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EUROPEAN
COMMISSION

DIRECTORATE-GENERAL FOR
ECONOMIC AND FINANCIAL AFFAIRS

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In spring 2011, considerable challenges still lie ahead for the euro area economy, which require a comprehensive policy response. Especially in the light of the sovereign debt problems in some euro-area Member States, the most significant challenges are to ensure fiscal sustainability, secure lasting growth, tackle macroeconomic imbalances, repair and strengthen the financial system, and ensure effective support for the most vulnerable Member States.

The European Council of 24/25 March 2011 has delivered a comprehensive package of crisis responses that address all of the aforementioned challenges. Firstly, the Council has agreed to create a permanent crisis resolution mechanism in the form of the European Stability Mechanism (ESM). This will be put into operation in July 2013 and will provide conditional financial assistance to vulnerable euro-area Member States, and commands a total effective lending capacity of €500bn. The ESM will replace the temporary lending facilities of the European Financial Stability Mechanism (ESFM) and the European Financial Stabilisation Facility (EFSF), which will be in operation until June 2013. The March Council further decided to raise the effective lending capacity of the EFSF to €440bn, bringing the EFSF's and EFSM's combined effective lending capacity to €500bn.

Secondly, at the March European Council all euro-area Member States and six of the ten non-euro Member States adopted the Euro Plus Pact, which reinforces their commitment to foster growth and convergence within the area. Its principal aims are to strengthen the economic pillar of EMU by fostering competitiveness and employment, contribute further to the sustainability of public finances and reinforce financial stability. It also aims at generating a new quality of economic policy coordination in the euro area, as the Pact goes beyond the structural reform measures already envisaged to date and focuses on policy areas for which responsibility primarily lies with the Member States.

The EPP therefore complements and strengthens the implementation of the various strands of economic policy coordination underway in the recently-initiated EU Semester. In this context, the March Council meeting endorsed the priorities for fiscal consolidation and structural reform set out in the Annual Growth Survey which initiates the European Semester. All Member States will translate these priorities into concrete measures to be included in their Stability or Convergence Programmes and National Reform Programmes. Finally, the March Council also welcomed the position reached in the Council on the six legislative proposals on economic governance, and called for work to be taken forward with a view to their adoption by the Council and the European Parliament in June 2011.

The first focus section in this edition of the Quarterly Report aims at placing the comprehensive policy overhaul adopted by the March European Council in the context of the EU's entire crisis response to date, and concludes that considerable headway has now been made in making the euro area more resilient and better-placed to seize future growth opportunities. Efforts to deliver an adequate crisis management response are being complemented by an overhaul of economic and financial governance in the EU, which will go a long way towards setting the euro area back on course towards stability, growth and employment.

Turning to the economic situation, the economic recovery in the euro area is well underway, but we have not yet reached pre-crisis levels of output and it is likely that Member States' growth potential has suffered lasting damage. The Commission's March 2011 interim forecast presents our latest assessment of the euro area outlook, which is for marginally stronger annual GDP growth in the euro area (1.6%) this year than expected in autumn. The interim forecast acknowledged the considerable uncertainties surrounding this central scenario. Since the forecast's publication on 1 March, the previously balanced risk assessment has now tilted towards the downside, in view of renewed commodity price volatility and political events, notably the political unrest in the Middle East and Northern Africa, and through the devastating effects of the Japanese earthquake and tsunami.

Downside risks also exist for medium-term recovery prospects. This edition of the Quarterly Report features as a special topic an investigation into business and consumer survey data. Survey data suggest that the recovery remains on track but is characterised by unusually sluggish and rather unbalanced

growth. Furthermore, surveys point to a number of potential features of the recovery in the medium-term. These include lingering worries among consumers, particularly concerning their own financial situation, unemployment risks and general prospects for the economy. On the supply side, industrial surveys point to low investment expectations and the possibility that the crisis may have brought about losses in productive capacity.

The March interim forecast further noted an uptick in headline HICP inflation on the back of a surge in energy and commodity prices in the last few months. The inflation forecast for 2011 was thus revised up to 2.2% in the euro area. Nevertheless, the remaining economic slack, subdued wage growth and overall well-anchored inflation expectations should contribute to keep underlying inflationary pressures in check. Our second focus section in this edition of the Quarterly is devoted to exploring recent inflation trends in the euro area, and confirms the importance of cyclical, but also of structural and geopolitical factors in the recent upward drift. It finds that the acceleration of inflation is mainly driven by non-core items (mainly oil, but also cereals and precious metals), and that underlying (domestic) price pressures still remain subdued, not least due to the large amount of spare capacity and well-anchored expectations.

A further special topic in this edition deals with the likely growth impact from further banking recapitalisations under a move to the Basel III regulations on capital adequacy. The chapter

concludes that, on balance, higher capital requirements may entail slightly lower GDP levels (-0.15 pp from baseline) at the end of the 8-year modelling horizon because of higher lending costs; however, these would be associated with a significant reduction in GDP volatility and would ultimately lead to a more resilient financial system as a whole. Furthermore, the GDP losses in normal times, due to capital regulation must be seen in relation to permanent GDP losses from financial crises. Estimates taking this into account find substantial net social benefits of higher capital requirements.

I would like to end on a wholeheartedly positive note by welcoming Estonia, which joined the euro area on 1 January 2011, as the newest of now 17 participating Member States. Being a prime example of a particularly dynamic converging economy, it has overcome some associated challenges through the timely implementation of prudent and far-sighted policies, as a further special topic in this edition explains. In several respects, Estonia points the way for economic policy reform in vulnerable euro-area countries. Sound public finances, structural reforms and financial resilience bolster the adjustment capacity of the economy and boost employment.

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DIRECTOR-GENERAL

Focus

I. The EU's comprehensive policy response to the crisis

This Focus section aims to provide an overview of recent milestones in strengthening economic governance, financial stability and economic growth potential in the euro area. The exceptionally challenging circumstances in the euro area since the onset of the crisis have necessitated swift yet profound action by Member States in cooperation with the Commission, supported by the ECB's policy stance, in order to regain financial stability and deal with a very deep recession. The policy measures adopted since the crisis can be broadly divided into crisis management measures and permanent systemic responses.

Additional important policy decisions to address the euro area's ongoing challenges have been taken by the European Council at its meeting of 24/25 March 2011. The Council has notably introduced further systemic innovations that represent an overhaul of the legislative and operational framework governing EU economic policy coordination. Specifically, the Council has established a permanent crisis resolution mechanism and strengthened the political commitment within the euro area to spur economic adjustment and support growth and convergence. This Focus concludes that EU's comprehensive policy response will go a long way towards setting the euro area back on course towards stability, growth and employment.

I.1. Introduction

The economic and financial crisis that struck the euro area in 2008 and 2009 has had wide-ranging and long-lasting repercussions, which notably manifested themselves in 2010 as a number of Member States experienced rising yields and CDS spreads amidst sizeable rollover needs. The scale and scope of the euro-area's challenges remains considerable, primarily in terms of ensuring public debt sustainability, fostering growth, providing financial assistance to Member States in need, and strengthening the framework for governance.

While measures to tackle these challenges were already been put in place over the course of the crisis, additional important policy responses have been taken by the European Council at its meeting of 24/25 March 2011. These cover both the immediate crisis response as well as permanent systemic measures, and the Council notably agreed two major improvements to economic and financial policy coordination in the euro area: A permanent crisis resolution mechanism has now been agreed, and euro-area Member States are now bound more closely together by a so-called Euro Plus Pact, which solidifies their commitment to foster competitiveness, growth and convergence.

The focus section at hand provides an overview of the comprehensive policy package adopted by the March European Council and sets it in the context of the broad and ambitious policy response to the

crisis elaborated in the euro area and the EU since the beginning of the crisis.

I.2. Immediate crisis responses accompanied by systemic overhaul

Policy action designed to mitigate the adverse effects of the crisis and reducing future risks has spanned virtually all realms of economic and financial policy in the euro area. It has also involved a combination of the immediate crisis management response, aimed at responding to pressing needs in specific countries or sectors, and more systemic measures aimed at improving the euro-area's governance system.

The crisis management measures are the result of a search for a comprehensive approach to the immediate adverse effects and threats posed by the crisis. The aim of safeguarding the integrity of the euro and all economies of the euro area in the face of unprecedented market turmoil lies at the heart of this strategy, which comprises action on three fronts:

- In the early stages of the crisis, action has been taken to stabilize the financial system and its institutions through various measures, including the granting of public guarantees, capital injections and liquidity support to financial institutions via central banks.

- Secondly, subsequent to the expiry of national stimulus measures taken in accordance with the European Economic Recovery Programme (EERP) of December 2008, sizeable budgetary

consolidation is necessary to bring public finances in the euro area back on a sustainable path. The consolidation strategy agreed at the EU level is differentiated in that the more vulnerable Member States have begun to consolidate sooner. The fiscal stance is set to turn restrictive in 2011 in all euro-area Member States. However, fiscal efforts vary substantially in the short to medium term, as deadlines for correction and required structural efforts under the Excessive Deficit Procedures (EDP) have been differentiated across Member States, taking into account country-specific circumstances. Once an excessive deficit has been corrected, Member States are required to continue their consolidation to bring their budgetary positions in line with the country-specific medium-term objectives, which require either a structural position close to balance or a surplus.

Table I.1:   **Overview of EU economic policy measures since the crisis**

Crisis management measures

Financial Rescue
Emergency public interventions

Macroeconomic stabilisation
European Economic Recovery Plan

Differentiated fiscal consolidation
Excessive Deficit Procedure

Support for vulnerable countries
Programmes for Greece and Ireland,
EFSF and EFSM (combined lending capacity €500bn)

Systemic measures

Strengthened surveillance
6 legislative proposals on imbalances, SGP reform, national fiscal frameworks, sanctions

European Semester
Integrated annual surveillance cycle
Ex-ante guidance of national economic policies

Permanent crisis resolution mechanism
European Stability Mechanism

Europe 2020
Comprehensive strategy for growth, employment and social cohesion

Euro Plus Pact
Strengthen economic pillar of EMU and improve policy coordination and competitiveness

Financial Repair
Restructuring and stress testing

Strengthening Financial Regulation
Regulating hedge funds and rating agencies
Prudential regulation changes; crisis mechanism for banks

European System of Financial Supervisors
European Systemic Risk Board
European Supervisory Authorities

Source: Commission services.

- Thirdly, supporting vulnerable countries is essential to ensure stability within the euro area. Adjustment programmes for Greece and Ireland have therefore been developed over the course of 2010 between the respective national authorities and the European Commission in partnership with the IMF and the ECB. The programmes notably feature detailed strategies for consolidation and rebalancing in troubled economies, as well as medium-term loans via the European Financial Stability Facility (EFSF) and European Financial Stabilisation Mechanism (EFSM) to prevent sovereign funding needs in these economies being obstructed by prohibitive market conditions. The Euro Area Summit of 11 March 2011 decided to grant an effective lending capacity of €440bn to the EFSF until its expiry in 2013[1] and to lower the interest rate applicable to the pooled loan from euro-area Member States to Greece by 100bps while extending its maturity to 7½ years on average.

Systemic Response

Looking beyond the more short-term initiatives, a more fundamental and permanent overhaul of economic policy coordination at the EU level has proven necessary in light of the crisis. The principal elements of this systemic response agreed at the EU level are a strengthened economic surveillance framework (six new legislative proposals, the so-called 'governance package'), an integrated annual surveillance cycle ("European Semester"), a permanent crisis resolution tool (European Stability Mechanism, or 'ESM'), a Euro Plus Pact, and a European System of Financial Supervisors. In conjunction with the aforementioned crisis management measures these systemic responses constitute the EU's comprehensive approach to tackling the crisis.

The strengthened surveillance framework comprises six legislative proposals which were adopted by the Commission on 29 September 2010. [2] They aim at overhauling the EU economic policy framework by reinforcing the rules of the Stability and Growth Pact, strengthening national budgetary frameworks, preventing and correcting harmful macroeconomic imbalances, and establishing an effective enforcement arm for euro-area countries.

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[1] For more details on the EFSF please consult *http://www.efsf.europa.eu/*
[2] For a detailed overview of the September 2010 governance package see the editorial of the *Quarterly Report on the Euro Area*, Vol.9, No. 3 (2010).

The new surveillance framework is expected to be enacted in mid-2011, once agreement between the Commission, Council and Parliament has been reached.

The integrated annual surveillance cycle enshrined in the 'European Semester' will draw together all the elements of EU economic surveillance, including policies to ensure fiscal discipline, macroeconomic stability, and to foster growth. The processes under the SGP and the Europe 2020 European growth strategy will thereby be aligned in timing, while remaining legally separated. (^{3}) The aim of the European Semester is to provide *ex ante* policy guidance so as to strengthen policy synergies and avoid policy inconsistencies. The annual cycle begins with the Commission's publication of the Annual Growth Survey at the start of each year, which then feeds into Member States' Stability and Convergence Programmes and National Reform Programmes, which they submit in April. (^{4}) The Commission then issues assessments and proposes country-specific opinions and recommendations, which the Council adopts in June before national budgets are finalised, thereby having a much stronger impact on national policy-making than in the past.

Furthermore, in response to the lack of consistent and rigorous financial oversight in the EU prior to the crisis, the European System of Financial Supervisors was established in November 2010 in order to monitor macro-financial risks and strengthen financial oversight in the EU. (^{5}) The central task of the European Systemic Risk Board (ESRB) is to monitor and assess macro-financial systemic risk to mitigate the exposure of the system to systemic failure and enhancing the financial system's resilience to shocks. In this way the ESRB should contribute to preventing financial crises and limiting their negative impact on the internal market and the real economy, while the three European Supervisory Authorities

will ensure a more rigorous and timely oversight of individual financial market sections. This overhaul of the supervisory framework is complemented by improvements in the financial regulatory environment, including for banks, hedge funds and credit rating agencies, by the development of crisis resolution mechanisms for banks and by improvements in consumer protection. The revised Capital Requirement Directive further transposes capital requirements for banks under Basel III into EU legislation. It will entail a significant increase in the level of capital which banks and investment firms must hold to cover their risk-weighted assets. (^{6})

At the current juncture, a new round of stress tests is foreseen for mid-2011, which will help to address remaining weaknesses in the euro-area banking sector. The EU-wide stress test is a supervisory tool designed to assess the resilience of European banks to hypothetical external shocks. The stress test assesses what might happen to banks if external circumstances deteriorate markedly and helps to identify vulnerabilities and relevant remedial action, including strengthening capital levels where this is needed notably to meet the higher capital requirements under the Basel III regulations. Results are expected in June 2011.

As the 'governance package', the European Semester and the new supervisory architecture have already been presented or are already in operation, the remainder of this Focus will present the more recent elements of the EU's systemic crisis response, namely the creation of the permanent crisis resolution mechanism (ESM) and the Euro Plus Pact in greater depth.

I.3. *Towards a permanent ESM*

At its meeting on 24/25 March 2011, the European Council acted upon the need for a permanent crisis resolution mechanism by establishing the European Stability Mechanism (ESM). Financial assistance will be provided by mutual agreement, (^{7}) if and when euro-area Member States are experiencing or are threatened by severe financing problems, in order to safeguard the financial stability of the euro area as a whole. The ESM will take over the role of the European Financial Stability Facility (EFSF) and

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(^{3}) Europe 2020 is the EU's growth strategy for the coming decade with the aim of delivering high levels of employment, productivity and social cohesion. Concretely, the Union has set five ambitious objectives - on employment, innovation, education, social inclusion and climate/energy - to be reached by 2020. Each Member State will adopt its own national targets in each of these areas. Concrete actions at EU and national levels will underpin the strategy.

