBP	7.979
maturity > 5 y	1.976	6.142	CHF	3.662
options	6.115	12.748	CND	2.404
maturity < 1y	5.312	9.144	AUD	2.227
maturity 1-5y	710	2.377	SEK	1.525
maturity > 5 y	93	1.227	total	56.238

(1) As instruments may involve more than one currency, the sum of the instruments by currency is larger than the total of all instruments.

Source: BIS Quarterly Review June 2007 & 2008.

Transaction risk can be easily hedged using standard products (in particular forwards). Hedging becomes more difficult for the longer term, because the cash flow is usually uncertain (economic risk). Applying standard products to uncertain future cash flows creates the risk of mismatches between the hedge and the underlying cash flow, in which case an open exposure remains. What is more, standard products for the long run may not be available (futures) or quite expensive (options). Derivatives with short maturities can in principle be 'rolled over' to cover long-term exposure. However, rolling over short-term instruments does not eliminate risk in the same way as an instrument with the correct maturity would. In particular, the value of rolled-over hedges is sensitive to changes in interest rates and forward rates. These reasons explain why exchange-traded derivatives play only a minor role, as compared to OTC products, in Europe.

It should also be noted that even perfect derivative hedges can lead to temporary losses between the moment of purchase and their

[26] It draws on Döhring, B. (2008), 'Hedging and invoicing strategies to reduce exchange rate exposure: a euro-area perspective', *European Economy – Economic Papers*, No. 299, *Directorate General for Economic and Financial Affairs, European Commission.*

maturity due to accounting practices and obligations to 'mark to market'. Although such losses are temporary, they can constitute a significant drain on a firm's liquidity.

An example illustrates the limitations of derivative hedges when it comes to economic risk. Consider a euro-area exporter of large investment goods (such as ships or airplanes) who regularly receives orders for sales denominated in US dollar. As the time between the order and final delivery (payment) is several years, the exporter 'locks in' the EUR-USD exchange rate using exchange-rate forwards each time an order is firmly committed. However, the forward exchange rate varies over time (it is a function of the spot rate and the interest rate differential between the euro area and the US). Therefore, the value in euro of equivalent hedged US dollar sales differs depending on the forward rate at which the transaction was hedged.

In the case of a prolonged appreciation of the euro against the US dollar (assuming a constant interest-rate differential), the exporter thus has to accept successively less favourable forward rates for his exchange rate hedges, cutting into its profit margin.

Natural hedges are an alternative way of reducing exchange rate exposure. Foreign currency loans are functional substitutes to forwards and futures. However, loans can easily cover longer maturities than derivatives (e.g. a firm with access to international capital markets may hedge future revenues in US dollar by issuing a US dollar bond). More generally, exchange rate exposure can be reduced by matching foreign-currency revenues with foreign-currency expenditure. Operational hedges involve geographical diversification of production, sourcing and/or sales. Since operational hedges are less flexible than financial hedges, and involve higher sunk costs, they are typically used to reduce longer-term exposure to economic risk. The matching of foreign-currency assets with foreign-currency liabilities also offers protection against translation risk.

Use and effectiveness of hedges – a survey of the literature

The exchange rate exposure of a large sample of multinational firms with headquarters in the euro area has been assessed by Muller and Verschoor (2006).[27] The authors find that euro-area exporters are mainly exposed to variations in the exchange rate of the US dollar, pound Sterling and yen. Exposure to short-run exchange rate variations is low (probably because it is well hedged), but it remains substantial over longer time horizons.

However, surprisingly little is known about hedging strategies of European firms. Much of the empirical literature focuses on the US, although some comparisons of hedging strategies between US and German firms, and US and Dutch firms are available. Also, the use of derivatives by Swedish firms has been surveyed.

For the US, evidence on hedging has been gathered in the '*Wharton Surveys for Financial Risk Management*' carried out between 1994 and 1998 among large non-financial firms. The 1998 survey finds 44% of respondents used financial derivatives, 79% of which used them to hedge currency risk (73% hedged interest rate risks and 44% commodity risks). Bodnar et al (2003) provide comparable data for US and Dutch firms; Bodnar and Gebhard (1999) comparable results for US and German firms.[28] The main features of these surveys are summarised in Tables 5 and 6.

The surveys indicate that derivative use increases with firm size. This suggests that there are fixed costs involved in running a derivative hedge programme (Alkebäck et al, 2006, and Hagelin, 2003, come to the same conclusion).[29]

[27] Muller, A. and W. Verschoor (2006), 'European foreign exchange rate risk exposure', *European Financial Management*, Vol. 12(2), pp. 195-220.

[28] Bodnar, G., A. de Jong and V. Macrae (2003), 'The impact of institutional differences on derivatives sage: A comparative study of US and Dutch firms', *European Financial Management*, Vol. 9(3), pp. 271-297.

Bodnar, G. and G. Gebhard (1999), 'Derivatives usage in risk management by US and German non-financial firms: a comparative survey', *Journal of International Financial Management and Accounting,* Vol. 10, pp. 153-187.

[29] Alkebäck, P., N. Hagelin and B. Pramborg (2006), 'Derivative usage by non-financial firms in Sweden 1996 and 2003: What has changed?', *Managerial Finance*, Vol. 32(2), pp. 101-114; Hagelin, N. (2003), 'Why firms hedge with currency derivatives: An examination of

Table 5: **Use of financial derivatives**(%age of firms using financial hedges)

country	US	DE		US	NL
survey year	1995	1997		1998	1998
- by firm size (sales in m USD)					
>6600	90	75			
3300-6600	73	94			
1660-3300	57	88			
660-1660	64	84	>800	82	88
330-660	44	55	250-800	46	57
<330	18	50	<250	12	42
- by industry sector					
utilities	48	74	manufact.	46	66
service	56	100	trade	27	58
retail	42	76	services	41	48
motors	58	77			
mining	81	68			
metals	80	93			
machinery	62	100			
electro	69	87			
consumer	56	75			
construction	42	62			
chemicals	82	85			

Bodnar et al (2003)

Source: Bodnar and Gebhard (1999).

Table 6: **Types of derivatives used to hedge exchange rate risk** (instrument found 'most important' in %)

	US	NL
	1995	1998
OTC forwards	56	77
futures	12	0
swaps	8	2
OTC options	16	12
exchange-traded options	1	0
structured derivatives	6	7
hybrid debt	2	2

Source: Bodnar et al (2003).

European firms are generally more likely to use derivative hedges than their US counterparts. The difference is particularly large for the smaller firms in the survey and holds across industrial sectors. Several authors have since stressed that the likelihood of firms hedging exchange rate risk increases with an economy's openness to trade.[30]

The euro has had an impact on the use of derivatives to hedge exchange rate risk. Capstaff et al (2007)[31] find that practically the same number of French multinational firms used derivatives to hedge exchange rate exposure before and after the introduction of the euro. As the euro reduced their exposure to exchange rate risk, the notional amounts of derivatives outstanding decreased. However, the exchange rate exposure decreased more strongly than the amounts hedged, indicating that hedging of the remaining risk may have become more intense.

Firm-level studies that analyse the impact of exchange rate variations on share prices generally find hedging to be effective (i.e. hedging reduces the impact of exchange rate fluctuations on the share price). However, there is some disagreement as to the respective effectiveness of financial and operational hedges. Alayannis et al (2001) analyse the effectiveness of operational and financial hedging by US non-financial multinationals in 1996-1998.[32] The authors use various measures of the geographical dispersion of the firm's operations as a proxy for operational hedging. They find that operational hedging on its own does not, on average, reduce exchange rate risk exposure. Financial hedges are effective on their own, and so is a combination of financial and operational hedging. Carter et al (2003) also analyse US multinationals (1994-98), and are more positive about the effectiveness of operational hedges.[33] They find that operational hedges and financial hedges reduce exchange rate risk, whether used on their own or in a

transaction and translation exposure', *Applied Financial Economics*, Vol. 13, pp. 55-69.

[30] See for instance Hagelin (2003) op.cit. and De Jong, A., J. Ligterink and V. Macrae (2006), 'A firm-specific analysis of the exchange-rate exposure of Dutch firms', *Journal of International Financial Management and Accounting*, Vol. 17(1), pp. 1-28.

[31] Capstaff, J., A. Marshall and J. Hutton (2007), 'The introduction of the euro and derivative use in French firms', *Journal of International Financial Management and Accounting*, Vol. 18(1), pp. 1-17.

[32] Alayannis, G., J. Ihrig and J. Weston (2001), 'Exchange-rate hedging: financial versus operational strategies', *American Economic Review*, Vol. 91(2), pp. 391-395.

[33] Carter, D., C. Pantzalis and B. Simkins (2003), 'Firmwide risk management of foreign exchange exposure by U.S. multinational corporations', *Oklahoma State University Working Paper.*

coordinated manner and conclude that: '*operational and financial hedges are complementary risk management strategies*'. In a survey of Swedish firms, Hagelin and Pramborg (2004) find that derivative hedging as well as hedging with foreign-currency denominated debt reduces firms' exchange rate exposure.[34] Moreover, they find that hedging can reduce both transaction risk and translation risk. However, the effectiveness of financial hedges is disputed by de Jong et al (2006), who use a sample of Dutch firms. Their results suggest that financial hedging does not reduce exchange rate exposure, while operational hedging does.