(^{4}) The January 2011 Annual Growth Survey is available at http://ec.europa.eu/europe2020/pdf/en_final.pdf

(^{5}) The ESFS comprises: the European Systemic Risk Board (ESRB); the three European Supervisory Authorities (European Banking Authority, European Insurance and Occupational Pensions Authority, European Securities and Markets Authority); the Joint Committee of the European Supervisory Authorities; and the competent or supervisory authorities in the Member States.

(^{6}) For an assessment of the economic impact of the Basle III capital requirement in the euro area see Section III.1. in this issue.

(^{7}) A decision taken by mutual agreement is a decision taken by unanimity of the Member States participating to the vote, i.e. abstentions do not prevent the decision from being adopted.

Table I.2:   **Main features of the EFSM, EFSF and ESM**

EFSM *European Financial Stabilisation Mechanism*	EFSF *European Financial Stability Facility*	ESM *European Stability Mechanism*
Lending capacity		
Lending capacity of €60 bn	Effective lending capacity raised to €440 bn	Effective lending capacity of €500 bn
joint and several guarantee by EU budget	guarantees and over-guarantees	paid-in capital + callable capital + guarantees
AAA rating	AAA rating	AAA rating
Instruments		
Loans	Loans + bond purchases on primary market (as an exception)	Loans + bond purchases on primary market (as an exception)
Strict policy conditionality under a macro-economic adjustment programme	Strict policy conditionality under a macro-economic adjustment programme	Strict policy conditionality under a macro-economic adjustment programme
EU Commission + IMF + ECB involvement	EU Commission + IMF + ECB involvement	EU Commission + IMF + ECB involvement
Pricing		
Euribor + 292.5 bps	Euribor + 247 bps + EFSF costs	Funding costs + 200bps +100bps for amounts outstanding after 3 years
Beneficiaries		
EU Member States	Euro-area Member States	Euro-area Member States
Duration		
New lending capacity expires on 30 June 2013	New lending capacity expires 30 June 2013	Permanent from 1 July 2013
Legal basis		
Council Decision based on Art. 122 of the TFEU	Temporary intergovernmental agreement	Treaty among euro-area MS to establish an intergovernmental organisation + Regulation based on amended Art. 136 of TFEU

Source: Commission services

the European Financial Stabilisation Mechanism (EFSM) in providing financial assistance to euro-area Member States after their expiry in June 2013.

The function of the ESM will be to mobilise funding and provide financial assistance under strict conditionality, whereby the beneficiary Member State will be required to put in place an appropriate form of private-sector involvement, according to the specific circumstances and in a manner fully consistent with IMF practices. [8] Support from the ESM will be conditional on the adoption of an appropriate macro-economic adjustment programme by the recipient country and will be based on a rigorous analysis of public debt sustainability, conducted by the Commission together with the IMF and in liaison with the ECB.

Structure and Instruments

The ESM will have a Board of Governors consisting of the Ministers of Finance of the euro-

area Member States (as voting members), with the European Commissioner for Economic and Financial Affairs and the President of the ECB as observers. The Board of Governors will be the highest decision-making body of the ESM and will take the following major decisions by mutual agreement:

- the granting of financial assistance,

- the terms and conditions of financial assistance,

- the lending capacity of the ESM,

- changes to the menu of instruments.

All other decisions by the Board of Governors will be taken by qualified majority, unless stated otherwise. Voting weights within the Board of Governors and the Board of Directors [9] will be proportional to the Member States' respective subscriptions to the capital of the ESM. A

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[8] In line with the IMF, debt is considered sustainable when a borrower is expected to be able to continue servicing its debts without an unrealistically large correction to its income and expenditure. This judgement determines the availability and the appropriate scale of financing.

[9] The Board of Directors will carry out specific tasks as delegated by the Board of Governors. Each euro-area Member state will appoint one Director and one alternate Director. In addition, the Commission and the ECB will each nominate an observer and an alternate to the Board of Directors.

qualified majority is defined as 80 percent of the votes. The Board of Governors will appoint a Managing Director responsible for the day-to-day management of the ESM. The Managing Director will chair the Board of Directors.

The ESM will aim to obtain and maintain the highest credit rating from the major credit rating agencies. In order to secure this, the ESM's total subscribed capital of €700bn is well in excess of the ESM's effective lending capacity of €500bn. €80bn of the total subscribed capital will be in the form of paid-in capital provided by the euro-area Member States, phased in from July 2013 in five equal annual instalments. In addition, the ESM will also include a combination of committed callable capital and guarantees from euro-area Member States, to a total amount of € 620 billion. During the transitory phase from 2013 to 2017, Member States commit to accelerate the provision of appropriate instruments, if needed, in order to maintain a minimum 15 % ratio between paid-in capital and the outstanding amount of ESM issuances. The contribution key of each Member State in the total subscribed capital of the ESM will be based on a slightly adjusted paid-in capital key of the ECB.

As long as the ESM has not been activated and provided that the effective lending capacity is not less than €500bn, the proceeds from the investment of the ESM paid-in capital will be returned to the Member States, after deductions for operational costs. Following the first activation of the ESM, the proceeds from the investment of ESM capital and financial assistance activity will be retained within the ESM.

The ESM will as a rule provide financial assistance through loans. The Board of Governors may review the instruments at the ESM's disposal and may decide to make changes to the menu of instruments.

Under its loan facility, called ESM stability support (ESS), the ESM can grant short-term or medium-term stability support to a euro-area Member State experiencing severe financing problems. Access to an ESS will require a macroeconomic adjustment programme with adequate policy conditionality commensurate with the severity of the underlying imbalances in the beneficiary Member State. The length of the programme and maturity of the loans will depend on the nature of the imbalances and the prospects of the beneficiary Member States regaining access to financial markets within the time that ESM resources are available. Adequate and proportionate private-sector involvement will be expected in cases where financial assistance under the ESM is provided to the beneficiary State. The nature and extent of this involvement will be determined on a case-by-case basis and will depend on the outcome of a debt sustainability analysis. If public debt is deemed sustainable, the main private investors will be encouraged to maintain their exposure, whereas for non-sustainable public debt trajectories the beneficiary Member State will be required to engage in active negotiations with its creditors.

In exceptional circumstances, the ESM may also intervene in debt primary markets through its Primary Market Support Facility so as to engage in the purchasing of bonds of a Member State experiencing severe financing problems. Such primary market interventions require the mutual agreement of the Board of Governors, and will be conducted on the basis of a macro-economic adjustment programme with strict conditionality. The underlying objective is to maximise the cost efficiency of the support programme. Conditions and modalities under which bond purchasing would be conducted will be specified in the terms and conditions of financial assistance.

Pricing

The Board of Governors will decide on the pricing structure for financial assistance to a beneficiary Member State. The ESM will be able to lend at a fixed or variable rate. The pricing of the ESM will be in line with IMF pricing principles and, while remaining above the funding costs of ESM, will include an adequate mark-up for risks. ESM loan rates will have to cover the funding costs of the ESM, supplemented by a charge of 200 bps applied on the entire loans, plus a surcharge of 100 bps for loan amounts outstanding after 3 years. For fixed rate loans with maturities above 3 years, the margin will be a weighted average of the charge of 200 bps for the first 3 years and 200 bps plus 100 bps for the following years.

Collective Action Clauses (CACs) will be included for all new euro-area government securities with maturity above one year from June 2013 onwards. The objective of such CACs will be to facilitate agreement between the sovereign and its private-sector creditors in the context of private sector involvement.

I.4. The Euro Plus Pact

On 24 and 25 March 2011 the European Council agreed to adopt the 'Euro Plus Pact' (EPP). Its principal goals are to strengthen the economic pillar of EMU, achieve a new quality of economic policy coordination in the euro area, and to improve competitiveness and facilitate convergence. The EPP focuses primarily on areas that fall under national competence and that are integral to competitiveness and the avoidance of harmful imbalances. Six non-euro area Member States have decided to join the Pact.

The EPP has the following four principal objectives at its core, and euro-area Member States undertake to take all necessary measures to pursue the following objectives:

- Foster competitiveness

- Foster employment

- Contribute further to the sustainability of public finances

- Reinforce financial stability

The EPP is fully embedded in the institutional set-up of the EU, including the European Semester, and adds a political impetus to the objectives of the Europe 2020 growth strategy and the steps taken to reinforce economic governance in EMU. The Pact makes it each participating Member State's responsibility to specify the concrete measures needed to reach the objectives of the Pact that are deemed relevant to the country. Progress towards the common objectives will be monitored by the Heads of State or Government on the basis of a series of indicators covering competitiveness, employment, fiscal sustainability and financial stability. Countries facing major challenges in any of these areas will be identified and will have to commit to addressing these challenges in a given timeframe. The Commission will assess these commitments in the context of its enhanced surveillance.

On substance, the objectives of the Euro Plus Pact are fully in line with those proposed by the Commission in the first Annual Growth Survey (AGS), which was published on 12 January 2011. Within the broad objectives of the Pact listed above, attention will be paid to the following possible measures, listed by objective:

Foster competitiveness

Progress will be assessed on the basis of wage and productivity developments and competitiveness adjustment needs. To assess whether wages are evolving in line with productivity, unit labour costs (ULC) will be monitored by comparing developments in other euro-area countries and in the main comparable trading partners, as large and sustained increases in ULCs may lead to the erosion of competitiveness. Action to raise competitiveness is required in all countries, but particular attention will be paid to those facing major challenges in this respect.

Reforms that will be given particular attention are those designed to ensure that national cost developments are in line with productivity developments, while respecting national traditions of social dialogue and industrial relations. Furthermore, measures to increase productivity, for instance by supporting R&D and innovation, infrastructure as well as an open and competitive business environment will be most important.

Foster employment

A well-functioning labour market is central to the competitiveness of the euro area. Progress on reaching this aim will be assessed on the basis of long-term unemployment rates, youth unemployment rates and labour participation rates. Amongst the reform measures that will be given particular attention are labour market reforms to promote "flexicurity", [10] increase formal labour market participation, increase lifelong learning and employment-activating tax reforms.

Enhance the sustainability of public finances

In order to bring public finances back onto a sustainable footing, the highest attention will be paid to measures that increase the sustainability of pensions, health care and social benefits. These will be assessed on the basis of sustainability gap indicators. [11] These indicators measure whether debt levels are sustainable based on current policies, notably pensions schemes, health care and benefit systems, and they also take into

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[10] 'Flexicurity' combines features of flexibility and security in one labour market and welfare model. Its key feature is that not the specific job position is protected, but rather the capability of the individual to move between jobs.

[11] The sustainability gap are indicators agreed by the Commission and Member States to assess fiscal sustainability, see e.g. Public Finances in EMU 2010: http://ec.europa.eu/economy_finance/publications/european_economy/2010/pdf/ee-2010-4_en.pdf

account demographic factors. Reforms necessary to ensure the sustainability and adequacy of pensions and social benefits could include aligning the pension system to the national demographic situation, and increasing the participation of older workers.

Furthermore, as part of the Pact, euro-area Member States commit to translating EU fiscal rules as set out in the Stability and Growth Pact into national legislation. The commitment should be seen as reinforcing - for the adherents to the pact - the legally binding minimum requirement for national budgetary frameworks established in the corresponding Directive, which forms part of the 'governance package'. Member States will retain the choice of the specific national legal vehicle to be used, but will make sure that it has a sufficiently strong binding and durable nature (e.g. constitution or framework law). The exact formulation of the rule will also be decided by each country (e.g. it could take the form of a "debt brake", rule related to the primary balance or an expenditure rule), but it should ensure fiscal discipline at both national and sub-national levels. The Commission will have the opportunity, in full respect of the prerogatives of national parliaments, to be consulted on the precise fiscal rule before its adoption so as to ensure it is compatible with, and supportive of, the EU rules.

Furthermore, attention will be paid to tax policy coordination. Pragmatic coordination of tax policies is a necessary element of stronger economic policy coordination in the euro area, which is key to supporting fiscal consolidation and growth. Besides exchanging best practices, Member States could engage in the development of a common corporate tax base, which would be a revenue-neutral way of working towards a consistent tax framework in the euro area. To this end, the Commission tabled a proposal for a Council Directive on 16 March. (^{12})

Reinforce financial stability

A strong financial sector is key for the overall stability of the euro area. A comprehensive reform of the EU framework for financial sector supervision and regulation was launched after the breakout of the financial crisis. Strict bank stress tests, coordinated at EU level, will be undertaken on a regular basis, with the aim of guiding subsequent bank recapitalisations. In addition, the President of the ESRB and the President of the Eurogroup will be invited to regularly inform

Heads of State or Government on issues related to macro-financial stability and macroeconomic developments in the euro area requiring specific action. In particular, for each Member State, the level of private debt of banks, households and non-financial firms will be closely monitored.

Guiding Rules

Overall, the Pact represents a renewed effort for stronger economic policy coordination for competitiveness and convergence and will be subject to the following guiding rules:

Firstly, the Pact is designed to be in line with and strengthen the existing economic governance arrangements in the EU. It will be consistent with, and build on, existing instruments (Europe 2020, European Semester, Integrated Guidelines, Stability and Growth Pact) and new legislation under the governance package, but will involve a special effort going beyond what already exists. It is foreseen to include concrete commitments and actions that are more ambitious than those already agreed, and all measures should be accompanied with a timetable for implementation. This process will be fully in line with the Treaty, and the Pact will respect the integrity of the Single Market.

Secondly, the Pact will be action-oriented and cover priority policy areas that are essential for fostering competitiveness and convergence. Euro-area Member States are fully committed to the completion of the Single Market which is key to enhancing the competitiveness in the EU and the euro area. The Pact will concentrate on actions where the competence lies with the Member States. In the chosen policy areas common objectives will be agreed upon at the Heads of State or Government level. Participating Member States will pursue these objectives with their own policy-mix, taking into account their specific challenges.

Thirdly, each year concrete national commitments will be undertaken by each Head of State or Government. In doing so, Member States will take into account best practices and benchmark against the best performers, within Europe and vis-à-vis other strategic partners. The Commission will monitor the implementation of the various national commitments and will prepare an annual report that will be examined by the Heads of State or Government of the euro area and participating countries. In addition, Member States commit to consult their partners on each major economic

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(^{12}) COM/2011/121

reform having potential spill-over effects before its adoption.

Finally, in order to demonstrate a real commitment to change and ensure the necessary political impetus to reach the Pact's common objectives, each year Member States of the euro area will agree at the highest level on a set of concrete actions to be achieved within 12 months. These commitments will also be reflected in the National Reform Programmes and Stability Programmes submitted each year, which will be assessed by the Commission, the Council, and the Eurogroup in the context of the European Semester.

Those Member States in a position to do so have already announced at the European Council of 24/25 March the concrete commitments to be achieved in the next 12 months. Concrete commitments should be included in the National Reform and Stability Programmes to be submitted in April and will be presented to the June European Council.

I.5. *Conclusion*

The exceptionally challenging circumstances in the euro area since the onset of the global crisis have necessitated swift yet profound action by the Commission and Member States in cooperation with, notably, the ECB and the IMF in order to regain financial stability and deal with a very deep recession. Both crisis management measures and a systemic overhaul of economic and financial policy coordination have been enacted in order to support growth, fiscal sustainability, financial stability and convergence. First and foremost, this comprehensive response has ensured that output and employment did not contract excessively in Member States, while taking into account the limits to demand stimuli that are posed by individual countries' budgetary positions. The coordination of Member States' budgetary consolidation strategies will support the regaining of sustainable fiscal positions following the unprecedented shock of the crisis.