Finally, risk managers may want to create asymmetric hedges in order to insure against adverse exchange rate developments without forgoing potential foreign exchange gains. Carter et al (2005)[35] demonstrate that operational hedging can produce the desired asymmetry. They show that US multinationals' flexibility in international marketing, sourcing and production provides real (i.e. non-financial) options. '*Operational flexibility enables the firm to selectively exploit favourable currency movements to maximise profit potential and minimise the impact of adverse currency movements.*' As the authors stress, static geographic diversification reduces exchange rate risk in a symmetric way. Operational flexibility raises protection and adds an option value.

Self-reported hedging by euro-area blue chip companies

Data on large corporations' hedging strategy was gathered from financial publications[36] of the 33 non-financial firms included in the EuroStoxx50 index (as of March 1997). The analysis of financial statements is a common approach in the literature on hedging practices (cf. Capstaff et al, 2007).[37] The 33 firms analysed cover the following sectors: Utilities (6 firms), telecommunications (4), three each from oil & gas, chemicals, personal & household goods and technology, two each from automobiles & parts, food & beverage, retail and construction & materials, one each from health care, industrial goods & services and media. As customary in the literature, financial firms have been excluded, as they are likely to hold significant amounts of derivatives that are not related to exports and imports of goods and services.

The amount of information on the management of exchange rate risk provided in Annual Reports and consolidated financial statements varies across firms. For example, not all firms provide details on their hedging principles or on the relative importance of natural hedges vs. hedging with derivatives. Some also do not provide the notional amount of derivatives outstanding (which corresponds to the underlying exposure being covered) but only their fair value (which corresponds to the unrealised gains or losses from the hedging instruments). Reporting on maturities is also unsystematic. These gaps notwithstanding, the information gathered is consistent across firms, and rich enough to allow some generalisations.

All firms analysed operate internationally, have subsidiaries abroad and are exposed to exchange rate risk. All but one of those companies that provide information on the main currencies to which they are exposed (Table 7) report exposure to the US dollar, be it directly and/or through currencies pegged to the USD. The pound Sterling is also mentioned by most. Many report additional exposures to other currencies, without there being any clear sectoral pattern. Among other currencies in Europe, the Polish zloty and the Swiss franc play the largest roles. Some have exposures in yen, with currencies from emerging markets in Asia also sometimes mentioned. Others have exposures to Latin American currencies, among which the Brazilian real plays an important role. Self-reported exchange rate risk exposure is thus both larger and (despite the strong role of the US dollar) more diverse than found in Muller and Verschoor (2006).[38]

[34] Hagelin, N. and B. Pramborg (2004), 'Hedging foreign exchange exposure: risk reduction from transaction and translation hedging', *Journal of international financial management and accounting*, Vol. 5(1).

[35] Carter, D., C. Pantzalis and B. Simkins (2005), 'Hedging, real options and the asymmetric exposure of US MNCs', http://www.fma.org/Stockholm/Papers/AsymmetricExposuretoFXRiskDec2005.pdf

[36] In most cases, Annual Reports contain sections on risk management, where the strategy for managing exchange rate risk is exposed in general terms. More detailed information can generally be found in the notes to the consolidated financial statements.

[37] Op. cit.

[38] Op. cit.

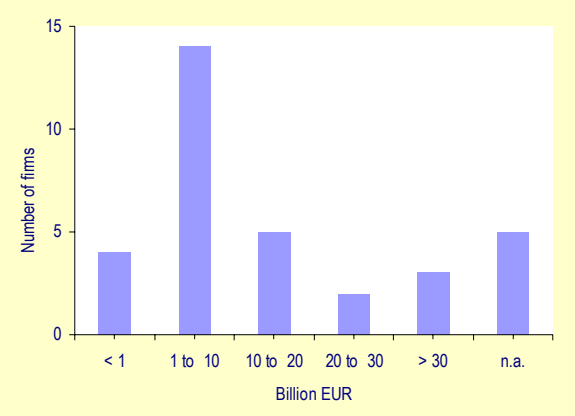
Table 7: **Main currency exposures** (number of mentions among main exposures multiple mentions possible)

To N. American currencies		To Asian currencies	
USD	29	JPY	8
CAD	3	CNY	4
*To European currencies		KRW	3
GBP	20	other	3
PLN	5	To L. American currencies	
CHF	4	BRL	6
other	8	other	5

Source: Annual Reports and Financial Statements for 2006.

All firms report using derivative instruments to hedge exchange rate risk. The reported notional amounts of derivatives outstanding range from 45 million euro to above 30 billion euro, with the largest number of firms reporting amounts in the range of one to ten billion euro (median: 5.6 billion, see Graph 25). Holdings of exchange rate derivatives are quite large compared to revenue (see Graph 26). In most cases, they amount to 10-20% of revenue (median 15.7%), but substantially higher holdings of exchange rate derivatives are also not uncommon. Again, there is no clear sectoral pattern.

Graph 25: **Notional amount of exchange rate derivatives** (non-financial firms included in the EuroStoxx50 – end 2006)



Source: Annual reports and financial statements, own calculations.

A majority of surveyed firms uses a mix of forwards, options and swaps.

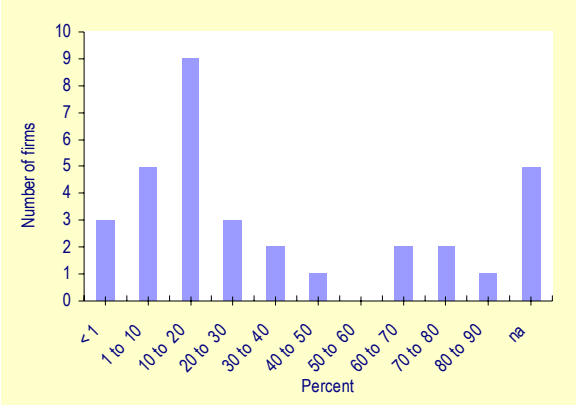
- Exchange rate forwards are the most commonly used derivative tool (mentioned by 31 firms). Most companies use them to hedge future cash flows that are firmly committed or highly probable (transaction risk). Maturities up to 12 months are the most common, with some instruments maturing after 2-5 years, while maturities above 5 years are rare. Some firms cover longer-term exposure through rolling-over of derivatives with short maturities.

- Most firms (28) use exchange rate options at least on an occasional basis, in particular to hedge uncertain / estimated future cash flows. Maturities are strongly concentrated in the segment up to 12 months.

- Swaps are also used by a majority (22) of firms, mainly to hedge longer-term regular transactions, in many cases cash flows arising from debt financing, but also long-term delivery contracts, e.g. in the energy sector. Maturities can be substantially longer than for the other instruments, in some cases well beyond 10 years.

The findings on the relative importance of the different instruments are broadly in line with the surveys in Bodnar et al (2003). The maturity distribution reported by the blue chips roughly corresponds to that of outstanding OTC derivatives reported by the BIS (Table 4).

Graph 26: **Notional amount of exchange rate derivatives** (non-financial firms included in the EuroStoxx50 – in % of 2006 revenue)



Source: Annual reports and financial statements, own calculations.

In many firms, derivative hedging is a responsibility of the central treasury, where exposures arising from all activities and locations are netted out before the residual is hedged. There is relatively little information on the strategy with respect to the coverage of exposures. The firms that do provide details

generally hedge 100% of committed transactions and 75%-80% of anticipated transactions. A number of firms state that they use exchange rate derivatives exclusively for hedging purposes, not for speculation. Some firms explicitly take positions, while a majority is silent on this issue.

Some firms report limitations to their hedging strategy arising from market structures. For example, the local debt market may be too shallow to contract sufficient amounts of debt to provide a natural hedge to the translation risk arising from a foreign subsidiary. Two firms report that the interest rate differential between euro-denominated debt and debt denominated in Brazilian real is too large to allow hedging through cross-currency swaps. In such cases, firms sometimes resort to hedging in a proxy currency that is strongly correlated to the target currency (e.g. exposure to currencies that are pegged to the US dollar is often hedged with dollar-denominated derivatives). Others limit their coverage to insurance against extreme exchange rate moves.

Out of the 33 firms analysed, 22 refer to natural hedges. However, this issue is not systematically covered in Annual Reports and financial statements, so the share of firms actually using natural hedges might be higher. In most cases, firms report matching foreign assets with foreign liabilities and foreign revenues with payables in foreign currency. For example, foreign subsidiaries are financed with local debt or inter-company loans denominated in their functional currency to offset translation risk. Similarly, foreign subsidiaries try to match the currency denomination of their costs and revenues. In itself, a network of foreign subsidiaries with exposures to a variety of currencies provides a certain diversification of exchange rate risk, and thus reduces the sensitivity to movements in a particular exchange rate pair.

While all but one firm hedge transaction risk, most are not explicit about their approach to translation risk. Eight firms report systematically hedging it, two do so occasionally, and four state that they do not hedge translation risk.

Operational hedging and hedging through foreign currency loans is almost by definition the domain of large multinational companies that have the capacity to relocate, to tap international financial markets and dispose of internationally accepted collateral. Real and financial globalisation is increasing these hedging possibilities with more widespread relocation of production and increased depth of local financial markets. What is more, the use of financial hedges is also positively related to firm size, probably due to fix costs for setting up a hedging function.