Vulnerable Member States have received conditional financial support through the EFSF, EFSM and IMF lending and through bilateral loans, as their access to sovereign bond markets has been severely impeded during the crisis. The temporary lending facilities of the EFSF and EFSM will be succeeded in 2013 by a permanent crisis resolution mechanism, the European Stability Mechanism. All country-specific assistance is and will be accompanied by comprehensive macroeconomic adjustment programmes for the countries in question, which support the rebalancing of the economy and strengthen its growth potential. Structural measures to boost growth and employment for all Member States are also pursued under the Europe 2020 initiative and the Euro Plus Pact, all within the streamlined channels of the European Semester.

On the financial front, the EU policy response has brought major improvements to the functioning and stability of the financial system. Public capital injections combined with greatly enhanced liquidity provision by the ECB have averted a full-blown credit crunch in the short-term. Financial stability is now safeguarded in a more rigorous way through the European System of Financial Supervisors and through manifold improvements in the financial regulatory environment. Regular stress tests for banks will asses the resilience of systemically important financial institutions and will guide further capital injections, notably to meet the higher capital requirements under the Basel III regulations. Overall, this combination of policy measures in the context of a systemic overhaul of the EU's economic policy framework will go a long way towards setting the euro area back on course towards stability, growth and employment.

Focus

II. Inflation developments in the euro area

Inflation in the euro area has picked up in recent months, with the headline rate reaching its highest level since October 2008 at an estimated 2.6% in March 2011. This is largely the result of higher commodity prices, driven by a combination of cyclical, structural and geopolitical factors. As the acceleration of inflation mainly concerns non-core items, underlying price pressures currently remain subdued. Nevertheless, the fall of core inflation during the crisis and in its aftermath seems small given the large and only gradually closing negative output gap. Analysis within a Phillips curve framework confirms that the output gap is a significant driver of core inflation in the euro area, even if its impact is not very large. Core inflation is furthermore found to be persistent and driven by expectations and lagged oil prices. Euro-area inflation dispersion has widened with the outbreak of the economic and financial crisis and the large commodity price swings that accompanied it. This section shows that the strength of the transmission from commodity prices to inflation depends on a number of factors, which vary across Member States. Price and inflation differences represent a natural feature in a monetary union only to the extent that they foster convergence or underpin the adjustment to idiosyncratic shocks. However, often in the past, persistent differences have reflected divergent competitiveness developments resulting in harmful imbalances. At the current juncture, there are some indications that national inflation patterns in the euro area have started to contribute to the adjustment to macroeconomic imbalances, but this process is only beginning. Finally, the section discusses the outlook for inflation based on the recent Commission interim forecast.

### II.1. Recent price developments in the euro area

Inflationary pressures in the euro area have been building up in recent months, with the headline rate reaching an estimated 2.6% in March, the highest level since October 2008 and about twice as high as a year ago. The breakdown for February shows that the increase is largely the result of higher energy inflation, lifted by rising oil prices (Graph II.1). In recent months, the structural increase in oil prices witnessed over the past two years has been further exacerbated by unrest in the Middle East and in North African countries. At the same time, prices of other commodities — from agricultural raw materials to metals — have also been subject to significant upward pressures recently.

Looking closer at the energy component of the HICP, euro-area energy inflation increased to 17.1% in July 2008, the peak of the previous oil shock, after which it fell steadily to -14.4% twelve months later. It returned to positive territory in December 2009 and stood at 4.0% in January 2010. In February 2011, annual energy inflation was at 13.1%, up from 12.0% in January.

Developments in energy inflation largely mirror fluctuations in oil prices (Graph II.2). In the year to February 2011 the price of a barrel of Brent went up by almost 40% in both dollar and euro

terms, progressing almost uninterruptedly throughout the year to reach a monthly average of USD 103.7 (EUR 76.0), about two and a half times the December 2008 level. The strongest monthly increase occurred from November to December 2010, when oil prices increased by 8% in dollar and 11% in euro terms respectively. In the first half of March, the oil price further climbed by 11% from its February level to an average of USD 114.9 (EUR 82.7).

Graph II.1: **Composition of euro-area HICP inflation (contributions to y-o-y changes — Jan 2006 to Feb 2011)**
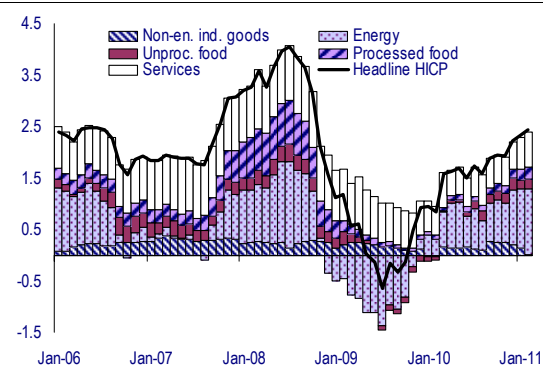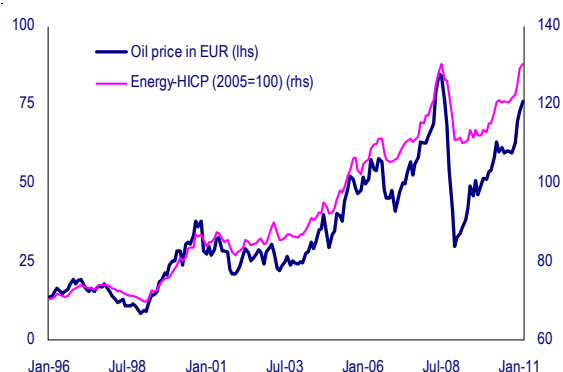

Source: Eurostat.

The oil price rebound that started at the end of 2008 reflects, to a large extent, market fundamentals and larger oil demand coming in particular from emerging market economies. Since the start of 2011, the political turmoil in the

Middle East and North Africa and concerns about supply disruptions have put further upward pressure on oil prices. The barrel of Brent passed the USD 100 mark on 1 February — for the first time since the end of September 2008 — coinciding with rising political tensions in Egypt. Prices further picked up when unrest escalated three weeks later in Libya. Political uncertainty, surrounding both the transition to a stable political situation and the possibility that the uprising may further spread across the region, is likely to maintain upward pressures on oil prices in the period ahead. The effects of the dramatic events currently unfolding in Japan are difficult to assess at this juncture.

Graph II.2:   **Oil price and euro-area energy price index (Jan 1996 to Feb 2011)**

Source: Eurostat, Ecowin

While the present increase in oil prices certainly stands out, other commodities have also been affected by upward price pressures. A combination of weather-related declines in agricultural production in different parts of the world and demand pressures has driven up food commodity prices in recent months. In early March 2011, wheat prices (on the Chicago Board of Trade) were about 50 % higher than twelve months earlier. Corn prices more than doubled over the same period. The outlook for the world cereals markets in 2010/2011 suggests that prices will stay high with world cereal stocks remaining much lower than at the end of last year.

For industrial metals, price increases over the last 12 months range from +15 % for zinc to over 40 % for copper and nickel. China remains a dominant factor behind this surge. Aluminium, copper, nickel, steel and iron ore prices were all driven up by either Chinese demand or production cutbacks (in the case of aluminium). Steel prices also soared following devastating floods in Australia, which hit supply.

At the same time precious metals have also reached or come close to new peak price levels, in many cases driven by safe haven purchases against the background of a still fragile economic recovery marked by high uncertainty. Over the past year gold and silver prices climbed by 25 % and 95 % respectively and these metals are currently trading at all-time highs.

While upstream price pressures have intensified, core inflation, which excludes the most volatile price components (i.e. energy and unprocessed food) and provides an approximate measure of underlying price dynamics, has so far remained subdued and below historical averages. Headline HICP excluding energy and unprocessed food stood at 1.1 % in February. Core inflation is at the current juncture subject to diverging forces. On the one hand, the indirect impact of recent energy price increases, already visible in producer prices, can be expected to gradually feed through. Upward pressures could be exacerbated if second-round effects were to materialise. On the other hand, the large negative output gap should weigh on prices and wages. However, the early bottoming-out of core inflation in 2010 despite a still large and only slowly closing negative output gap is a puzzle. This particular aspect is examined in more depth in the next sub-section.

II.2.   *Stabilisation of core inflation despite a still large estimated output gap*

The economic and financial crisis of 2007-2009 has resulted in a large output gap that is only gradually closing. According to the Commission's autumn 2010 forecasts, the output gap of the euro area reached a trough of -3.8 % in 2009 and is projected to remain sizeably negative for some time, reaching -1.6 % in 2012. For comparison, the OECD Economic Outlook of November 2010 sees the euro-area output gap at -4.9 % in 2009 and -2.7 % in 2012. ([13]) Yet, euro-area core inflation area has been remarkably stable. From a peak at 2.7 % in March 2008 it has fallen to a trough of 0.8 % in April 2010 and since then gradually climbed back to 1.1 % in February 2011.

The relative stability of core inflation in the face of a large negative output gap may hold interesting lessons about inflation dynamics in the euro area. Recent studies ([14]) examining why core


([13]) It should be stressed, however, that contemporaneous estimates of the output gap are notoriously fraught with uncertainty and subject to often substantial revisions.

([14]) e.g. Meier, A. (2010), 'Still minding the gap — Inflation dynamics during episodes of persistent large output gaps',

inflation has not fallen further during the crisis or in its aftermath point to downward nominal wage and price rigidities in addition to well-anchored inflation expectations as possible factors that prevent core inflation from falling below a low positive value.

Graph II.3:   **Core inflation, expectations and the output gap (in %) (1)**
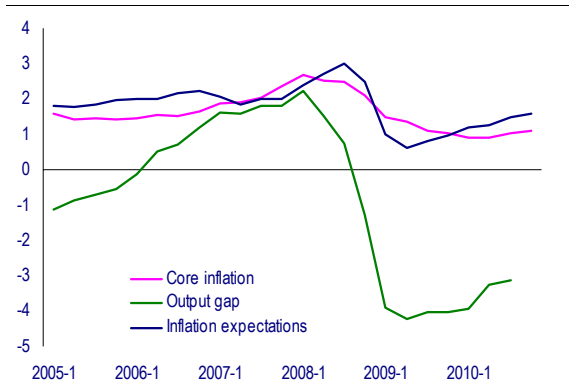
(1) Inflation and expectations: percentage annual change; output gap: percent of GDP.
Source: Eurostat, DG ECFIN, Consensus forecast.

As the above-mentioned studies lack either a euro-area focus or a rigorous econometric analysis, this section opts for an estimated Phillips curve framework to further examine the relationship between euro-area core inflation and the output gap and inflation expectations (see Box II.1 for a more technical discussion). The chosen framework allows to answer two specific questions. First, can observed inflation expectations help better understand inflation dynamics? Second, can a simple linear Phillips curve account for euro-area inflation dynamics, in particular in the light of the large negative output gap observed at present? If prices rise more strongly in reaction to a boom (positive output gap) than they fall in reaction to a bust (negative output gap), this should be reflected in a Phillips curve that is asymmetric with respect to the output gap. [15]

The econometric analysis of the euro-area Philips curve confirms that the output gap is a relevant driver of inflation in the euro area. Its impact is,

however, not very large, and there is some evidence that it has decreased over time: the euro-area Phillips curve has flattened. [16] As far as inflation persistence and the role of expectations are concerned, the analysis concludes in favour of a so-called hybrid Phillips curve, which includes both past inflation and inflation expectations. The estimation results do not make it possible to conclude firmly in favour of either linearity or non-linearity of the Phillips curve. Both a linear specification and one where inflation depends on an exponential function of the output gap seem to describe the behaviour of euro-area core inflation over the past two decades reasonably well. Finally, there is some evidence that crude oil prices impact core inflation with a lag of four quarters. [17]

Graph II.4:   **Simulation of core inflation with different model specifications**
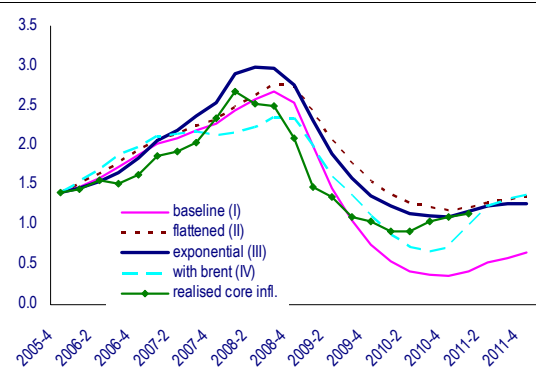
Source: Eurostat, own calculations

To illustrate these points, four specifications of the estimated euro-area Phillips curve retained from the quantitative analysis are subjected to a simulation exercise (Graph I.4). [18] This makes it possible to examine how different specifications can explain the behaviour of core inflation during the period of accelerating price dynamics in 2006-2008Q1 and the subsequent crisis, in particular the bottoming-out of core inflation in 2010. These

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International Monetary Fund Working Paper, No 10/189; Schumacher, D. and N. Kojucharov (2010), 'The puzzling behaviour of core inflation', *Goldman Sachs European Weekly Analyst*, No 10/32.

[15] An important strand of the literature examines the issue of asymmetry. See e.g. Laxton, R, D. Rose and R. Tetlow (1993), 'Monetary policy, uncertainty and the presumption of linearity', *Bank of Canada Technical Report*, No 63; Buchmann, M. (2009), 'Nonparametric hybrid Phillips curves based on subjective expectations: Estimates for the euro area', *European Central Bank Working Paper*, No 1119.

[16] This is a widespread empirical observation also outside the euro area.

[17] While the pass-through of oil prices to headline inflation is quite fast (see Box I.3), energy price variations are by definition excluded from core inflation. Oil prices can nonetheless impact core inflation indirectly, via their impact on intermediate costs and through second-round wage effects.

[18] In contrast to an examination of model fit (where the differences across the model specifications are minor), the simulation uses for the lagged core inflation term the simulated value for the previous quarter, while actual values (forecast values after 2010Q4) are used for the other elements (i.e. for inflation expectations, the output gap and oil prices). In this way, simulated core inflation is not systematically 'pulled back' to the actual value through its autoregressive term, which allows the inflation dynamics implicit in each of the specifications to be judged better.

Box II.1: **Estimation of a euro-area Phillips curve**

This box presents estimations of the Philips curve for the euro area. Two aspects are of particular interest for the empirical analysis of the euro-area Phillips curve against the backdrop of recent extreme realisations of the output gap and the relative stability of core inflation. First, is the Phillips curve linear or convex? Second, what role do inflation expectations play for euro-area inflation dynamics?

Phillips curves - Estimation output (endogenous variable: core inflation)				
	I **Baseline**	**II** **Flattened**	**III** **Exponential**	**IV** **With oil price**
Sample period	*1991q1 - 2010q4*	*2000q1 - 2010q4*	*1991q1 - 2010q4*	*1991q1 - 2010q4*
Core inflation lagged one quarter	0.830***	0.881***	0.799***	0.776***
Inflation expectations	0.164*	0.143**	0.179***	0.199***
Output gap	0.071***	0.038***		0.033*
EXP (output gap)			0.057***	
Constant			-0.072	
Oil price change lagged four quarters				0.002***
R²	0.97	0.88	0.97	0.95
J statistic	0.046	0.09	0.049	0.030

Estimation by GMM. Dependent variable: core inflation. Instruments: First lag of output gap; first and second lags of inflation expectations; short-term interest rates and their first lag; change in the rate of capacity utilisation; oil price change; fifth lag of oil price change (the latter two for panel IV only).

*, **, *** denote significance at 5, 2 and 1% confidence level

Source: Commission services

The first aspect is addressed by estimating different functional forms of the Phillips curve explicitly. This is more restrictive than estimating Phillips curves non-parametrically, which is the subject of a recent strand of the literature. However, the latter approach would overly complicate the analysis of the other issues of interest here.