The EuroStoxx50 companies surveyed here are not representative for the larger group of euro area exporters. Smaller, less diversified exporting firms may find it harder to manage their exchange rate risk than large multinationals. However, recent financial market developments and technological advances (IT, risk management techniques) have made the use of derivatives for hedging less costly and their design easier, and the use of financial hedges by smaller firms seems to be increasing.

Hedging may have reduced the responsiveness of the trade account to the exchange rate

The survey presented in this section and the literature on hedging concur in the observation that hedging of exchange rate risk has increased substantially in the euro area in the past decade, and that hedging instruments have become more easily available also for medium-sized firms. This increased use of hedging can be expected to have macroeconomic implications. The IMF argues in its April 2008 World Economic Outlook that the increased use of hedging may have led to longer lags in the adjustment of trade flows to exchange rate variations.

It would seem that hedging permitted euro-area exporters to defend market shares during the episode of euro appreciation. In the words of Alan Greenspan: '*Gains from increased currency hedging against the dollar since early 2004 may have enabled European exporters to tolerate a fall in operating profit margins beyond what they otherwise would have been able to tolerate.*'[39]

[39] Greenspan, A. (2005), *Current account*, 'Remarks at advancing enterprise conference', London, February 4, 2005.

However, to the extent that financial hedging instruments mature and have to be replaced under less advantageous conditions, the protection from financial hedging becomes weaker the longer the episode of appreciation lasts. In other words, even if the euro's real effective exchange rate were to remain unchanged going forward, further adjustment of trade to the euro strength is likely to still be in the pipeline.

Focus

II. Income inequality and wage share: Patterns and determinants.

This focus section describes long-run patterns in income inequality and labour income shares and discusses the determinants of distribution of income as well as their relationship with wage inequality and the unemployment rate. Income inequality in advanced economies followed a common downward trend until the 1970s and has tended to increase since, although with varying patterns across countries in terms of both magnitude and timing. This lack of a common pattern does not hold for top incomes, whose share has increased in almost all countries. Empirical evidence suggests that global trends, such as skill-biased technological progress, may have played a role in driving inequality over time, particularly regarding top incomes. However, the fact that wage and income inequality have shown marked country-specific patterns in recent years indicates that explanations based on common shocks can only account for part of the recent trends observed. In addition, changes in labour market institutions and in redistributive policies (through taxes and benefits) as well as their interaction with common shocks seem to have played a major role. This focus section also discusses developments in the wage share and warns against interpreting changes in wages as changes in income inequality. The relationship between income inequality and the wage share is complex. For instance, a fall in the labour income share may not be accompanied by a significant increase in income inequality if it comes with a lower unemployment rate, a less dispersed wage distribution and is offset by redistributive policies. There is some indication that, in some euro-area countries, the reduction in the labour share over the past two decades has been more pronounced than the increase in the inequality of disposable incomes.

Concern about rising income inequality in many advanced economies over the last two decades has triggered extensive research on the patterns and causes of income inequality. This article intends to contribute to the debate by reviewing developments in the main inequality concepts and the likely drivers of the changes observed in the distribution of income. Particular attention is paid to the wage share – a concept widely followed in the policy debate – and its relation with other measures of income inequality.

1. Income inequality patterns

Inequality patterns across countries

This section presents a cross-national comparison of income inequality indicators (see Box 4).[40] Graph 27 illustrates an unambiguous pattern of income inequality in the euro area.[41] Southern European countries and Ireland show the highest levels of inequality, Finland the lowest; continental euro-area countries are between the two.[42]

Graph 28 compares Gini indices on market income (i.e. before taxes and benefits) and disposable incomes, the difference showing the impact of monetary redistribution through taxes and benefits. Several findings are noteworthy. First, disposable incomes are more evenly distributed than market incomes, as taxes and benefits narrow the overall distribution. Second, cross-country variation in inequality is wider after redistribution, as not all euro-area countries are equally successful in reducing market inequality. Third, nations that redistribute the most are not necessarily those with the greatest degree of market income inequality; the reduction in the Gini index due to redistribution is at its highest in Finland and Austria and at its lowest in Portugal and Italy. This picture does not change when the sample is extended to the EU-15, with Nordic and southern Mediterranean countries at the two extremes of the ranking. Fourth, the reductions are consistent with the patterns of aggregated public expenditure. However, large

[40] Figures are from the *Luxembourg Income Study* (LIS), which provides an internationally comparable dataset on household incomes, their demographic characteristics and the labour market status of the main earners.

[41] Countries are separated into high- and middle-income economies according to per-capita gross national income in 2004. Middle-income economies are those with a gross national income of more than $826 but less than $10065; high-income economies are those with a gross national income of $10066 or more.

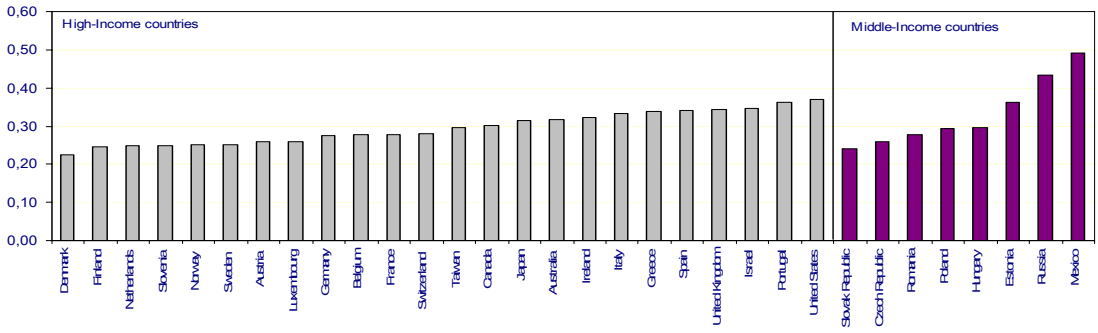
[42] This basic pattern is confirmed by the analysis of *Lorenz dominance*. The decile ratio leads to different orders, but the differences are small. See Brandolini, A. and T.M. Smeeding (2007), 'Inequality patterns in Western-type democracies: Cross-country differences and time changes,' *CHILD, WP* No 08/2007.

dispersion along the curve indicates that there are probably large country differences in the effectiveness of spending in correcting inequality (Graph 29).

The impact of government action on income distribution may be direct or indirect. The level of taxation and its progressivity is the most direct factor. The tax system influences the retirement age and individual effort, with direct impact on income distribution. Tax policies subsidising education, health and training will indirectly have some impact over time on income distribution. Inequality dynamics, over the life cycle of individuals and from an intergenerational perspective, are crucial. This is why education and health systems are such important factors when it comes to fighting persistent inequalities. On the expenditure side, any support for poorer individuals, including benefits in kind, has a direct effect on income distribution. Indirect effects may operate through means that improve job opportunities for the less well-off (e.g. education or on the job training), keep people healthy and improve their chances of being in the labour force.

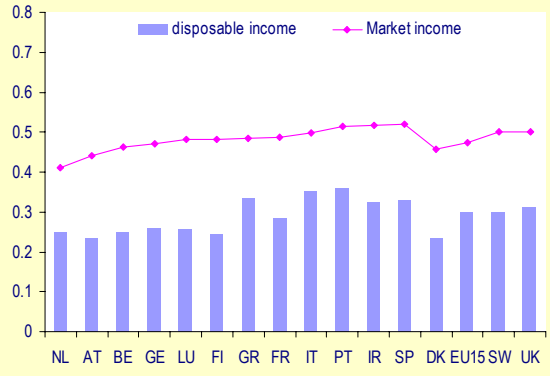
Graph 27: **Income inequality: Gini Index on household-equivalent disposable income**

Most recent data for each country, late 1990s/early 2000s



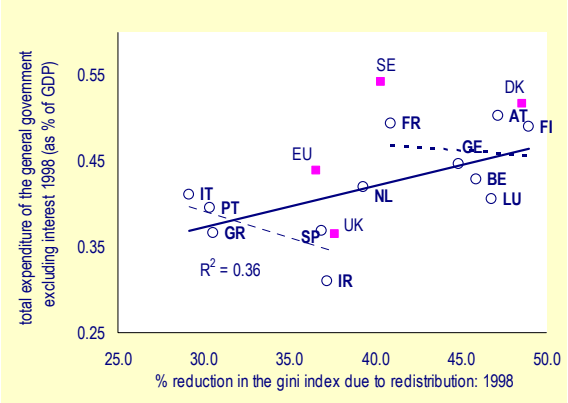
Data source: Brandolini and Smeeding (2007). Authors' calculations from the Luxembourg Income Study database.

Graph 28: **Impact of public redistribution on income inequality: Gini Indices**



Source: Immervoll, G., H. Levy, C. Lietz, D. Manotvani, C. O'Donoghue, H. Sutherland and G. Verbist, (2005), 'Household Incomes and Redistribution in the European Union: Quantifying the Equalising Properties of Taxes and Benefits', *IZA Discussion Papers* 1824. Gini indices are computed on the basis of micro-simulations of income levels rather than on records of original micro-data as in Brandolini and Smeeding (used in Graph 29).

Graph 29: **Public redistribution and public expenditure: 1998**



Source: Immervoll *et al* (2005).