To analyse the role of inflation expectations, observed expectations from Consensus forecasts are used, thus avoiding any assumptions about the way expectations are formed. This approach has been followed only in a small minority of analyses of the Phillips curve so far.[1] Most empirical studies of the Phillips curve use inflation expectations that are derived from actual realisations of inflation under different assumptions concerning expectation formation.

In the same vein, no assumption is imposed about the role of past realisations of inflation (which could reflect adaptive expectations, indexation or 'sticky information') in the Philips curve.

Finally, in line with the analytical focus of this exercise, the output gap is chosen as the driving variable. In the New-Keynesian Phillips curve, the driving variable is the marginal cost. While the debate on the most appropriate way of modelling (unobservable) marginal cost in empirical analyses is ongoing, the performance of the output gap as a good proxy for the marginal cost in the euro-area Phillips curve is well documented.

Given the aim to better understand its dynamics, core inflation is used as a dependent variable in this analysis. In the empirical literature, different concepts of inflation ranging from the GDP deflator and headline consumer price inflation to various measures of core inflation have been used.

In the light of the above considerations, the baseline specification of the euro-area Phillips curve is as follows:

$$\pi_t = \gamma_b \pi_{t-1} + \gamma_f \overline{F}_t \pi_{t+1} + \lambda mc_t \qquad (1)$$

This is the hybrid (new-Keynesian) Phillips curve formulated by Galí and Gertler[2] with the important modification that the (rational) expectations operator E(.) is replaced with average observed expectations F(.).[3]

Data are quarterly and cover the period 1990q1 to 2010q4. Core inflation (i.e. HICP excluding energy and unprocessed food) is from Eurostat while inflation expectations are from Consensus Forecasts and the output gap from the Commission.

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[1] Paloviita, M. (2008), 'Estimating open economy Phillips curves for the euro area with directly measured expectations', *Bank of Finland Research Discussion Paper*, No 16/2008 and Henzel, S. and T. Wollmershaeuser (2008), 'The new Keynesian Phillips curve and the role of expectations: Evidence from the IFO World Economic Survey', *Economic Modelling*, No 25(5), pp. 811-832 are recent examples.

[2] Galí, J. and M. Gertler (1999), 'Inflation dynamics: A structural econometric analysis', *Journal of Monetary Economics*, No 44(2), pp. 195-222.

[3] See Henzel and Wollmershaeuser (2008), op cit.

(Continued on the next page)

Box (continued)

In addition to specification (1), two extensions are examined.

$$\pi_t = \gamma_b \pi_{t-1} + \gamma_f \overline{F}_t(\pi_{t+1}) + \lambda EXP(mc_t) + c \qquad (2)$$

$$\pi_t = \gamma_b \pi_{t-1} + \gamma_f \overline{F}_t \pi_{t+1} + \lambda mc_t + \sum_i \beta_i OIL_{t-i} \qquad (3)$$

(2) is a non-linear version of the Phillips curve using the exponential function[1] of the output gap and adding a constant to account for the possible asymmetric effect of the output gap. Specification (3) is the baseline specification extended with lagged crude oil prices. Results are summarised in the table.

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[1] This follows the specification suggested in Laxton, R, D. Rose and R. Tetlow (1993), 'Monetary policy, uncertainty and the presumption of linearity', *Bank of Canada Technical Report*, No 63. Quadratic and cubic functional forms were also tested but were not found to be statistically superior and are not reported here.

four specifications are (see also the table displayed in Box II.1): (I) a linear Phillips curve (labelled baseline in Graph II.4), (II) the same linear Phillips curve estimated over a shorter sample to reflect its flattening with respect to the output gap, (III) a non-linear (exponential) Phillips curve and, finally, (IV) an extension of the baseline linear model with lagged crude oil prices.

As shown in Graph II.4, all model variants track the main developments of core inflation since late 2005 reasonably well, though all feature the turning points in 2008 and 2010 with a delay. This notwithstanding, each model does rightly indicate a bottoming-out of core inflation in 2010. The undershooting of the baseline model (I) indicates the relevance of the flattening of the Phillips curve. The non-linear specification overshoots actual core inflation at the peak in early 2008, and it behaves very like the flattened linear model in the downturn. The version augmented with lagged oil prices falls below actual core inflation but displays the strongest upturn.

On balance, the simulation demonstrates that the stabilisation of core inflation in 2010 can be captured reasonably well by a simple Phillips curve relationship, which explicitly takes observed inflation expectations into account. The simulation further suggests that either a flattening of the (linear) Phillips curve or its convexity contributed to the stability of core inflation during the crisis. ([19]) However, as none of the model variants is precise concerning the timing of the trough, additional factors are likely to have been at work. These might include possible underestimations of the output gap (i.e. an output

gap that is in reality less negative than currently estimated) after a major crisis which forced structural adjustments leading to e.g. a higher than usual depreciation of the capital stock.

With respect to 2011, all specifications would predict a gradual further normalisation of core inflation. This corroborates the assessment in the Commission's interim forecast of March 2011 that core inflation will continue to increase slowly. The output gap will continue to exert a downward pull on core inflation for some time, while inflation expectations and the indirect effect of oil prices will not only prevent core inflation from falling but on balance push it higher.

II.3. The contribution of the oil price surge to inflation differentials within the euro area
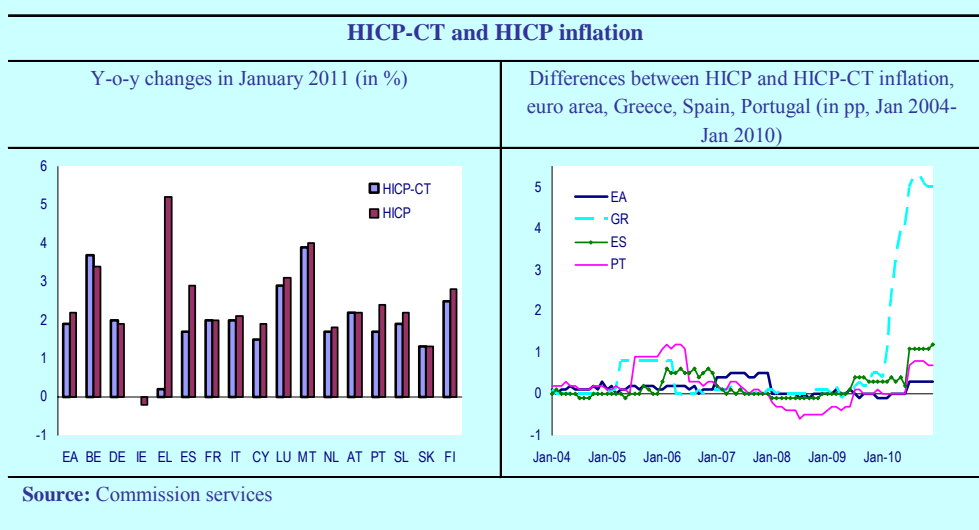
Member State inflation differentials

Inflation picked up across the whole euro area, albeit to a different extent. Annual inflation rates increased in ten euro-area Member States in February, with fifteen Member States witnessing inflation rates at or above 2%, ten of which with rates higher than 3%. Estonia recorded the highest rate (5.5%), followed by Greece (4.2%) and Luxembourg (3.9%). Belgium, Portugal, Slovakia and Finland all had an inflation rate of 3.5%. Ireland closed the ranking with an annual inflation rate of 0.9%, after having re-entered positive territory in January 2011 for the first time since March 2009, i.e. after 22 months. As discussed further in the remainder of this section, these divergences reflect a range of factors including country differences in terms of growth, tax policy and the impact of higher commodity prices.

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([19]) Whether the true model behind euro-area inflation dynamics is linear and 'flattened' or convex cannot be decided on the basis of this simple analysis.

Box II.2: **Developments in the harmonised index of consumer prices at constant tax rates**

Developments in the harmonised index of consumer prices at constant tax rates (HICP-CT) provide a somewhat different picture of inflation patterns in some countries. The HICP-CT, which has been released monthly by Eurostat since August 2009, makes it possible to examine the theoretical impact of changes in indirect taxes (e.g. VAT and excise duties) on overall inflation by measuring the change in prices 'at constant tax rates'. Prices at constant tax rates for each individual month are computed by subtracting the taxes applicable in that month and adding the taxes according to the rates in force in the previous December. In effect, the difference between HICP and HICP-CT growth rates points to the theoretical impact of tax changes on overall HICP inflation, assuming instantaneous pass-through of tax rate changes to the price paid by the consumer. The latter assumption may not hold. The difference between headline and constant-tax HICP measures should therefore be seen as an indication of the upper limit of the impact of changes in tax rates.

HICP-CT inflation rates for January 2011 (latest available data) indeed reveal noteworthy discrepancies in some peripheral Member States, where the observed headline inflation rates reflect tax measures and thus hide to some extent an ongoing, and necessary, adjustment.

HICP-CT and HICP inflation

Y-o-y changes in January 2011 (in %)	Differences between HICP and HICP-CT inflation, euro area, Greece, Spain, Portugal (in pp, Jan 2004-Jan 2010)

Source: Commission services

For the euro area as a whole, the discrepancy between the two indices has never exceeded 0.5 pp and was 0.4 pp in January 2011, when constant-tax inflation stood at 1.9%, for a headline inflation of 2.3%. In Greece, the gap between the two series has started to widen from February 2010 onwards, reflecting increases in VAT rates and excise duties. In January annual HICP-CT inflation stood at 0.2%, 4.7 pp below the HICP inflation rate of 4.9%, making Greece the euro-area Member State with the smallest price growth.[1] For Spain and Portugal the wedge has become more visible from July 2010 onwards. Since then the Spanish HICP rate has exceeded the constant tax inflation rate by about 1.1 pp. In January, the HICP-CT rate (1.8%) was 1.2 pp below the headline figure (3.0%). Portugal's inflation rate has exceeded the constant tax equivalent by around 0.7 pp since July 2010. The January HICP-CT inflation rate of 2.1% compared to a headline HICP rate of 3.6%. Dispersion measures have generally been lower for HICP-CT inflation than for HICP inflation. This has in particular been the case since 2009, suggesting that some of the recent observed inflation dispersion can be traced back to indirect taxes.


[1] HICP-CT data for Ireland are not available.

Price and inflation differentials are a natural occurrence in a currency union where national monetary and exchange rate policies cannot be employed to adjust to shocks. To the extent that these differentials reflect a country's longer-term convergence towards the rest of the area or medium-term adjustments to idiosyncratic shocks, they can play an important stabilisation role and may help reduce heterogeneities, thus eventually improving the efficiency of area-wide economic policies.

After a phase of substantial convergence in the run-up to the euro's introduction, euro-area inflation differentials have increased again and remained relatively high since the launch of the single currency. Moreover, there is substantial evidence that the inflation differentials observed

over the past decade have not always contributed to economic convergence within EMU, and their persistence and size warrant permanent monitoring. ([20])

Graph II.5:   **HICP inflation differentials between euro-area Member States (various measures, Jan 2000 to Feb 2011)**
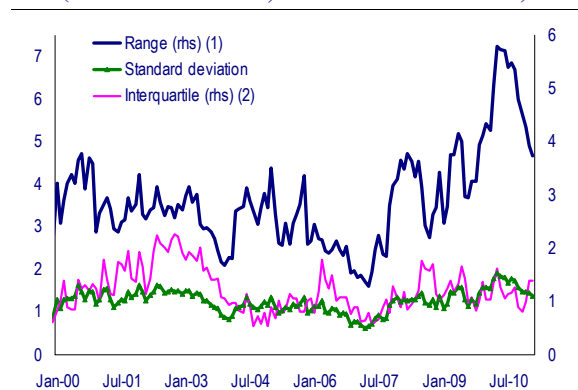
(1) Difference between the lowest and the highest inflation rate in the euro area.
(2) Difference between the first and the third quartile.
Source: Commission services.

Euro-area inflation dispersion — measured by either the range, the interquartile range or the standard deviation — has increased markedly with the outbreak of the economic financial crisis and the large oil price swings that accompanied it (Graph I.3). In the course of 2010, differentials contracted somewhat, but currently remain above their pre-crisis period or historical averages.

At the current juncture, there are some indications that national inflation patterns, once adjusted for tax changes or the effect of commodity prices, reflect mostly growth differences and therefore have started to contribute to the adjustment to macroeconomic imbalances (see Box II.2 for a discussion of the importance of tax changes), but this process is only beginning. Core inflation at the Member State level since mid-2008 has responded to competitiveness imbalances, as shown in graph II.6. ([21])

The inflation dispersion measures are lower for core inflation than for headline inflation, suggesting that non-core items, and in particular energy, are major drivers of the observed differentials.

([20]) See European Commission, 'EMU@10, Successes and challenges after 10 years of Economic and Monetary Union', European Economy, No 2, 2008.
([21]) Competitiveness imbalances here signify the estimated over- or undervaluation of the real effective exchange rate. See also Quarterly Report on the Euro Area, 2009, Vol. 8, No. 1, p. 40.

Graph II.6:   **Core inflation since mid-2008 against the estimated misalignment of the REER in 2009**
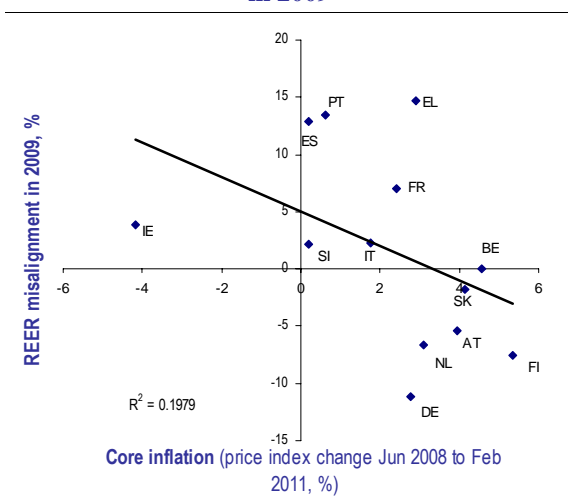
Source: Commission services

The impact of oil price developments on Member States' inflation

Energy price developments are a major driver of cross-country inflation differentials. Although the oil price surge is a global event, it has impacted energy and headline inflation at the level of Member States in an asymmetric manner. In February 2011, fourteen Member States experienced energy inflation in the two-digit range. Greece headed the ranking with an annual price increase of 25.9%, followed by Cyprus (19.8%) and Spain (19.0%). Annual energy inflation in Slovakia, which was actually negative until December 2010, rebounded in January and reached 10.3% in February. The lowest energy inflation rates were observed in the Netherlands (7.5%), Estonia (8.6%) and Italy (9.9%).

It is noteworthy that the cross-country dispersion of energy inflation, which is generally considerably higher than for headline inflation, increased substantially with the 2008 oil price rally. Energy is the HICP sub-index which has experienced the fastest average growth of all main euro-area HICP categories since 1999. It is also the most volatile category and has reached the most extreme values, covering a range of over 31 pp from -14.4% (July 2009) to +17.1% (July 2008). This extreme volatility is also visible at Member State level: since the introduction of the euro, annual energy inflation has climbed as high as 37.9% (Greece in May 2010, largely reflecting the increase in excise duties on fuel) and fallen as low as –23.2% (Belgium in July 2009) (see Table I.1). In five euro-area Member States, the difference between the highest and the lowest

annual energy inflation rate has exceeded 50 pp. The volatility of annual energy inflation as measured by the standard deviation (Table II.1) was highest in Slovakia, followed by Greece, Cyprus and Luxembourg.