Box 4: **Measures of income inequality**

A widely used indicator is the *income share per decile,* with the share of the poorest (10th percentile) and the richest decile (90th percentile) capturing inequality at the top and at the bottom of the income distribution. The *decile ratio, P90/P10*, equals one in the case of perfect equality and tends to infinity as less income accrues to the bottom 10th of the population, and more to the top 10th. The top percentile income share divided by the income share of the next nine percentiles in the top decile gives a picture of the inequality at the very top of the distribution.

The *Lorenz curve* describes the *entire income distribution*, plotting the income share of the bottom *x* percent of the population against the population share. The *Gini index* is the ratio of the area under the Lorenz curve and the area under the perfect equality line (i.e. the total triangle below the 45-degree line). Accordingly, it varies between 0 (maximum equality) and 1 (maximum inequality).

The *ranking of countries* depends on which part of the distribution is analysed. Thus, different measures may lead to different rankings, as they weight the top and the bottom of the distribution differently. For example, the Gini index gives less weight to the very rich and the very poor. Accordingly, it is less sensitive to measurement problems at the extremes of the income distribution. However, its biggest problem is that different distributions can lead to the same value of the index. A robust ranking is provided by comparing the *Lorenz* curve across countries. Thus, income is distributed less unequally in country *A* than in country *B* if the Lorenz curve of *A* always lies above, i.e. it "*Lorenz*" dominates that of *B*.

Money income can refer to market, gross (or total) or disposable income. Market income comprises labour, capital income or self-employment income. Gross income adds to market income all transfers received by the household, such as unemployment compensation, welfare benefits, public and private pensions, child and family allowances. Disposable income is equal to gross income minus direct income taxes and social security contributions.

Indicators can look at household, household equivalent and person. In order to account for the economies of scale stemming from cohabitation, household equivalent measures are preferable. Changes in the labour market status of family composition may influence income inequality even without changes in individual wages. For example, Esping-Andersen (2004)* argues that most of the rising trend in household income inequality is due to the increase in female participation and to the reduction in youth participation.

*Esping-Andersen, G (2004), 'Income distribution and life chance opportunities', in A. Giddens (ed.), *'The New egalitarism: opportunity and prosperity in modern society'*.

Time changes in income inequality

Analysis of inequality is fraught with data problems, which make cross-country comparison of changes over time difficult. Even so, empirical evidence has generated a number of stylised facts (Graph 33). First, from a secular perspective, the common decline in inequality in the earlier part of the 20th century ceased in the 1970s. Second, in many countries the increase in inequality over the past three decades has been larger in terms of market income. Inequality in terms of market income displays a rather uniform picture across countries, increasing in the 1980s and early 1990s, but very stable afterwards (Brandolini and Smeeding, 2007). Inequality of disposable income decreased until the mid-1970s, followed by a more country-specific pattern thereafter. It rose sharply in the United Kingdom in the 1980s and in the United States in the 1980s and 1990s, and more modestly in Finland, West Germany, Sweden and Canada in the 1990s. By contrast, it stabilised during the 1990s in the Netherlands, France and Italy.[43] The different behaviour of income inequality in terms of market and disposable incomes reflects the equalising effect of redistributive policies.

The lack of an international common pattern in overall income inequality does not concern the upper tail of the distribution. Graph 30 displays the income shares earned by the richest.[44] Apart from clearly showing the impact of the

[43] Estimates based on Survey of Household Income and Wealth show that the inequality of disposable income rose sharply in Italy between 1991 and 1993 but not thereafter, which is surprising given the fundamental transformation that occurred in the labour market. See Boeri, T. and A. Brandolini (2005) 'The age of discontent: Italian households at the beginning of the decade', *Giornale degli Economisti e Annali di Economia*, Vol.63 (3-4), pp. 449-487.

[44] These series are constructed by several researchers as parts of a joint effort where the main source is the income statements in personal tax returns collected for different income classes (Roine *et al.*, 2007).

depression and World War II for many countries, a striking feature is the remarkably similar development of top income shares across countries over time. In times when a country has grown faster than the average, top income earners have benefited more than proportionally (Piketty, 2003; Atkinson and Piketty, 2007).[45] This result does not depend on the stage of development and is consistent across countries.

Besides income inequality, there has been much concern about rising wage inequality. OECD (2007a)[46] decomposes the overall change in wage inequality in 10 OECD countries since 1980 into the contributions of wage dispersion in the upper and lower halves of the wage distribution. With the exception of France and Finland, wage inequality has increased since the 1980s, with most of the increase stemming from increased inequality in the top half of the wage distribution.

2. Determinants of income inequality

An important distinction should be made between the drivers of overall inequality and those at the upper tail of the distribution.

Determinants of overall income inequality

The Kuznets hypothesis contends that income inequality widens at the early phase of economic growth and narrows in the later stages of development. As an economy goes through structural change (i.e. resources are transferred from low- to high-productivity sectors), inequality follows an inverse U-shape. Recent work has considered variables other than the level of income, such as the degree of democratisation and financial development, or the extent of dualism in the labour markets. Political scientists (e.g. Reuveny and Li, 2003)[47] advance the idea that democracy promotes egalitarianism, due to its use of redistributive policies. As regards the impact of financial development, theory predicts that it should decrease inequality, as it facilitates access to capital of previously credit-constrained individuals (e.g. Galor and Zeira, 1993).[48] The empirical evidence shows that more democratic countries, better law enforcement, and greater financial development are associated with a more equal distribution of income while segmented labour markets are associated with greater inequality (e.g. Barro, 2000, Bourguignon and Morrison, 1998).[49]

Determinants of overall income inequality in small samples of mature economies

Economic structure, political variables and the level of financial development show little variability across OECD countries, and are thus ineffective in explaining inequality in developed economies. A first strand of the literature has explored the relationship between inequality and growth (e.g. Aghion *et al.*, 1999; Bertola *et al.*, 2006; García-Peñalosa, 2007).[50]

This literature argues that the growth process is the result of a combination of technological change, accumulation of physical and human capital and changes in labour supply, each of them representing a channel through which inequality and growth are related. However, the

[45] Piketty, T. (2003) 'Income inequality in France, 1901-1998', *Journal of Political Economy*, Vol. 111, No 5, pp. 1004-1042

Atkinson, T. and T. Piketty, (2007), 'Top incomes over the Twentieth Century: a contrast between continental European and English-speaking countries', *Oxford University Press*.

[46] OECD (2007a), 'OECD Workers in the Global Economy: Increasingly Vulnerable', *OECD Employment Outlook, 2007*.

[47] Reuveny, R. and Q. Li (2003), 'Economic openness, democracy and income inequality: and empirical analysis', *Comparative Political Studies* 36 (5), 575-601.

[48] Galor, O. and J. Zeira (1993), 'Income Distribution and Macroeconomics', *Review of Economic Studies*, 60, 35-52.

[49] Barro, R.J. (2000), 'Inequality and growth in a panel of countries', *Journal of Economic Growth,* Vol. 5, pp. 5-32.

Bourguignon, F. and C. Morrison (1998), 'Inequality and development: The role of dualism', *Journal of Development Economics,* Vol. 57, pp. 233-257.

[50] Aghion, P., E. Caroli and C. García-Peñalosa (1999), 'Inequality and growth in the new growth theories', *Journal of Economic Literature,* Vol. 37, pp. 1615-1669.

Bertola, G, R. Foellmi, and J Zweimüller (2006). 'Income distribution in macroeconomic models', *Princeton University Press,* Princeton.

Garcia-Peñalosa, C. (2007), 'The economics of distribution and growth. Recent issues', *mimeo*, 4th annual DG ECFIN research conference.

outcome of this literature is that 'anything goes': distribution can widen or narrow during the growth process and growth of itself cannot be expected to reduce inequality of incomes.

The poor predictive capacity of growth theory has prompted vast research to shed light on inequality patterns within rich countries. The literature has focused on the effect of skill-biased technological change (SBTC), globalisation, labour market institutions (LMIs) and economic integration.

Technological developments have increased the relative demand for skilled workers, pushing up their wage relative to that of unskilled workers, thereby worsening the distribution of wage earnings and increasing income inequality. However, the difference across countries in the patterns of wage inequality is inconsistent with a single explanatory factor. In particular, LMIs may have brought about bigger changes in the wage premium of high-skill workers than were warranted by changes in supply and demand. For instance, the decline of the unions and the erosion of the real value of the minimum wage in the US in the 1980s may have increased the wage premium by more than was justified by market factors alone.

Theory has yielded a number of predictions about the effects of globalisation on inequality, with various channels, including trade, offshoring of intermediate inputs, immigration and the transformation of the welfare state. The neo-classical trade theory predicts that countries relatively more endowed with capital and skilled labour should specialise in capital and skill-intensive products. In addition, low-skilled labour can be accessed by advanced economies by off-shoring of intermediate inputs and through immigration. Hence, the wages of the low-skilled come under pressure as countries specialise and the distribution of earnings in developed countries worsens. However, it is not obvious why such globalisation forces should cause an increased dispersion in the upper half of the wage distribution, as discussed in the previous section.

On the relationship between globalisation and the welfare state there are two competing perspectives. The first is that globalisation increases capital mobility and shifts taxes on labour, thereby weakening the capacity of the State to redistribute (e.g. Tanzi, 1995; Blank and Freeman, 1994).[51] An opposing view contends that social policies respond in ways that minimise the adverse consequences of globalisation for vulnerable workers (e.g. Rodrik 1998).[52]

The evidence on the effect of globalisation on inequality is inconclusive. On the one hand, heightened import competition and increased offshoring had little (if any) effect on aggregate employment; on the other hand, it reduced the demand for low-skilled relative to high-skilled workers, thereby increasing wage dispersion. However, it is difficult to disentangle the effects of globalisation from other factors, such as structural reforms and technological change. The immigration literature shows negligible impact of increased immigration on domestic workers, but rather a big downward impact on foreign-born workers who specialise in particular occupations dominated by immigrants. [53]

However, it is hard to explain the changes in inequality only on the basis of common factors. The lack of common developments in inequality in recent years suggests that country-specific features such as changes in LMIs more than common trends play a role in driving inequality over time (e.g. for the US, Levy and Temin, 2007; for Europe, Checchi and García-Peñalosa 2008).[54]

[51] Tanzi, V. (1995), 'Taxation in an Integrating World', Brookings Institution, Washington, DC.

Blank, R.M. and R.B. Freeman (1994), 'Evaluating the connection between social protection and economic flexibility', in R. M. Blank, ed., *'Social Protection versus Economic Flexibility', The University of Chicago Press.*

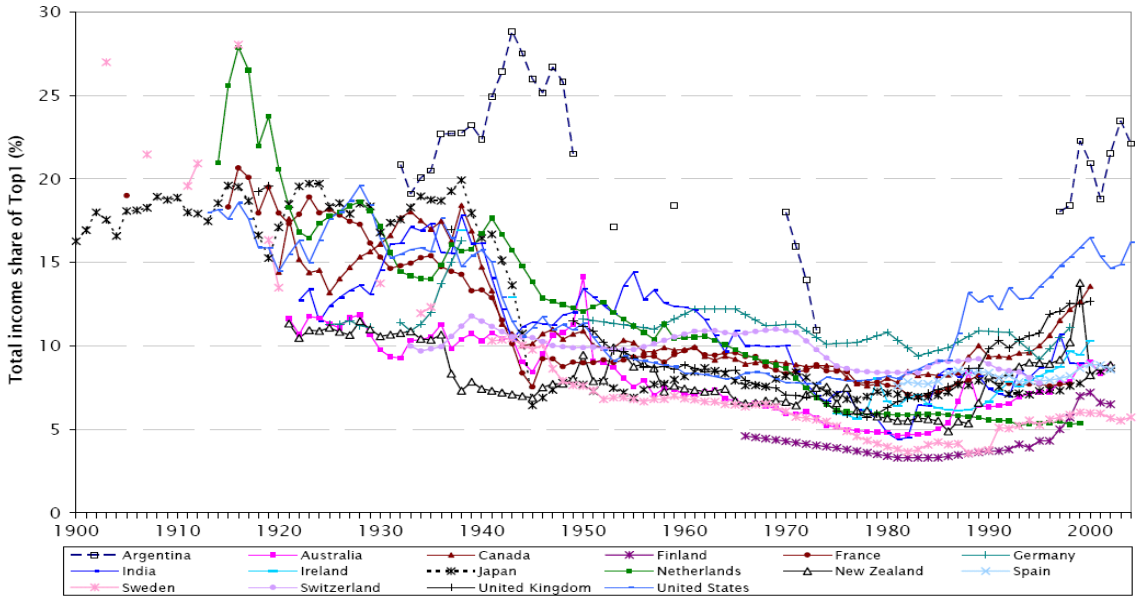
[52] Rodrik, D. (1998), 'Why do more open economies have bigger governments?', *Journal of Political Economy,* Vol. 106, pp. 997-1032.

[53] See 'The economic impact of migration' focus section of 'Labour Market and wage developments in 2007', *ECFIN* (2008).

[54] Levy, F. and P. Temin (2007), 'Inequality and institutions in 20th century America', *NBER Working Paper* No 13106.

Chechi, D. and C. García-Peñalosa *(2008),* 'Labour market institutions and income inequality', forthcoming in *Economic Policy.*

Graph 30: **Top income percentile for 16 countries over the twentieth century**



Source: Roine *et al.* (2007).

Levy and Temin (2007) argue that income distribution in the US before and after the 1980s was strongly shaped by LMIs. The early post-war years of the 20th century were dominated by unions, progressive taxes, and high minimum wages, whereas more recent years have seen a reversal in these dimensions and a widening of income inequality. Gordon and Dew-Becker (2008)[55] show that movements in the P50/P10 ratio in the US are consistent with decreased union density and lower real minimum wage during the period 1979-1986. Technological and trade development would have amplified the effect of less rigid LMIs. However, the contribution of more flexible LMIs to the increase in wage inequality declines when the skill structure of the labour force is taken into account.

Checchi and Garcia (2008) assess the links between LMIs, labour market outcomes (i.e. unemployment rate, wage dispersion and labour share) and income inequality.[56] The impact of LMIs on income inequality is a priori ambiguous, as stronger LMIs result in i) higher unemployment rates, which increase inequality; ii) less wage dispersion, which reduces inequality; and iii) higher labour share, with an ambiguous effect on inequality.

However, their econometric analysis suggests that, with the exception of the tax wedge, LMIs engender a trade-off between inequality and unemployment. Essentially this implies that the reduction in inequality brought about by a compressed wage distribution more than offsets the increase in inequality induced by the higher unemployment rates that tend to accompany stronger LMIs.[57] Interestingly, two clusters of institutions are identified: *wage-setting* and *employment security* institutions. *Wage-setting* institutions (stronger in the Nordic countries)

One could argue that institutional changes, most notably changes in LMIs, are a response to globalisation. However, Levy and Temin (2007) strongly dispute this for the US and claim that globalisation clearly does not determine institutions.

[55] Dew-Becker, I. and R.J. Gordon (2008), 'Controversies about the Rise of American Inequality: A Survey', *NBER Working Papers* 13982, National Bureau of Economic Research, Inc.

[56] The following LMIs are considered: EPL, the tax wedge, the minimum wage, the unemployment benefit, union density and coverage and the degree of centralisation/coordination of wage bargaining.

[57] Burniaux *et al.* (2006) find that stronger unions are associated with lower income inequality, especially at the lower end of the income distribution. See Burniaux, J.M., F. Padrini and N. Brandt (2006) 'Labour market performance, income inequality and poverty in OECD countries', *OECD Working Paper*, No 500.

seem to be more effective at reducing inequality than *employment security* institutions (stronger in continental Europe), the reason being that the former have a weaker negative effect on unemployment than the latter. Anglo-Saxon countries exhibit the weakest institutional set-up of any kind and the highest levels of income inequality.

Few researchers have analysed the interactions between monetary integration and income inequality (e.g. Bertola, 2007).[58] Within a monetary union, labour market features become even more crucial in shaping wage and unemployment developments, and thus income inequality. If nominal wages are rigid, foregoing devaluations may require sharper activity slowdowns and unemployment increases in order to restore competitiveness. Monetary integration requires enhanced wage and employment flexibility in response to sectoral or regional shocks. It also requires well-developed financial markets to allow households to hedge more easily against risks related to cyclical fluctuations in income.

Finally, monetary integration has an impact on the ability of governments to redistribute. On the one hand, new sources of risk increase the appeal of policies meant to buffer the welfare implications of uninsurable risk, and may explain why more open countries' governments are more deeply involved in economic and social issues. On the other hand, international integration affects the viability of national redistribution, as it is more difficult for these policies to shape individual choices differently from what would be implied by market mechanisms. Depending on whether demand or supply influences dominate, integration may in practice increase or decrease the intensity of redistribution.

With a number of caveats, notably the comparability of the datasets, the evidence suggests that global trends, such as skill-biased technological progress, may have played a role in driving inequality over time. However, country-specific patterns in wage inequality have tended to prevail in recent years, making an explanation based on common shocks implausible. Indeed, the evidence suggests that LMIs may explain most of the change in wage inequality over time across countries.

Determinants of top income shares

The empirical evidence suggests that economic growth disproportionately benefits the top percentile (e.g. Roine *et al.,* 2007[59]). Similarly, inequality at the top of the income scale rises as financial development proceeds, particularly at the early stages of economic development (i.e. emerging economies). Openness to trade has no clear distributional impact. If anything, openness reduces top income shares. Tax progressivity significantly reduces top income shares, whereas the size of government spending has no clear impact on the rich, as it seems to have been neutral for the top but negative for the next nine percentiles. It is significantly positive for the nine lowest deciles.

Gordon and Dew-Becker (2008) find evidence for the US that skill-biased technical change is a major determinant of labour incomes at the upper part of income distribution, together with the fact that jobs at the top cannot be outsourced. Arbitrary managerial power also lies behind some of the outsized gains in top executives pay, along with stock options, which have created an automatic spillover from the stock market gains of the 1990s directly into executives' remuneration.

3. The labour income share: patterns and determinants

Labour income share patterns

There is no common trend across euro-area countries in the development of the labour share (Graph 31).[60] Sharp declines in labour shares are

[58] Bertola, G. (2007) 'Economic integration, growth, distribution: does the euro make a difference?', *mimeo,* 4th annual DG ECFIN research conference.

[59] Roine, J., J. Vlachos and D. Waldenström, (2007), 'What Determines Top Income Shares? Evidence from the Twentieth Century', *Research Papers in Economics* 2007:17, *Stockholm University*, Department of Economics.