Table II.1:		**Miscellaneous statistics on annual energy inflation (in %, Feb 1996 to Jan 2011)**				
	Mean	Median	Maximum	Minimum	Range	Std Dev
EA	*4.0*	*3.3*	*17.1*	*-14.4*	*31.5*	*6.4*
BE	4.4	3.5	31.5	-23.2	54.7	9.9
DE	4.5	4.1	17.8	-11.4	29.2	6.1
EE	8.8	9.4	30.0	-8.0	37.9	8.5
IE	4.9	4.6	20.0	-13.4	33.4	6.8
EL	5.7	2.7	38.0	-19.5	57.5	12.4
ES	4.1	3.5	21.3	-15.8	37.1	7.8
FR	3.2	1.9	18.4	-17.5	35.9	7.3
IT	3.0	2.9	16.6	-14.6	31.1	6.0
CY	7.6	8.0	35.3	-21.5	56.8	11.7
LU	4.7	4.8	26.8	-23.6	50.4	11.1
MT	7.1	6.3	29.2	-12.0	41.2	8.9
NL	5.2	4.8	18.2	-13.3	31.4	5.6
AT	3.4	3.4	20.0	-15.8	35.8	7.2
PT	4.0	3.8	14.7	-12.4	27.1	5.7
SI	7.4	8.4	24.9	-11.9	36.8	7.5
SK	12.3	6.1	72.0	-1.8	73.8	16.6
FI	4.0	3.3	21.4	-14.0	35.4	7.0

Source: Commission services.

**Determinants of energy inflation differentials**

The differentiated impact of oil price fluctuations on euro-area Member States' headline inflation reflects, to some extent, different weights of energy products in the respective HICP baskets. As a result, even a symmetric rise in energy inflation affects households across the euro area and Member States' headline inflation in a differentiated manner. On average, euro-area households devote around 9.6% of their outgoings to energy items. The bulk of this is spent on 'fuels for personal transport', followed by 'electricity' and 'gas'. In 2010, households in Malta (6.3%) and Greece (7.2%) spent proportionally the least on energy, while Slovak (15.7%) and Slovenian (13.9%) households spent the most (Graph II.7). The respective consumption baskets also differ in that some sub-items (e.g. 'gas' or 'heat energy') carry zero weight in some countries.

In addition, global energy market developments (in particular crude oil prices) impact on domestic energy inflation in a differentiated manner across countries. Box I.3 presents estimates of the direct effect of changes in oil prices on energy inflation in the euro area as a whole and in individual Member States. The estimations show that the size and length of the pass-through varies across Member States, explaining much of the observed dispersion of energy inflation. For the euro area, the results suggest that an EUR 1 increase in the oil price raises quarterly energy inflation immediately by 0.37 pp. In addition, the oil price increase still impacts energy inflation four quarters later. These long lags are likely to result from indexed prices or contracts, which are common practice for items such as natural gas. They are visible in most Member States. In the case of Greece, Cyprus or Estonia, however, the impact seems to be more short-lived and over after one quarter.

A number of factors can explain the different pass-through at Member State level. First, structural characteristics, such as the energy intensity, play a role. These reflect different production structures as well as differences in energy efficiency and energy dependency (the share of imported energy). Second, energy taxes also affect energy prices and intra-euro area inflation differentials. [22] Finally, both energy price levels and inflation rates are affected by the functioning of the markets for electricity and gas. Discrepancies may exist as regards the degree of competition on energy markets, the existence of regulated tariffs, the capacities for cross-border trade, and the level and design of support schemes for renewable energy.

Graph II.7:   **Weight of energy in the HICP basket, euro-area Member States (in %, 2010)**
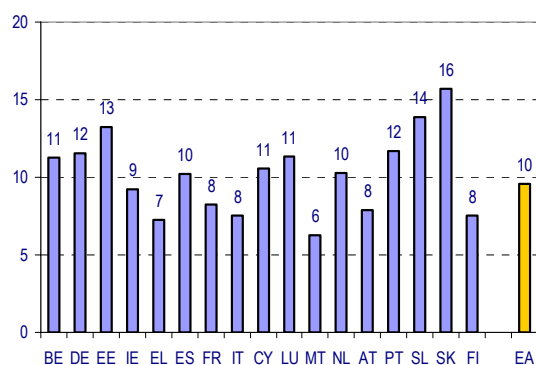
Source: Eurostat.

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[22] The level of excise duties on fuels differs across Member States (and fuel categories). Because they are calculated on volumes of energy rather than values, excise duties drive a wedge between the percentage change in the price of the taxed item and the percentage change in its after-tax price. The effect is, however, smaller the higher the initial price.

Box II.3: **The effect of changes in oil prices on euro-area energy inflation**

This box presents a simple analysis of the pass-through of changes in oil prices to energy inflation in the euro area and individual Member States. Using an auto-regressive distributed lag model,[1] quarterly energy inflation (q-o-q percentage change) is regressed on level changes in euro-denominated Brent oil prices and a number of its lags. The results are reported in the table below.

Oil price pass-through to energy inflation
Estimation results

	EA	BE	DE	EE	IE	EL	ES	FR	IT	CY	LU	MT	NL	AY	PT	SI	FI
Constant	0.44	0.42	0.61	1.78	0.68	0.69	0.60	0.37	0.22	1.15	0.53	1.39	0.83	0.36	0.43	0.90	1.02
	3.03	*1.79*	*2.92*	*4.53*	*2.76*	*1.68*	*2.82*	*2.09*	*1.96*	*2.88*	*1.56*	*3.22*	*2.72*	*1.96*	*1.77*	*3.36*	*3.74*
Δ_Oil price	0.37	0.47	0.35	0.17	0.32	0.63	0.48	0.37	0.27	0.42	0.58		0.26	0.39	0.30	0.44	0.46
	14.96	*12.18*	*10.53*	*3.11*	*8.24*	*9.47*	*14.15*	*12.92*	*14.36*	*6.43*	*10.88*		*6.34*	*13.00*	*8.43*	*13.29*	*11.13*
Δ_Oil price (-1)	0.10	0.27		0.22	0.21	0.15	0.22	0.28	0.16	0.44	0.38	0.44		0.23			0.26
	3.72	*3.60*		*4.06*	*5.06*	*2.26*	*3.18*	*4.70*	*8.17*	*6.80*	*4.03*	*6.31*		*4.03*			*3.62*
Δ_Oil price (-2)	0.07	0.38	0.09				0.09	0.11	0.07					0.08			0.21
	2.37	*4.93*	*2.42*				*2.29*	*3.40*	*3.23*					*2.25*			*2.84*
Δ_Oil price (-3)	0.08	0.20	0.08		*0.09*			0.08	0.06				0.24		0.12		
	2.94	*4.10*	*2.44*		*2.33*			*2.63*	*3.20*				*5.65*		*3.10*		
Δ_Oil price (-4)	0.05	0.16	0.07				0.08		0.08		0.11			0.08			0.11
	2.16	*3.03*	*2.02*				*2.44*		*4.32*		*2.03*			*2.63*			*2.82*
Lags of dep. variable		*1,2*					*1*	*1*			*1*		*1,4*	*1*	*3*	*4*	*1,2*
# of obs.	55	55	55	40	56	58	55	56	55	58	55	58	55	55	56	40	55
adj. R^2	0.85	0.82	0.68	0.44	0.67	0.65	0.83	0.83	0.88	0.66	0.76	0.41	0.58	0.82	0.61	0.83	0.79

(1) Data are quarterly and cover the period from Q1 1996 to Q1 2009. Inflation is measured as quarter-on-quarter percentage changes in the price index. Oil price changes are expressed as quarterly changes in euro-denominated levels. Contemporaneous oil price changes and six lags were included in the original specification. Insignificant regressors were dropped from the model. Numbers in italic refer to t-values. The Slovakian energy price index exhibits no evident relationship with oil prices under this particular specification; results are consequently not reported.
Source: Commission services

The first column of the table shows the results for the euro area as a whole. Changes in the oil price have contemporaneous as well as lagged effects on euro-area energy inflation: an EUR 1 oil price increase translates into an immediate increase of 0.37 pp in the q-o-q energy inflation rate. Furthermore, energy inflation is still affected up to four quarters after the initial oil price change. Estimating the model on a shorter sample (until Q4 of 2007) suggests that the direct pass-through was stronger in pre-crisis years in the euro area.[2]

The regressions at Member State level suggest that the speed and magnitude of the pass-through varies quite substantially across Member States. In the case of Greece, for example, the immediate effect of an EUR 1 rise in the oil price is strongest, raising quarterly energy inflation by 0.63 pp. Greece is followed by Luxembourg (0.58 pp), Spain (0.48 pp) and Belgium (0.48 pp). Analogously, the immediate pass-through is smallest for the Member States currently witnessing the lowest energy inflation rates, i.e. Italy (0.27 pp) and the Netherlands (0.26 pp). In the case of Malta, oil price changes only seem to affect inflation with a one-quarter delay.

The table also shows that the dynamic impact of an oil price change differs throughout the euro area. While in the case of Greece and Estonia most of the impact of an oil price increase affects energy inflation instantaneously, energy inflation in Belgium, Germany, Spain, Italy, Luxembourg, Austria and Finland is still affected four quarters later by oil price movements — even if the magnitude of the coefficients is often relatively low. A possible explanation for the long lags has to do with the composition of the energy basket and in particular the relative importance of 'gas' and 'heat energy' — subcategories in which the pass-through is generally slower. Indeed, gas prices are often indexed to the oil price or periodically revised.

[1] Applying the same methodology as in QREA Vol. 7 No 1 (2008).
[2] The coefficient on the contemporaneous variable was 0.5, while the lagged oil price was insignificant.

II.4. The short-term outlook for euro-area inflation

A look at producer prices indicates that upstream price pressures intensified in the months to January (latest observation), with inflation climbing to 6.1%. While this increase was broad-based across sub-categories, annual energy inflation stood out, after increasing to 12.5% in January following a 3.0% monthly price increase. Surveys also suggest that producer price pressures will continue to build up over the months

ahead. ([23]) However, labour cost indicators remain subdued, reflecting the overall still weak labour market conditions across the euro-area economy.

The recent increase in inflation has translated into a rise in survey- and market-based inflation expectations. Long-term inflation expectations, as measured by the difference between German nominal and inflation-linked long-term government bond yields (maturity 2016), have picked up since November, when they averaged 1.54%. ([24]) In January they averaged 1.85% and further climbed to 1.96% in February. In early March they stood at 2.05%. This level remains lower than in the pre-crisis period (in 2007 long-term inflation expectations averaged 2.12%), suggesting that inflation expectations remain overall well anchored, thus keeping underlying inflationary pressures in check. The recent increase nonetheless highlights the need to closely onitor expectations and to prevent second-round effects.

Survey data suggest that consumers in the euro area expect prices to rise in the short term too: the balance statistic in ECFIN's Consumer Survey rose from 20.9 in January to 25.7 in February, substantially exceeding the average level of the series since 1999 of 15.5. ([25])

Recent commodity price developments have prompted an upward revision of inflation forecasts released by the end of 2010. The political uncertainty in the Middle East and in North African countries and the repercussions of the earthquake in Japan on 11 March are likely to substantially complicate oil price forecasts in the period ahead — and thus the conditioning assumptions underlying (energy) inflation forecasts.

The euro-area inflation projection in the Commission's interim forecast, released on

1 March 2011, has been revised up markedly compared to the autumn forecast of November 2010. HICP inflation is now projected at 2.2% (up 0.4 pp relative to the previous forecast) in the euro area. On a quarterly basis, the interim forecast projects a peak in headline inflation in the first quarter of 2011 at 2.3% in the euro area and a gradual decrease towards 2% by the end of the year. This profile reflects the diminishing effects of pass-through from both the surge in commodity prices at the turn of the year and statistical base effects exerting downward pressure on inflation for most of 2011. It is also noteworthy that the inflation profile is partly affected by the impact of planned increases in indirect taxes and administered prices in some euro-area Member States.

Despite the recent upward revisions to headline inflation forecasts, the underlying inflation trends identified in the 2010 autumn forecast remain valid. The lingering slack in the economy and the overall weak labour market conditions are expected to keep the underlying inflationary pressures contained. Nevertheless, core inflation is expected to rise slowly in line with the pick-up in activity and possibly due to higher imported inflation from emerging-market economies. In contrast, the headline rate may prove to be volatile in the course of 2011, driven by changes in commodity prices linked to the outlook for advanced economies, geopolitical tensions and base effects.

The ongoing necessary correction of imbalances within the euro area and the differences in the speed of recovery, notably regarding the closure of the national output gaps, are likely to keep inflation dispersion high in the period ahead. This should not be a cause of concern, in so far as it reflects the rectification of previous divergence processes. As far as core inflation is concerned a gradual normalisation can be expected.

([23]) The Commission's monthly industry survey asks participants about the expected change in their selling prices over the next three months.

([24]) Inflation expectations derived from financial instruments should be analysed with care as they may be distorted by changes in liquidity and risk premia.

([25]) Question 6 in the Commission's monthly consumer survey asks participants about their expectations regarding price developments over the coming 12 months.

III. Special topics on the euro-area economy

Economic impact of changes in capital requirements in the euro-area banking sector

Increased capital requirements for banks are a central plank of the policies aimed at strengthening the banking sector and making it more resilient to shocks. The first section of this chapter presents an analysis of the macro-economic effects of increased capital requirements for banks, using a DSGE model for the euro area with a banking sector and bank capital. According to simulation results, higher capital requirements may entail some GDP losses over time because of higher lending costs; however, these are likely to remain small and would be associated with a significant reduction in GDP volatility. A 1 pp increase in the share of Tier 1 capital to total assets could reduce the level of GDP by about 0.15% after 8 years. The simulations stress two mitigating factors. First, a reduction in deposit rates, which partly offsets the cost increase that would result from higher capital requirements, and, second, a move towards higher rates of self-financing. It is important to stress that a degree of uncertainty surrounds these estimates, stemming principally from the ambiguous response of the return on equity (ROE). On balance, it appears reasonable to expect no large impact on the ROE.

Estonia in the euro area: staying fit in monetary union

The second section reviews the path towards the adoption of the euro in Estonia. Against the prospect of joining first the EU, then the euro area, Estonia experienced fast economic and financial convergence supported by high economic growth and declining unemployment. However, excessive credit growth fuelled domestic demand and contributed to the emergence of significant macro-economic imbalances. The effect of the unwinding of these imbalances was amplified by the global economic crisis, which made the challenge to join the euro area almost daunting. Still, nominal convergence was achieved following impressive consolidation and the structural reforms undertaken over the past two years. Currently Estonia is going through a significant adjustment process. Measures introduced to ensure flexible labour markets and prudent fiscal and financial policies are already contributing to a fast recovery and sectoral rebalancing, brightening the prospects for resuming real convergence and successful economic performance of Estonia in the euro area. Overall, the recent Estonian experience shows that policies can make a difference.

Dissecting the recovery with survey data

The third section in this chapter looks into the ongoing recovery through the lens of survey data. Business and consumer survey data are an important tool to track features of the business cycle that cannot always be easily measured with hard data. Survey data show that the ongoing recovery – which began in spring 2009 –has been closely synchronised across sectors but has also been unbalanced – mostly driven by industry – and associated with unusually sluggish GDP growth. At this stage, sentiment indicators do not send clear signals of having reached a peak, suggesting that the recovery remains on track. Nevertheless, a systematic comparison with developments in sentiment in the aftermath of the 1992-93 recession points to a number of patterns in the recovery from the latest recession. These include lingering uncertainties among households – about their financial situation, unemployment risks and general economic prospects –,weak investment plans in industry and evidence that the crisis may have brought about losses in production capacity. Finally, the recovery is also characterised by unusually marked differences in the pick-up of activity across countries, a factor that calls for differentiated policy approaches across the euro area.