[60] The labour share is defined as the ratio between average wages and average labour productivity. The labour share is computed by attributing to the self-employed the compensation of the average employee of their own activity branch, then adding across all sectors in the economy.

displayed in Austria, Finland and Ireland. Moderate (though persistent) reductions are observed in France and Italy, whereas Germany and Spain have registered mild downward movements. In the Netherlands and Luxembourg, labour shares declined until the mid-1980s and broadly stabilised afterwards. The opposite applies to Belgium, Greece and Portugal, where labour shares increased until the mid-1980s, thereafter stabilising or declining. Outside EMU, labour share swings around a stable long-run value are found in Denmark and the UK, while a downward trend is observed for Sweden.

Labour income share: the role of compositional effects

Movements in the aggregate labour share conceal important sectoral developments. Overall changes in the labour share can be decomposed into changes in the sectoral composition of the economy, in the composition of employment (i.e. as employees or self-employed), and in the share of employees' remuneration in value added. The latter provides an indication of episodes of wage moderation or acceleration.

Graph 32 depicts a shift-share decomposition of the labour share using sectoral data from the EU KLEMS database covering the period 1970-2004.[61] The analysis is performed for three sub-periods, namely 1970-1985, 1986-1995 and 1996-2004. In spite of the complexity and disparity of labour share movements across countries, some common patterns can be identified: i) Over the whole period 1970-2004, sectoral and employment composition effects have generally contributed to a reduction in the aggregate labour share; and ii) during the sub-periods 1970-1985 and 1996-2004 changes in the share of employees' remuneration in value added within each sector account for a large proportion of the changes in the aggregate labour share. Whether this latter effect has contributed to a downward rather than an upward movement in the aggregate labour share depends on the country.

This analysis illustrates that it is generally incorrect to interpret movements in the labour share as exclusively stemming from the share of employees' remuneration in value added. Declining labour shares do not necessarily reflect episodes of wage moderation. As illustrated by Graph 32, part of the decline in the labour share in many countries is due to compositional effects arising from sectoral changes or from changes in the structure of employment, with an increasing weight of sectors with lower labour shares together with a widespread reduction in the proportion of self-employment in total employment.[62] Hence, since the sources of declining labour shares, where they occurred, are partly structural, wage-setting policies alone will not be sufficient to reverse the downward trend observed in some countries.

A theoretical framework to account for labour share movements in the medium run

Early models tried to explain changes in the wage share in terms of underlying changes in relative factor prices. These models proved useful to account for labour share movements in the 1970s (box 5). An increase in relative wages starting in the 1970s led initially to an increase in the labour share but did not have much effect on employment. As firms started substituting away from labour, the labour share started to fall, and unemployment to rise. Even so, it is argued that the decrease in the labour share since the mid-1980s has not been associated with a consistent increase in employment and it seems unlikely that this development can be explained by long lags or by the costs of adjusting factor proportions.

[61] For details, see box 'Long-term trends in the labour share' in DG ECFIN (2008) 'Labour market and wage developments in 2007'; 24 sectors grouped into 9 broadly defined industries are included: 'Agriculture', 'Mining and quarrying', 'Manufacturing', 'Electricity, gas and water supply', 'Construction', 'Wholesale and retail trade', 'Hotels and restaurants', 'Transport and storage and communication', 'Finance, insurance, real estate and business services'.

[62] A widespread reduction in the share of self-employed will translate into a lower aggregate labour share, as it implies that a lower level of compensation per employee is attributed to a given number of employed.

Box 5: The wage share and factor prices

The share of labour income flowing to wages is a function of the quantity and prices of the factors of production. If factors are paid according to their marginal productivity, the long-run distribution of total output hinges on the degree to which one input can be substituted with another to equalise marginal gains (i.e. on the elasticity of substitution). For instance, if capital and labour are close substitutes, an increase in the relative price of labour implies a more than proportional fall in employment and a fall in the wage share.

If the elasticity of substitution equals 1 (i.e. a Cobb-Douglas production function), any increase in the supply of labour (relative to capital) would be accompanied by a proportionate change in its relative price, leaving factor shares unchanged (i.e. constant over time).

On the other hand, assuming an elasticity of substitution between capital and labour other than 1 explains medium-run movements in factor shares in response to changes in relative factor prices and labour-augmenting technical progress. In fact, a constant elasticity of substitution (CES) production function combined with the assumption of labour-augmenting technical progress can explain movements in factor shares jointly with their long-run stability. With a CES production function, the labour share will decrease (increase) in the capital-output ratio if the elasticity of substitution of capital and labour is above (below) 1.

Thus, the labour share depends on the capital-labour ratio (i.e. on how capital-intensive production is), with a sign that depends on the elasticity of substitution between capital and labour. Technological and institutional variables shift the relationship between the wage share and the capital-labour ratio (Bentolila and Saint-Paul, 2003).*

(*) Bentolila, S. and G. Saint-Paul (2003), 'Explaining movements in the labor share', Contributions to Macroeconomics, Vol. 3(1), pp. 1103-1103.

A second set of contributions (e.g. Blanchard and Giavazzi, 2003)[63] has analysed variations in the labour share in rent-sharing models: product market imperfections generate rents that are split between firms and unions. Seen in this light, downward movements in the labour share derive from a rise in rents accruing to firms owing to rising imperfection in the goods markets, which raises the price level and eventually reduces real wages, or to unions' weaker bargaining power. This incorporates the effect on the labour share brought about by product market regulation, which sets the entry costs and the degree of competition between firms, and by labour market regulations, which influence the unions' bargaining power.

In Blanchard and Giavazzi (2003), labour market deregulation is held responsible for the decline in the labour share in continental Europe. However, this decline is seen as temporary; in the long-run enhanced product market deregulation should spur employment and the labour share should recover.

In much the same way as in the literature on the determinants of income inequality, a large number of empirical studies have sought to link movements in the labour share to SBTC and globalisation. Ellis and Smith (2007) claim that, by increasing the rate of obsolescence of capital goods, ongoing technological progress has put firms in a stronger bargaining position relative to a labour force that now faces more frequent job losses on average. This effect is stronger where labour market institutions are more rigid.[64]

There are several reasons why globalisation may adversely impact on the labour share (e.g. Rodrik, 1997,[65] Harrison, 2002[66]). As the economy becomes more open to trade, capital-rich countries specialise in the production of capital-intensive goods and import labour-intensive goods. Accordingly, in developed countries the returns to labour and the labour share will decline, especially for the relatively

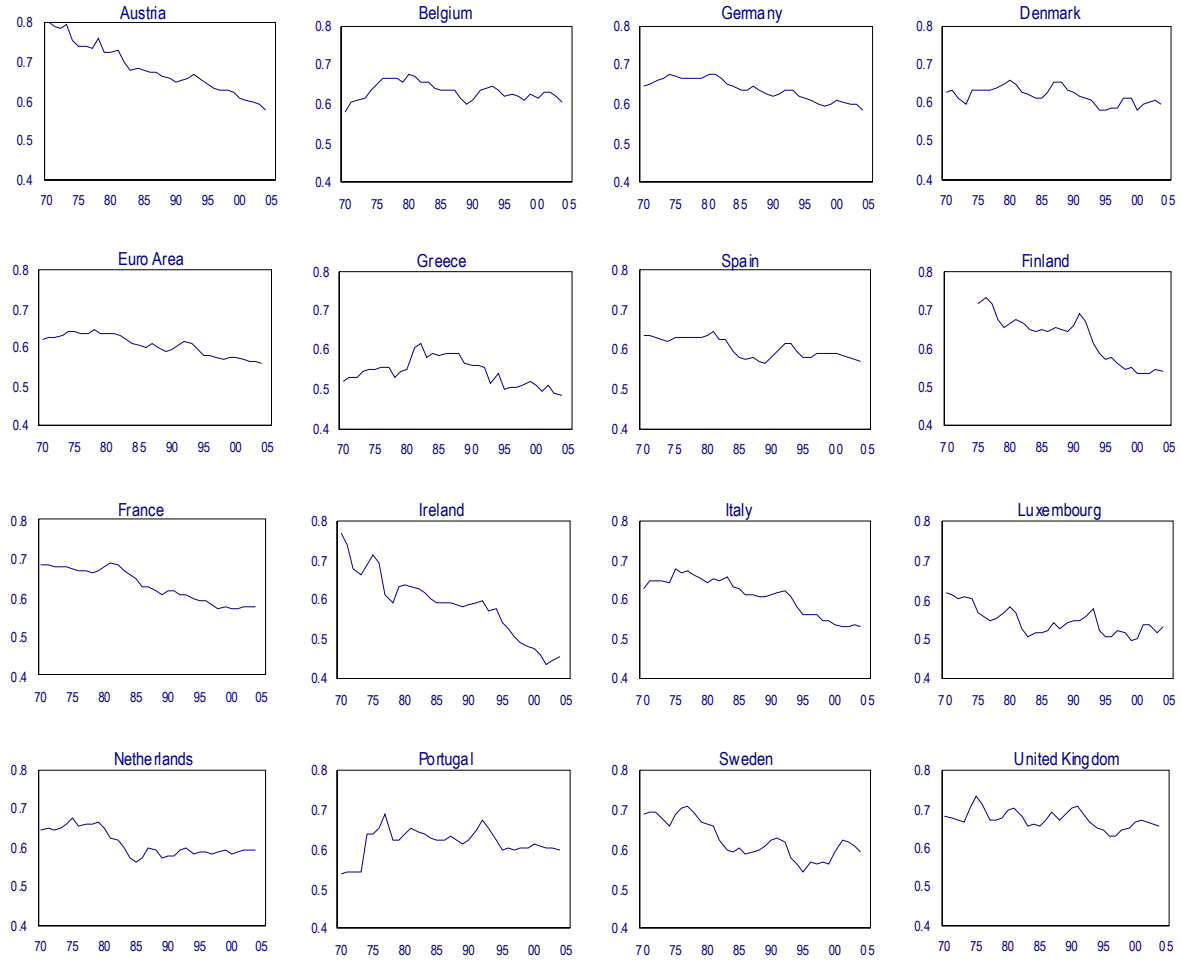
[63] Blanchard, O. and F. Giavazzi, (2003) 'Macroeconomic effects of regulation and deregulation in goods and labour markets', *The quarterly Journal of Economics,* Vol. 118(3), pp. 879-907.

[64] Ellis, L. and K. Smith, (2007), 'The global upward trend in the profit share', *BIS Working Papers 231.*

[65] Rodrik, D. (1997), 'Has Globalisation gone too far?', *Institute for International Economics.*

[66] Harrison, A.E. (2002), 'Has globalisation eroded labor's share? Some cross-country evidence', *mimeo.*

Graph 31: **Labour share, EU15 Member States**
EU KLEMS, 1970-2004



Source: Commission services' calculations on the basis of EU KLEMS data.

scarce unskilled labour.[67] Globalisation also makes capital more mobile, putting pressure on labour, the less mobile factor. Finally, some have argued that globalisation pressures might have pushed industrial countries to adopt labour-saving technologies, further squeezing the labour share. The European Commission (2007)[68] and the IMF (2007)[69] have shown that globalisation may have reduced the share of income accruing to labour in advanced economies, but its effect is small. Indeed, the largest contribution to the fall in the aggregate labour share derives from the SBTC. The IMF analysis also finds that countries that have enacted reforms to lower the cost of labour to business and improve labour market flexibility have generally experienced a smaller decline in the labour share.

All in all, the labour share may be influenced by both demand and supply factors. The literature briefly reviewed in this focus section suggests that factors related to production technology are potentially important determinants of changes in the labour share. However, more competitive markets or changes in the supply of specific skills may also be a source of labour share movements.

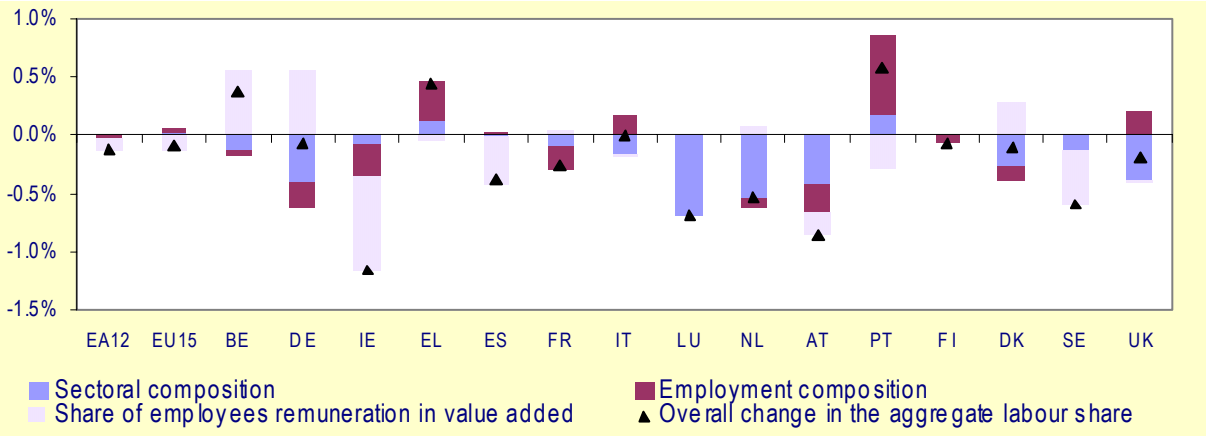
[67] In terms of welfare, however, workers in advanced economies could still be better off if the positive effects from enhanced trade and productivity on the economy's income (the size of the total 'pie') are larger than the negative effect on the share of this income that accrues to labour.

[68] *European Commission* (2007), 'The Labour Income Share in the European Union', *Employment in Europe, 2007*.

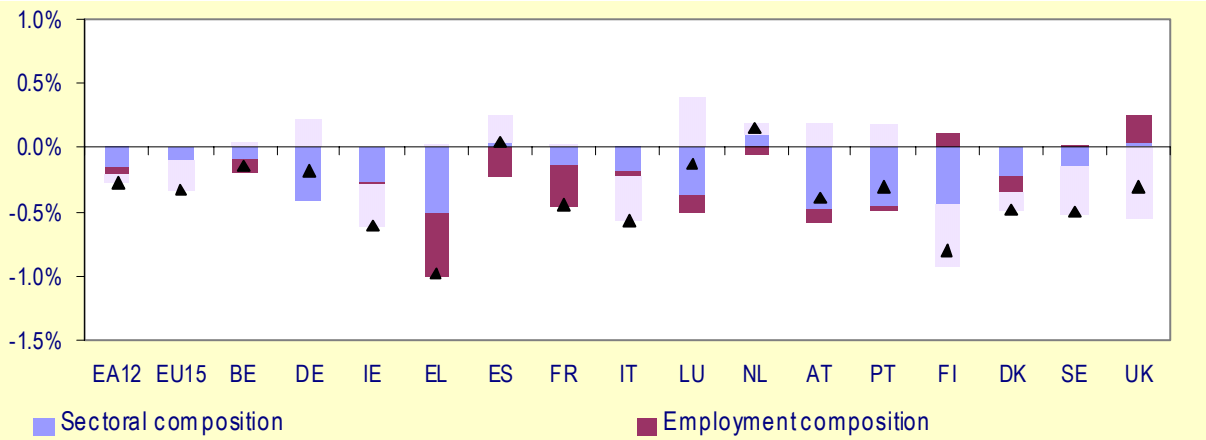
[69] *IMF* (2007), 'The Globalization of Labor', *World Economic Outlook*., April 2007.

Graph 32: **Sources of changes (AVG) in the labour share (EU15), non-market services excluded**

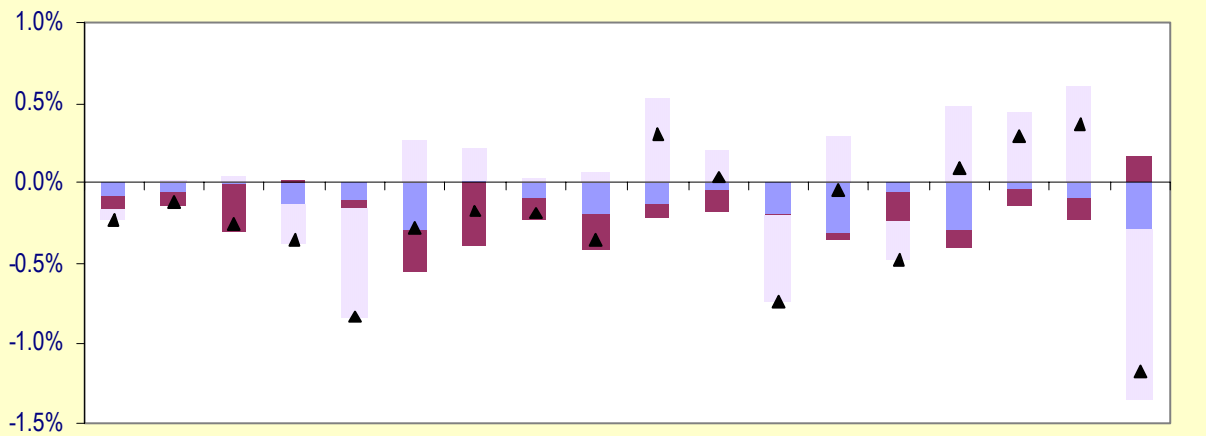
1970-1985



1986-1995



1996-2004



Source: Commission services' on the basis of EU KLEMS data.

4. The relationship between income inequality, wage inequality and the labour income share

Checchi and Garcia-Peñalosa (2008) present a unifying framework to analyse developments in income inequality and its relationship with wage dispersion and the labour share. Income inequality is measured by the Gini index computed across four groups of population, namely unemployed, unskilled, skilled workers and skilled people earning both income from labour and from capital. Inequality depends on population proportions, the replacement rate, wage dispersion and the labour share. A higher rate of unemployment will raise income inequality, as the fraction of individuals with low incomes will increase. A more dispersed wage distribution raises the Gini coefficient, as it increases inequality between different groups of employed individuals (e.g. skilled and unskilled). More ambiguous is the effect of the wage share. On the one hand, a higher labour share implies lower inequality between capital and non-capital owners. On the other hand, a higher labour share increases the income differential between employed and unemployed individuals, raising inequality within the group of non-capital owners.

However, the evidence provided suggests that the effect of inequality between capital owners and non-capital owners is greater than the inequality within groups (employed versus unemployed workers). Thus, a lower labour share raises income inequality.