III.1. Economic impact of changes in capital requirements in the euro-area banking sector

Introduction

The recent financial crisis has shown that highly leveraged financial institutions are insufficiently robust to withstand loan losses and/or write downs of asset values. The systemic risks associated with highly leveraged financial institutions led the Basel Committee on Banking Supervision (BCBS) [26] to propose in 2009 that capital requirements (CR) of commercial banks be increased. While higher capital standards make banks more resilient in times of asset losses, this comes possibly at the price of on average higher lending rates if regulation imposes higher funding costs on banks.

These new CR rules have prompted intensive discussions about their possible economic impact. For example, the Institute of International Finance (IIF), which is closely linked to the banking industry, estimates that an increase in capital requirements of 2 pp would reduce GDP in the EU by 4.1% (after 4 years) and increase loan interest rates by 130 bp. Also the BCBS has brought together a group of economists from central banks and international organisations, the Macroeconomic Assessment Group (MAG), to provide an estimate of GDP losses. They come to a very different result and only estimate a GDP loss of 0.3%. This paper presents results from the DG ECFIN's QUEST model and compares them to the results from other studies.

The role of macroprudential policy

A case for macroprudential policy or regulation of banks can be made if shocks originating in the financial sector have large spillover effects onto the rest of the economy. This has indeed happened with the current financial crisis and seems to be a pervasive feature of many financial and banking crises. There is now ample empirical evidence that financial crises are associated with a persistent drop in output. One of the factors that can explain this persistence is that adverse shocks to financial institutions become 'systemic', which means that there are mechanisms which allow shocks, initially only affecting individual banks or segments of the financial market, to spread throughout the financial system and weigh heavily

on its capacity to supply loans and thereby on economic growth.

Broadly speaking, two types of market failures can be distinguished: incentive problems and coordination failures. Both types of market failure justify policy intervention, in general because of resulting economic inefficiencies and more particularly with a view to minimise systemic risks. Incentive problems can arise because public insurance policies towards the banking system in the form of (implicit) bail-out guarantees or explicit deposit insurance can lead to excessive risk taking (see Wallace [27]). Coordination failures can arise because individual banks take insufficiently into account the fact that their balance sheet adjustments drive down asset prices and asset positions of other banks and force them to adjust. While incentive problems can lead to credit booms not justified by market fundamentals and thereby increase macroeconomic adjustment costs, coordination failures lead to unintended spillover effects across the financial system (see Wagner (2010) [28] for an overview of systemic externalities in financial markets). Rajan (1994) [29] provides an alternative explanation for excessive lending which is not based on moral hazard but rests on short horizons of bank managers who care about their reputation. He shows that they may be inclined to increase the supply of loans in order to conceal losses from bad loans.

Higher capital requirements can in principle deal with these problems. They force banks to internalise potential losses and thereby reduce excessive risk taking. At the same time, higher capital requirements make banks more robust in the event of actual asset losses. For example, the Bank of England (2009) [30] estimates that with an initial Tier 1 capital ratio of 8.5% Nordic and Japanese banks could have maintained a ratio of 4% during their banking crisis episodes of the 1990s without additional recapitalisation efforts or government support. Also the stress tests conducted by the Fed for the largest 19 US banks in 2009 suggest that a Tier 1 capital ratio of around 8% would be necessary for these

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[26] BCBS (Basel Committee on Banking Supervision) (2009), 'Strengthening the resilience of the banking sector', consultative document, Basel.

[27] Kareken, J. H. and N. Wallace (1978), 'Deposit insurance and bank regulation: A partial-equilibrium exposition', *The Journal of Business*, Vol. 51, pp. 413-438.

[28] Wagner, W. (2010), 'In the quest of systemic externalities: A review of the literature', *CESIfo Economic Studies*, Vol. 56, pp. 96-111.

[29] Rajan, R. (1994), 'Why bank credit policies fluctuate: A theory and some evidence', *Quarterly Journal of Economics* Vol. 109, pp. 309-441.

[30] Bank of England (2009), 'The role of macroprudential policy', *Bank of England Discussion Paper*, November 2009.

institutions to survive a deep and protracted economic downturn. It should, however, also be emphasised that tighter capital requirements may by itself not be enough to stabilise the financial system. For example, Shin (2010) [31] argues that greater "loss absorbancy" as envisaged by Basel III does not directly address excessive asset growth in booms which results from unstable short term wholesale funding, which makes banks vulnerable to large withdrawals in case risks emerge.

The possible implications of increased capital requirements (in normal times)

Increasing capital requirements induces banks to shift liabilities from debt (deposits) to bank equity. This can affect costs for banks in opposite directions. Keeping the rate of return on bank equity (ROE) and the deposit rate unchanged, an increase in capital requirements increases funding costs for banks because the ROE is substantially larger than the interest rate banks are paying for deposits. The cost-increasing composition effect is mitigated by a fall in banks' demand for deposits as equity partly replaces deposits in banks liabilities. This causes deposit rates to decline, depending on the interest elasticity of the supply of deposits of households to banks.

The major controversy is about the effect of higher CR on the ROE. While banks argue that higher capital requirements would likely be accompanied by an increase in ROE (see IIF (2009)) [32], the dominant view in the academic literature seems to be that an increase in CR is likely to be associated with a decline in ROE. For example, Admati et al. (2010) [33] argue that increased capital requirements would not increase funding costs for banks at all, i.e. the ROE would fall to fully compensate the composition effect. Their reasoning is based on the Modigliani-Miller (1958) theorem (M-M).

Modigliani and Miller acknowledge that there is a return differential between ROE and the interest rate on other bank debt because bank equity is more risky. However, increasing the capital requirement keeps the total risk, which is related

to bank's asset returns, unchanged. [34] If risk is priced correctly, the risk per share will decline such that total funding costs of banks remain unchanged. Though M-M only holds under a certain set of conditions, Kashyap et al. (2010) [35] provide empirical evidence that there is a link between leverage and ROE for a panel of large banks.

In contrast, the banking industry (see IIF [36]) argues that, because of frictions, it is costly for banks to raise a large amount of equity over a short period of time. There is some research which suggests that there may indeed be adverse selection problems and other frictions (see Myers and Majluf (1984)) [37] which make it difficult to raise new equity instead of accumulating it via retained earnings.

As a compromise between these two opposing views and taking into account that a long transition period is granted to banks in order to allow them to use retained earnings as a means of raising capital standards, in this analysis it is assumed that the bank equity premium remains unchanged. This is also the assumption made in the MAG study.

Table III.1.1: **Transition and long-run effects of a 1 pp increase in capital requirements in the euro area (% deviation from baseline)**

	Year 1	Year 4	Year 8	Long term	MAG* Year 4	IIF** Year 4
GDP	-0.05	-0.10	-0.15	-0.36	-0.16	-2.1
Investment	-1.12	-1.23	-1.15	-0.86	-	-
Consumption	0.18	0.13	0.03	-0.36	-	-
Loans	-0.10	-0.40	-0.52	-0.89	-	-
Deposit rate	-3.00	-9.95	-11.00	-10.25	-	-
ROE	-1.00	-2.26	-2.00	0.00	-	-
Loan rate	-1.00	10.49	12.00	12.66	-	-

* unweighted median path across 97 models
** the results are linearly scaled to a 1pp increase

(1) The table shows pp deviations from baseline levels for GDP, investment, consumption and loans and basis point deviations from baseline for the deposit rate, ROE and loan rate.
*Source:* QUEST simulations, BCBS, IIF.

Table III.1.1 shows the effect of increasing capital requirements for euro-area commercial banks by 1 pp according to DG ECFIN's QUEST

[31] H.S. Shin (2010), 'Macroprudential policies beyond Basel III', Policy Memo, Princeton University.

[32] Institute of International Finance (IIF) (2009), 'Interim report on the cumulative impact of proposed changes in the banking regulatory framework'.

[33] Admati, A. R., P. M. DeMarzo, M. F. Hellwig and P. Pfleiderer (2010), 'Fallacies, irrelevant facts, and myths in discussion of capital regulation: Why bank equity is not expensive', *Stanford GSB Research paper*, No 2065.

[34] Risk could even decline if banks internalise losses more strongly with higher capital requirements and refrain from excessive risk taking.

[35] Kashyap, A. K, J. C. Stein and S. Hanson (2010),'An analysis of substantially heightened capital requirements on large financial institutions', Mimeo.

[36] Institute of International Finance (IIF) (2009), op. cit.

[37] Myers, S. C. and N. Majluf (1984), 'Corporate financing and investment decisions when firms have information that investors do not have', *Journal of Financial Economics*, No 13, pp. 187-222.

simulations (see also Box III.1.1 for a description of the model used). This reduces the level of GDP by about in the range between 0.14 and 0.15% after 8 years, depending on the transition period. The composition effect dominates the deposit rate effect, leading to an increase in marginal funding costs for banks. This is shifted onto the loan rate, which increases by about 12 bp. Because deposit rates decline, the spread between the loan interest rate and the deposit rate increases by about 22 bp. The impact on the overall economy runs mainly via investment and to a lesser extent consumption. Firms, expecting permanently higher capital costs, reduce investment in order to adjust to a lower capital output ratio. This is only partly offset by a modest positive effect on private consumption of a fall in deposit interest rates. Longer transition periods slow down the increase in lending rates and allow a smoother adjustment of investment. According to these estimates, extending the transition period from 4 to 8 years reduces the GDP losses over the first 10 years by roughly 20%. These effects are close to the policy impacts found in the MAG study (also shown in the table).

Graph III.1.1: **MAG Results for a 1 pp increase in capital requirements (% deviation from baseline)**

4-year transition period

8-year transition period
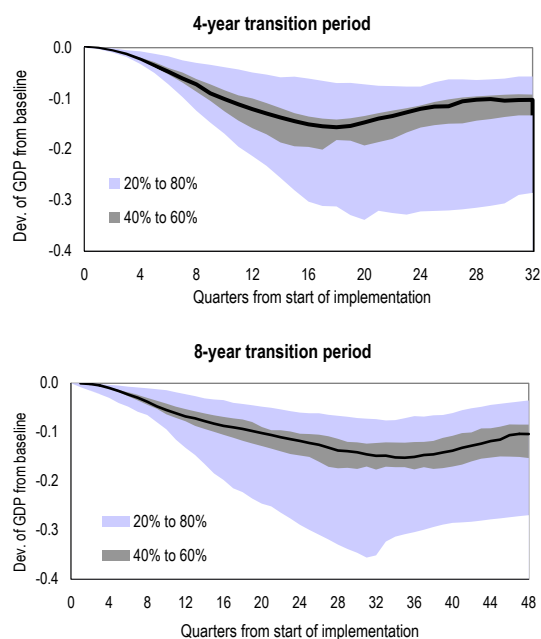
Source: BCBS (2010a)

As an element of comparison, Graph III.1.1 shows the distribution of the GDP impact over all 97 models used in the MAG study ([38]) for a 4- and 8-year transition period respectively, by giving the

20% and 60% confidence interval. With 8 years, the level of GDP is likely to decline by about 0.15% after 36 quarters and will recover to -0.1% after 48 quarters. With 4-years of transition the GDP losses are slightly higher, because in a shorter time span it is more costly for banks to raise new capital and for borrowers to adjust to alternative modes of finance. The graph shows GDP effects from averaging country-specific results. The IMF used the country-specific results and calculated the total GDP loss taking into account country spillovers. Such international spillover effects increase the negative impact by 0.02%.

These results can be used to calculate the GDP effect of Basel III taking into account the global capital shortfall. In the Quantitative Impact Study (QIS) ([39]), the Basel Committee estimated that the ratio of Tier 1 capital to total assets was 5.7% at the end of 2009. ([40]) Under Basel III a minimum common equity ratio of 4.5% is envisaged, augmented by a capital conservation buffer of 2.5%, yielding a total Tier 1 capital ratio of 7% at the end of the transition period. This implies that banks have to raise the capital ratio globally on average by 1.3 percentage points.

Sensitivity analysis

The various studies presented by academic economists, policy institutions and commercial banks differ strongly concerning the assumptions made about the impact of the regulatory reform on ROE. While academic economists tend to assume that the ROE will fall, banks fear an increase in the ROE. Indeed, the study presented by the IIF assumes an increase in the ROE in the range between 200 and 400 BP (for a 2 pp increase in CR).

Another concern sometimes voiced in policy discussions is a possible stronger impact of the reform on euro-area GDP because the non-financial sector in Europe relies more heavily on loan financing. For example, the share of loans of the non-financial sector in GDP is about 1.3% in

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([38]) Basel Committee on Banking Supervision (BCBS) (2010a) (MAG Report), 'The aggregate impact of the transition to stronger capital and liquidity requirements', Basel August.

([39]) Basel Committee on Banking Supervision (BCBS) (2010b) (LEI Report), 'An assessment of the long-term impact of stronger capital and liquidity requirements', Basel August.

([40]) The EU QIS estimates 5.6% as an average for group 1 banks in BE, FR, DE, IE, IT, NL, PT, ES, SE, and the UK using the new Basel III definitions.

Box III.1.1: **The QUEST model with a financial sector**

The QUEST model with a financial sector is a modified version of a standard closed economy DSGE model to which a banking sector with bank capital has been added. In order to allow for a meaningful financial intermediation function of banks the household sector is disaggregated into savers and borrowers (entrepreneurs). In order to allow for interbank lending and borrowing the banking sector is split up into 'savings' and 'investment' banks. Savings banks collect deposits from households, and only lend to investment banks in the interbank market. Investment banks can borrow from households in the form of deposits or from savings banks. Investment banks provide loans to entrepreneurs.

Savers:
In line with van den Heuvel (2008) ([1]), it is assumed that savers maximise an intertemporal utility function with consumption, liquidity services provided by deposits and leisure as arguments. Savers can hold wealth in the form of either government bonds, bank deposits or bank equity and receive interest income from bonds and deposits and dividends. Savers require a constant equity premium on bank stocks. Savers also offer labour services to entrepreneurs and receive wage income.

Entrepreneurs:
Entrepreneurs maximise an intertemporal utility function over entrepreneurial consumption, subject to an intertemporal budget constraint, a capital accumulation constraint and a collateral constraint. They combine capital and labour and produce output using a Cobb Douglas production function. In order to ensure a positive share of loans in the balance sheet of entrepreneurs it is assumed that they have a higher rate of time preference. In this case solvency of entrepreneurs requires that banks restrict lending by imposing a collateral constraint. This specification closely follows Kiyotaki and Moore (1997) ([2]).

Banks:
Banks provide loans to entrepreneurs and take deposits from saver households. They maximise the present discounted value of dividends which are paid to the household sector subject to a capital and liquidity requirement constraint. The capital requirement demands from banks that the ratio of deposits to loans should not exceed a certain target ratio, otherwise the bank will be penalised ([3]). Banks are required to hold liquid assets as a fixed share of loans. This imposes an opportunity cost for banks since liquid assets (government bonds and cash) yield a lower return. Banks can increase capital either by issuing new shares or via retained earnings.

Calibration

In order to analyse the transition from a pre-crisis and pre-reform steady state to a post-crisis and post-reform steady state, the model's pre-crisis capital ratio is calibrated using data from 2006. Calculations by the BIS, using an eight euro-area country aggregate balance sheet (for AT, BE, FI, FR, DE, IT, NL, ES) ([4]) suggest a ratio of capital and reserves to total assets of 5%. Again, following BIS calculations, concerning liquidity, it is assumed that banks hold 13% of their assets in the form of cash or liquid assets. About 10% of all liquid assets are held in the form of cash or central bank balances. About 20% of all bank assets are interbank deposits. Concerning aggregate lending of banks to the non-financial private sector the model must replicate a loan-to-GDP ratio of about 1.3. The interest data are from the ECB: 2006 figures suggest a loan interest rate of 6.1%, a deposit rate of 2.7% an interbank rate of 3.5% and a return on bank equity of 14.3%.