One question is how developments in the unemployment rate, the wage differential and the labour share can account for the income inequality patterns observed over the past decades in euro-area countries. During the last decade, euro-area countries have experienced a gradual reduction in their unemployment rates, which may have partially offset the increase in income inequality caused by a falling labour share (in almost all euro-area countries) and increasing wage dispersion (in some of them). The fact that in some countries the reduction in the labour share has been pronounced while the increase in income inequality measured in terms of disposable income has been much less so further suggests that redistribution through taxes and transfers has had a strong equalising effect.

5. Conclusion

This focus section has presented evidence of income inequality and labour share patterns over time. The wage moderation of the last decade has been accompanied by a declining labour share, giving rise to distributional concerns. This pattern does not stem exclusively from wage moderation, but also from changes in the sectoral composition of the economy. Accordingly, wage policies alone will not be sufficient to reverse the trend in labour shares observed in some euro-area countries.

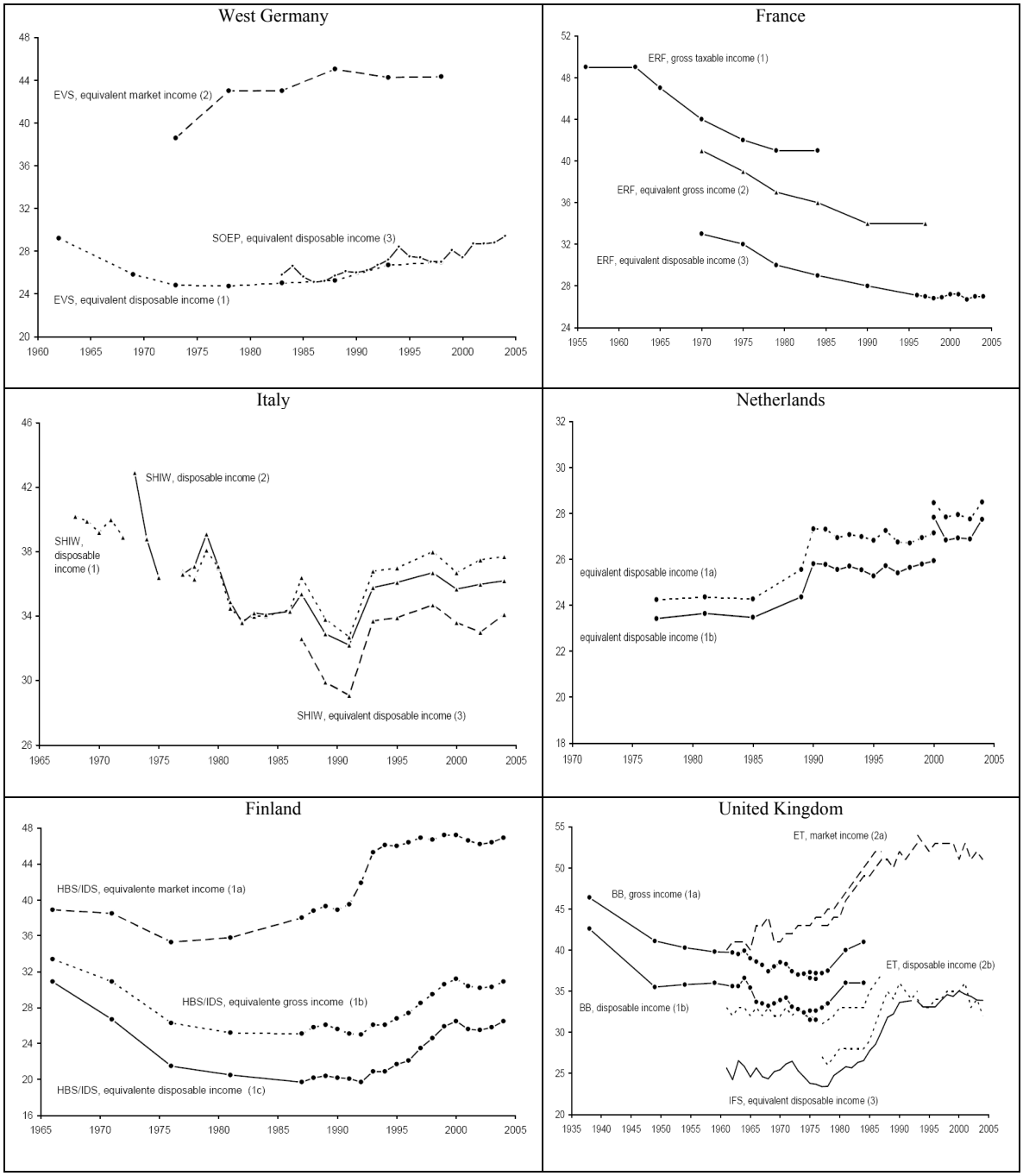
Furthermore, it is important to bear in mind that the labour share is only a partial indicator of income inequality. Any exhaustive appraisal of inequality trends must take also account of changes in the distribution of wages and personal disposable income, which includes other sources of income besides earnings. For instance, persistent labour underutilisation increases inequality as it raises the proportion of people with low incomes.

As regards the effect of skill-biased technological change on income inequality, it is often argued that one way of sharing the premium on skilled labour as evenly as possible is to raise the level of education. However, an increase in the skilled labour supply will endogenously lower the skill premium, inducing substitution between skilled and unskilled, thus depressing the labour share and leading to offsetting effects on income inequality.

Beyond increases in spending on education and training, the quality of expenditure is crucial. The comparison of Gini Indices on market and disposable incomes reveals that public redistribution through taxes and transfers can have a strong equalising effect in mature economies.

Regarding the role of labour market institutions as a source of equalisation, several insights are worth mentioning. On the one hand, with the exception of the tax wedge, which shows a positive correlation with the Gini coefficient, LMIs engender a trade-off between inequality

Graph 33: **Gini index in selected countries**



Germany: (1) equivalent disposable income of households; weighted by person; OECD equivalence scale; only German population. (2) equivalent market income of households; weighted by person; OECD equivalence scale; only German population. (3) equivalent disposable income of households, included imputed rent; weighted by person; modified OECD equivalence scale. France: (1) excluding non-taxable incomes; weighted by household. (2) excluding property income and some social benefits; weighted by household; OECD modified equivalence scale; only households with non-negative taxable income and positive disposable income. (3) excluding property income and some social benefits; weighted by person; OECD modified equivalence scale; only persons in households with nonnegative taxable income and positive disposable income. Italy: (1) excluding imputed rents, interest and dividends; weighted by household; figures for 1968-1972 estimated from grouped data. (2) excluding interest and dividends; weighted by household; figures for 1973-1975. (3) weighted by person; square root equivalence scale. United Kingdom (1a) gross income of tax units; (1b) disposable income of tax units; in both cases, weighted by tax unit; the first series is for incomes net of amounts spent on mortgage interest (old basis), while the second is for incomes gross of those amounts (new basis). (2a) market income; (2b) disposable income; in both cases, weighted by household; the first series refers to unadjusted incomes, the second series to equivalent income. ***Source:*** Brandolini and Smeeding (2007).

and unemployment. This implies that the redistributive role of LMIs other than the tax wedge, namely, EPL, the minimum wage, unemployment benefit, union density and coverage and the degree of centralisation/coordination of wage bargaining, is to increase the wage share at the bottom end of the distribution. It also means that the reduction in inequality brought about by a more compressed wage distribution more than offsets the increase in inequality brought on by the higher unemployment rates, usually associated with stronger LMIs.

A caveat is, however, in order. Even if the predominant effect of LMIs is to reduce the wage dispersion, this does not need to translate into reduced income inequality from the household perspective. For instance, minimum wages may be ineffective in narrowing income distribution when none of the members of poor families is employed.

In any case, changes in the design of LMIs may improve the trade-off between inequality and unemployment and be welfare-enhancing. Policies that increase participation and reduce unemployment may contribute to reducing income inequality. Similarly, coordinated wage-setting institutions are more effective at reducing inequality than employment protection institutions, as they tend to have a weaker negative effect on unemployment.

III. Recent DG ECFIN publications

1. Policy documents

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Convergence Report 2008
http://ec.europa.eu/economy_finance/publications/publication_summary12576_en.htm

EUROPEAN ECONOMY. July 2008
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http://ec.europa.eu/economy_finance/publications/publication_summary12755_en.htm

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Business and Consumer Surveys (harmonised surveys for different sectors of the economies in the European Union (EU) and the applicant countries)
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http://ec.europa.eu/economy_finance/indicators/business_consumer_surveys/2008/bci_2008_09_en.pdf

Key indicators for the euro area (presents the most relevant economic statistics concerning the euro area)
http://ec.europa.eu/economy_finance/publications/publication12486_en.pdf

Monthly and quarterly notes on the euro-denominated bond markets (looks at the volumes of debt issued, the maturity structures, and the conditions in the market)
http://ec.europa.eu/economy_finance/publications/publ_list2608.htm

Price and Cost Competitiveness
http://ec.europa.eu/economy_finance/db_indicators/db_indicators8642_en.htm

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Recent economic developments and short-term prospects	*M. Palazuelos Martínez*
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Focus: Income inequality and wage share: Patterns and determinants.	*A. Arpaia and E. Perez-Ruiz*
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