The interest semi-elasticity of the supply of deposits of households (ISED) is a crucial parameter for this exercise, since it determines by how much deposit rates will fall if the demand for deposits by banks declines. A value of 10 is assumed, which is at the upper end of existing estimates (see for example Ball (2001) ([5]) and Dedola et al. (2001)) ([6]). A high semi-elasticity parameter reduces the decline of the deposit rate and therefore increases the cost effect of an increase in capital requirements.

([1]) Van den Heuvel, S. J. (2008), 'The welfare cost of bank capital requirements', *Journal of Monetary Economics*, Vol. 55, pp. 298-320.
([2]) Kiyotaki, N. and J. Moore (1997), 'Credit cycles', *Journal of Political Economy*, Vol. 105, pp. 211-248.
([3]) There is a quadratic cost of deviating from the target.
([4]) ECB bank balance sheet data suggest a ratio of around 6% for the same period.
([5]) Ball, L. (2002), 'Short run money demand', *University of Maryland*, Mimeo.
([6]) Dedola, L., E. Gaiotti and L. Silipo (2001), 'Money demand in the euro area: do national differences matter?', *Banca d'Italia Working Paper*, No 405.

Europe and only 0.5% in the US. As can be seen from Table III.1.2, with a loan-to-GDP ratio as low as that in the US, the long-run impact of higher CR could be reduced in absolute terms from -0.36% to -0.19%. The table also shows the sensitivity of the long-run impact with respect to variations in the ROE. In the event of a permanent increase of 50 bp, the negative long-run GDP effect could be around -0.6%, while the GDP loss would be negligible if, as expected by Modigliani Miller, the ROE were to decline.

Table III.1.2: **Long-run GDP effects of a 1 pp increase in CR**	
(1) Standard specification	-0.36
(2) US Share of loans in GDP (around 50%)	-0.19
(3) Larger/smaller equity risk premium (+50bp/-50bp)	-0.58 / -0.14

Source: Commission services – QUEST Simulations.

Volatility

Unfortunately, with the macro models currently available it is not possible to fully account for behavioural changes of financial market participants, especially regarding their attitude towards risk taking. Therefore, it is not possible to adequately measure what is probably the most important benefit of the regulatory reform, i.e. reduced risk taking by banks. The results reported below only show the impact of higher capital requirements on the volatility of GDP (measured by the unconditional standard deviation of GDP) under the assumption that attitudes towards risk do not change.

Table III.1.3: **Capital requirements and volatility of GDP**		
	QUEST	Other models for the euro area (*)
2pp	-1.9	-2.8
4pp	-3.9	-5.4
6pp	-5.0	-7.7
* see Table 5 of Angelini et al. (2010)		

Source: Commission Services.

The results reported in Table III.1.3, are based on stochastic simulations with shocks to supply (TFP), demand (government expenditure) and monetary policy. The results show that increasing CR reduces the volatility of GDP. The variance of GDP is reduced slightly less than proportionally to the increase in CR. These results are in line

with other results used in the long-term economic impact study (Angelini et al. (2010)). [41]

These results refer to a reduction of GDP volatility in normal times, they do not refer to possible gains associated with reducing the likelihood of financial crises. A recent BoE study (Miles et al. (2011) [42]) provides a rough estimate of possible GDP gains taking into account the typical losses from financial crises. As shown by various empirical studies, financial crises are associated with GDP losses of about 10%. Assuming that about a quarter of these losses are permanent and using a discount rate of 2.5% p. a. the permanent GDP loss of one financial crisis is about 140% of one year's GDP. If higher regulation would reduce the likelihood of all financial crises in the future by 1% and applying the same discount rate, the gain from regulation would be 55% of one year's GDP. This benefit can be compared to the permanent GDP reduction due to regulation which we estimate to 0.36%. The present discounted value of this permanent GDP loss amounts to about 14% of one year's GDP, if one applies the same discount rate. Thus, the permanent GDP gain from financial market regulation could be substantial.

Conclusions

This section presents an analysis of the costs of increased capital requirements for banks, using a DSGE model with a banking sector and bank capital. An inherent degree of uncertainty surrounds these estimates, stemming principally from the ambiguous response of the return on equity, although on balance it appears reasonable to expect no large impact. Results are in line with those used in the MAG study. According to these results, banks will shift the cost of tighter regulation onto borrowers in the form of higher interest rates. The model stresses two mitigating factors. First, a reduction in deposit rates, which partly offsets the cost increase implied by higher capital requirements, and second, a move towards higher rates of self-financing.

The paper also finds that higher capital adequacy brings potential benefits in terms of lower GDP volatility, a slightly lower estimated level of GDP in this scenario notwithstanding. However, the

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[41] Angelini, P., L. Clerc, V. Cúrdia, L. Gambacorta, A. Gerali, A. Locarno, R. Motto, W. Roeger, S. Van den Heuvel and J. Vlček (2010), 'BASEL III: Long-term impact on economic performance and fluctuations', *BIS Working Papers*, No 338.

[42] Miles, D., J. Yang, G. Marcheggiano (2011), 'Optimal bank capital', *Bank of England Discussion Paper*, No 31, January 2011.

GDP losses in normal times, due to regulation must be seen in relation to permanent GDP losses from financial crises. Estimates taking this into account yield substantial net social benefits. However, research on crisis prevention due to regulation is still at its infancy and more work is needed in order to come up with more precise estimates concerning the extent in which the risk of large financial crises can be reduced by more stringent financial market regulation. For this task, current macro models still need to be improved in order to adequately address possible excessive risk taking of banks in the presence of limited liability.

III.2.   *Estonia in the euro area: staying fit in monetary union*

Introduction

With the entry of Estonia into the euro area on 1 January 2011 the country has reached the deepest stage of economic and monetary integration in the EU. Against the unwavering prospect of eventual euro adoption, Estonia experienced fast convergence supported by high economic growth and declining unemployment over several years. However, significant macro-economic imbalances accumulated on the back of an overheating economy, which led to postponement of euro adoption, initially envisaged to take place shortly after EU accession in 2004. Like in other euro-area Member States, the unwinding of these imbalances was amplified by the fallout from the global economic crisis, thus raising the challenges for euro adoption. Yet, thanks to impressive fiscal consolidation, comparatively flexible labour markets and additional structural reforms undertaken, Estonia successfully managed to fulfil the conditions for the adoption of the euro.

This section describes Estonia's economic adjustment path and the main policy actions taken towards euro adoption. It concludes with some policy lessons for successful economic performance in the euro area.

Economic convergence accelerated ahead of EU membership in 2004 and afterwards …

In the early 2000s, Estonia was quickly recovering from the Russian crisis and strengthening its economic, financial and institutional ties with the EU, especially with the Nordic countries. The factors that made Estonia stand out among other transition economies were its overall prudent fiscal policy, the very low level of its public debt, and a simple and efficient system of taxation that favoured business investment. The currency board regime provided exchange rate stability and served as the main policy anchor, helping to contain inflation. Such a policy mix was well-suited to a small open economy. The improving external environment, a sound macro-economic policy framework, and the prospect of EU entry contributed to high investment and fast catching up. These factors boosted private sector confidence and brought about significant economic convergence with the EU, at an increasing speed.

Estonia's GDP growth rate in 2000-2007 averaged as much as 8.4%. It was primarily driven by very high capital deepening and TFP growth. Foreign direct investment increased significantly, contributing to buoyant exports. Estonia's share of exports of goods and services in world exports rose until 2006, mostly thanks to a successful re-orientation and specialisation of exports in response to EU demand and favourable economic outlook in the main trade partners. [43]

In addition to a strong external sector, an increasingly important contribution to growth came from buoyant domestic demand, which was fuelled by financial convergence. A robust catching-up record and improved access to cross-border bank finance in anticipation of Estonia's EU accession dramatically reduced risk premia. Nominal interest rates declined to levels very close to those of the euro area, and real interest rates turned negative by mid-2000. Starting from a low position, private credit expanded robustly, permitting large and sustained — but ultimately not sustainable — gains in investment and consumption expenditure. Domestic demand surged, leading to a significant deterioration of the current account from -4.8% of GDP in 2001 to -17.2% in 2007.

Similarly to some other EU economies, including within the euro area, the demand boom was partly driven by strong investment flows into residential property and the associated rise in construction activity. Compared to 2001-2004, construction sector growth more than tripled in the years after accession, averaging 18.5% in 2005-2007, and other non-tradable sectors also expanded robustly. This boom was mirrored in the labour market, where employment expanded strongly and the activity rate increased. The unemployment rate dropped from 14% in 2000 to less than 5% in 2007. Similarly to the pre-crisis experience of the other Baltics and peripheral euro-area Member States, employment growth took place almost exclusively in the non-tradable sector, drawing workers away from other sectors.

… with signs of overheating by 2007

By 2007, significant imbalances became apparent and were accompanied by clear signs of overheating. The positive output gap increased to above 10%, according to Commission estimates.

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[43] A thorough account of the convergence, boom and subsequent bust is presented in European Commission (2010), 'Economic policy challenges in the Baltics', Directorate-General for Economic and Financial Affairs, Occasional Papers, No 58.

Graph III.2.1: **GDP gap with the euro area and growth decomposition, Estonia (in %)**

Gap with euro area 16 in level in 2009

Growth decomposition 2001-2009 (annual average)
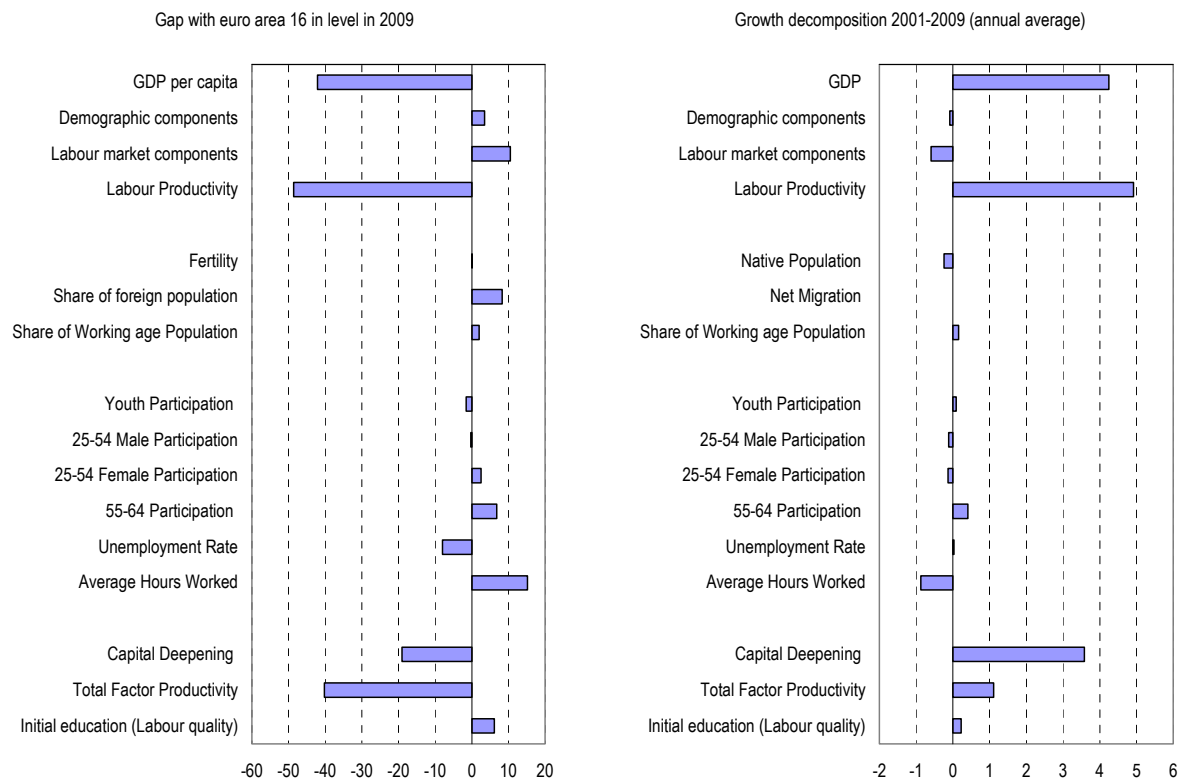
Source: Commission services.

Both household and corporate debt doubled between 2001 and 2007, reaching 123 % of GDP. Annual growth of imports exceeded 17 % in 2007, pushing the current account deficit to unsustainable levels. Labour market bottlenecks, such as skill shortages, combined with increased employment in the booming low-productivity construction sector, resulted in wage increases outpacing productivity and pushed up unit labour costs. Together with the increase in inflation due to strong domestic demand and overheating, this contributed to the erosion of external competitiveness and to a significant appreciation of the real effective exchange rate. The surge of inflation to well beyond the Maastricht reference criterion put a brake on the prospect of early euro adoption.

Some policy action was taken to counter the overheating pressures, although the choice of policy instruments at the government's disposal was rather restricted. With monetary policy focused on maintaining the currency board and in the light of the limited role of automatic stabilisers in a country with a small government size, the main tools for macro-economic stabilisation were discretionary fiscal policy and prudential and supervisory policies in the

financial sector. Starting from 2006, banks' minimum reserve requirements were raised and the rules for the computation of capital adequacy were tightened. Given that the banking sector in Estonia is almost entirely foreign-owned, cooperation with supervisory authorities in relevant countries was strengthened. On the fiscal side, a somewhat belated policy response was aimed at reducing the incentives to borrow while relatively high tax rates on distributed dividends encouraged banks to maintain large capital and liquidity buffers. [44] As regards government expenditure, significant nominal surpluses were recorded in 2005-2007, but fiscal policy remained pro-cyclical in structural terms and likely contributed to overheating.

The financial crisis triggered significant real adjustment at a high cost

Preceded by a turnaround of the credit and housing cycles in 2007, the economic adjustment in Estonia already started in early 2008, but was considerably reinforced by the escalation of the global financial crisis as from September 2008.

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[44] Purfield, C. and C. Rosenberg (2010), 'Adjustment under a currency peg: Estonia, Latvia and Lithuania during the global financial crisis 2008-09', *IMF Working Paper*, WP/10/213.

The downturn was ultimately prompted by excessive real estate prices, high private sector indebtedness and a tightening of credit. Already before the crisis, Nordic banks began reassessing the economic outlook of the Baltics and imposing tighter credit rules, also in the light of rising policy rates applied by national central banks in Europe and elsewhere. This resulted in an increase in real interest rates in Estonia to pre-2000s levels. The demand for housing loans fell, which led to a deceleration of real estate transactions and falling asset prices. This in turn immediately affected output and employment in construction, real estate, and financial services. The contraction subsequently spread across other sectors, prompting a fall of domestic demand.

The negative shock from domestic demand was amplified by the subsequent global liquidity crunch and a steep fall of exports, hit by the collapse of the trade guarantees market. The drop in world demand, magnified by the severe regional impact of the global trade crisis, hit the open Estonian economy very hard. Additional negative repercussions from the global financial crisis stemmed from the flight to safety in financial markets and an upward pressure on interest rates resulting from the currency board arrangement and a corresponding need to ensure adequate inflows of foreign capital. Overall, the cumulative GDP loss in Estonia in 2008-2009 amounted to 19%.

In the face of this serious crisis, a major challenge was to ensure macro-economic stability, to avoid putting private sector net worth at risk and to keep the prospect of euro adoption open. Estonia had to rely on internal adjustment to absorb the negative shock of the economic bust and to proceed along a path of considerable restructuring of the economy.

Given the comparatively flexible labour market in Estonia, employment swiftly reacted to the drop in GDP, with the most pronounced decline in employment taking place in the non-tradable sectors. The unemployment rate rocketed from 4.8% in 2007 to 17.3% in 2010. Labour shedding was at times preceded but also often accompanied by a reduction of working time, if necessary through a modification of work contracts. This led to a significant decline in the wage bill. After a two-year decline, productivity growth turned positive again to +7.4% in 2010 according to the estimation of the Commission's forecast. Unit labour costs moderated significantly in 2009 and decreased by almost 7% in 2010, which, in combination with inflation dropping from 10.6%

in 2008 to 2.7% in 2010, helped to correct relative prices. For instance, the real effective exchange rate as measured by unit labour cost relative to the main industrialised countries is expected to have declined by 9.2% in 2010.

Public expenditures had increased significantly during the boom years. With the crisis, tax revenues collapsed and the deficit risked spinning out of control. The only policy option that was fully consistent with the currency board was to embark upon rapid fiscal consolidation. Indeed, Estonia implemented a sizeable consolidation package allowing it to regain stability and maintain its deficit below the Maastricht requirement, thus, opening the door to euro introduction.

Zooming in on labour market adjustment

Reliance on labour market flexibility was an essential element of the adjustment that took place in Estonia over the last two years. Estonia's labour market institutions involve a high degree of quantitative flexibility, i.e. allowing adjustment through lay-offs and working time flexibility, but also a high degree of wage flexibility. Indeed, the drop in private sector employment accounted for the bulk of labour shedding over the past two years, with job losses across all sectors of activity. The accelerated adoption of the new labour law, effective since July 2009, contributed to a swifter adjustment by reducing lay-off costs for regular contracts and easing hiring, although labour protection had already been rather light *de facto* since the early 2000s. [45]

The reduction of working hours was used more intensively in Estonia than in other Member States. [46] Instead of lay-offs, many companies opted for the introduction of part-time employment, cutbacks in working hours, and partially paid vacations. As a result, the drop in hourly productivity in 2008-2009 remained smaller and was less prolonged than that of productivity per employee (see Graph III.2.2). The improved economic outlook in 2010 led to an increase in working hours before translating into employment growth.

Downward flexibility of wages was another important adjustment channel to alleviate the negative effects of the shock. The decentralised

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[45] Eamets, R. and J. Masso (2007), 'Macro-level labour market flexibility in the Baltic States', in Paas and Eamets (eds.) 'Labour Market Flexibility, Flexicurity, and Employment: Lessons from the Baltic States'.

[46] Bank of Estonia (2010), Labour Market Review, No 2/2010.

wage setting and company-level bargaining that prevails in the Estonian labour market facilitated downward nominal wage adjustments in a way that was similar to the adjustment after the Russian crisis in 1999. In 2009, compensation per employee fell by more than 3%. Such a rapid nominal downward correction is rather unusual, and only took place in a handful of countries in the EU, namely in the Baltics and in Hungary.

Graph III.2.2: **Labour productivity, Estonia (y-o-y changes in %, 2008Q1 to 2010Q3)**
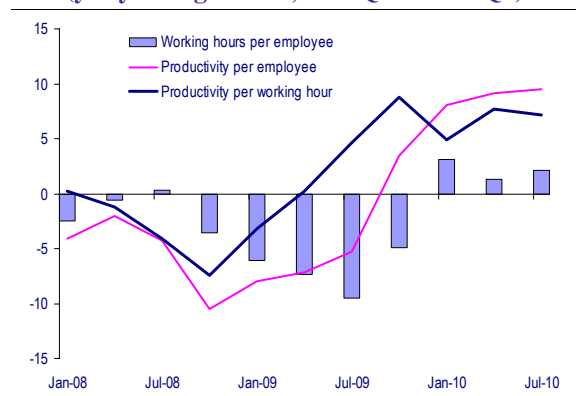
Source: Commission services.

In addition to the nominal adjustment of base wages, non-wage adjustment strategies appear to have played an important role in Estonia, too. The pre-crisis micro-level evidence suggests that almost every worker in Estonia has been affected by at least one non-statutory non-wage adjustment, with a reduction of bonus payments being the most common response, adopted by about 40% of firms, almost twice as many as in the euro-area on average ([47]). The importance of bonus payments is captured by the difference between the growth of average monthly and hourly gross wages during the adjustment period: the latter decreased less rapidly and is now recovering more slowly than monthly wages. Furthermore, wage freezes appear to be more significant and automatic indexation less frequent in Estonia than in other peripheral euro-area Member States. ([48])

While nominal labour market flexibility is important, it is the *functional* flexibility of the labour market (i.e. the availability of transferrable skills) that allows individuals to better adapt to

structural and technological changes. ([49]) In the past, skill shortages and mismatches in Estonia led to rapid real wage increase in periods of expansion and contributed to the emergence of imbalances. The Beveridge curve for Estonia, which relates unemployment to job vacancies, shows the negative effect of the recession that is reflected in a falling number of vacancies and a substantial increase in unemployment. While skill shortages have not yet become apparent, rebalancing the economy may require investment in skills and human capital to facilitate the transition of labour to the tradable sectors and to prevent unemployment from becoming structural.

Graph III.2.3: **Beveridge curve (in%, 2008Q1 to 2010Q4)**
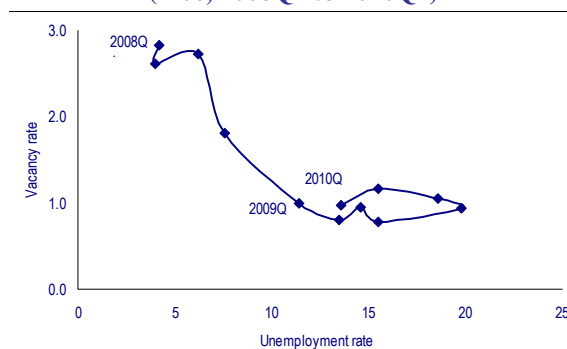
Source: Commission services.

Some lessons from the adjustment experience in Estonia

Overall, the absorption of the negative shock of the global financial and economic crisis was similar in Estonia to other countries in the EU where economic expansion prior to the crisis had relied on excessive credit growth and a concentration of employment in less productive sectors. The output of the non-tradable sector collapsed, accompanied by significant labour shedding and unemployment spikes. It also appears that, similar to other Baltic States, wage and working time adjustment in Estonia helped to regain competitiveness and facilitated adjustment. This contrasts with the experience of peripheral euro-area Member States where, with the exception of Ireland, wage stickiness resulted in nominal wage increases even when employment plummeted. With productivity on the rise, unit labour costs dropped by as much as 7-8% in Estonia in 2010 and are likely to remain subdued in following years.

([47]) Babecký, J., P. Du Caju, T. Kosma, M. Lawless, J. Messina and T. Rõõm (2009), 'The margins of labour cost adjustment: Survey evidence from European firms', *Czech National Bank*, W*orking paper Series*, No 7.

([48]) Ibid.

([49]) See, for example, Brixiova ,Z. (2009), 'Labour market flexibility in Estonia: What more can be done?', *OECD Economic Department Working Paper*, No 697.

The economic rebound in 2010, which amounted to 3.1%, has been achieved while keeping public sector deficit under control and well within the limits of the Stability and Growth Pact. A sizeable fiscal adjustment of over 10% in 2008-2010 helped to ensure fiscal sustainability — given the structural misalignment between revenues and expenditures resulting from the boom years — and allowed the government debt to be kept contained. In contrast to most other Member States, prudent fiscal policy in Estonia before the crisis helped to build up liquidity reserves and ensured that public sector finances were not constraining the ongoing recovery.

Over the last two years, a number of macro-economic and prudential measures were introduced to help restore the normal functioning of financial markets and repair private sector balance sheets. Private sector loan indebtedness has been slowly declining since autumn 2008 (but only since early 2010 in GDP terms given the large denominator effect) to reach 106% of GDP in 2010, with the loan and leasing portfolio decreasing by 6.3% in 2010. Equity prices rose by 75% in 2010 in view of the prospect of euro adoption, supporting private sector wealth and strengthening households' balance sheets. However, deleveraging may take time and private sector indebtedness remains rather high.

The banking sector is well capitalised (the average solvency ratio of banks operating in Estonia has stabilised around 22% since early 2009) and the pace of deterioration of banks' assets has been slowing down. Last year, Estonia adopted a bank resolution law, which should enable it to take timely action required to secure the stability and credibility of the financial system. The law also reinforces the powers of the national supervisory authority, which should help to control credit growth. The supervisory cooperation in the Nordic-Baltic region, including a multilateral cooperation agreement on cross-border financial stability, crisis management and resolution signed in August 2010, helps to ensure financial sector stability, which is essential to attracting capital and fostering investment.

The relatively strong fiscal position and rapid adjustment in the labour market supported the improvement in cost competitiveness, contributing to a swift recovery of the tradable sector once the global economic outlook started to improve. Indeed, output in the second half of 2010 was mainly driven by the strong growth of the exporting manufacturing sector.

As the global recovery gains ground, the economic outlook in Estonia relies upon the swiftness and sustainability of the ongoing sectoral rebalancing. By building foundations for sustainable growth, structural reforms are likely to play the key role.

Measures that improve market functioning and facilitate better resource allocation – such as measures to improve skills matching and mobility, reduction of labour costs, better framework conditions for innovation, and a business-friendly regulatory environment – can yield the double benefit of helping to restore price competitiveness and facilitating rebalancing towards exports, while at the same time fostering potential growth via capital and TFP growth. They are indispensible to ensure the successful performance of Estonia within the euro area.

Conclusion

During the last ten years Estonia achieved significant economic convergence with the EU. This result was supported by a policy mix that was based on a currency board regime and backed up by relatively sound fiscal policy and low public debt. Nevertheless, fiscal discipline alone was not sufficient to guarantee overall macro-economic stability. Financial convergence fuelled strong domestic credit growth, which from the mid-2000s led to a construction boom and, eventually, to overheating. Similarly to other countries experiencing persistent external imbalances, Estonia was particularly hard-hit by the global financial crisis, with surging unemployment and a cumulative GDP loss in 2008-2009 amounting to 19%.

Currently, Estonia is undergoing a significant adjustment process. In this context, an important lesson from the crisis is that policies actually do make a difference. Measures introduced by Estonia to ensure flexible labour markets, and prudent fiscal and financial policies have limited the damage brought by the crisis and are contributing to a fast export-driven recovery. Maintaining an appropriate policy framework, strengthening the foundations for higher potential growth and ensuring economic surveillance to avoid the emergence of new imbalances are key elements of the strategy to support both the sustainability of the resuming real convergence process and successful economic performance in the euro area.

III.3. Dissecting the recovery with survey data

The European Commission has been running the Joint Harmonised EU Programme of Business and Consumer Surveys (BCS) since 1961. The programme now embraces 7 major surveys (industry, services, construction, retail, consumers, financial services and investment) in 30 countries, with more than 125 000 firms and 40 000 consumers surveyed every month across the EU. This section draws on this wealth of information to analyse the ongoing recovery, notably by comparing it to major cyclical recoveries in the past. ([50])

Business and consumer survey data are important tools for short-term forecasting. They can, however, also be used to analyse the business cycle with two major advantages over the hard data generally used for this purpose (quarterly national accounts, industrial production, etc.). First, confidence surveys are easier to interpret than hard data: usually they don't require filtering methods to disentangle trend and cycle, ([51]) they are available early and subject to only limited revisions. Second, surveys can help track features of the business cycle that cannot be measured with hard data, including various expectations on the part of households and companies, their assessment of specific risks (e.g. unemployment or financial) and their assessment of the general economic situation.

A synchronised but unbalanced recovery…

Based on the Commission's Economic Sentiment Indicator (ESI), which summaries confidence in major sectors of the economy, the euro-area business cycle peaked in spring 2007 and began falling abruptly in the ensuing summer. ([52]) The indicator reached an unprecedented trough in March 2009, but has since recovered significantly and almost continuously to reach levels

approaching the cyclical peak of summer 2007 (Graph III.3.1).

Graph III.3.1: **Economic Sentiment Indicator, euro area (Jan 85 to Feb 11)**

Source: Commission services.

The ongoing recovery in sentiment has generally been closely synchronised across sectors: confidence has picked up in the same month (April 2009) in industry, in services and among consumers, with only construction lagging behind by 2 months (see Graph III.3.2). This contrasts with the previous two major recoveries of the early 1990s and early 2000s which were considerably less synchronised and were characterised, in particular, by substantial lags in the rebound of consumer confidence.

Graph III.3.2: **Confidence indicators in various sectors, euro area (Jan 07 to Feb 11) (balances) (1)**

Industry — Services — Households — Construction
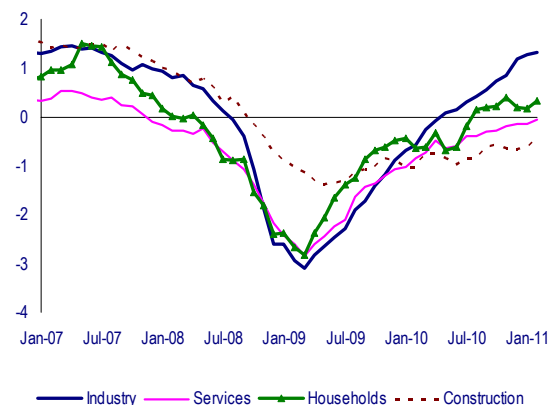
(1) To facilitate sectoral comparisons all balances are normalised.
Source: Commission services.

Notwithstanding this close synchronisation, the strength of the upswing in confidence since March 2009 has varied significantly across sectors. Sentiment in the euro area has been primarily driven by industry, where confidence is now approaching its pre-crisis peak (Graph III.3.2).
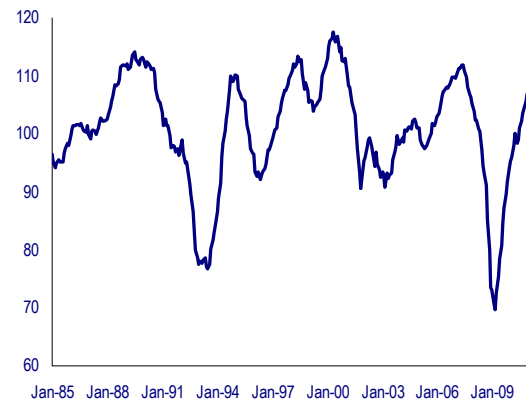

([50]) This section is based on survey data up to February 2011. Therefore, the recent dramatic events that have hit Japan are not reflected either in the analysis or in the underlying figures.

([51]) There is general agreement that survey data are stationary and track cyclical conditions, even if filters may sometimes be needed to remove possible high frequency noise. Most (but not all) confidence indicators should be interpreted in terms of cyclical growth.

([52]) The ESI is a weighted average of sentiment in industry, services, retail and construction as well as among consumers. Further information on the ESI and other BCS data can be found on DG ECFIN's BCS website:
http://ec.europa.eu/economy_finance/db_indicators/surveys/index_en.htm.

Interestingly, sentiment in the financial sector (which is tracked in a dedicated survey) has also recovered strongly to levels last seen in summer 2007, i.e. right before the onset of the financial crisis. In contrast, the recovery has been more muted for (non-financial) market services and for consumers, with sentiment at or slightly above the long-term trend, respectively. It has been extremely weak in the construction sector where activity probably remains in contraction mode.

This sectoral pattern supports the idea that the main engine of recovery in the euro area has so far been a sharp rebound in world trade, which has mainly boosted industrial activity, while domestic demand has been slower to get traction. A comparison with the two major previous recoveries, further confirms the unbalanced pattern of the ongoing recovery. The rise in confidence since March 2009 has been characterised by a stronger role of industry than in the early 1990s and early 2000s, which may also be a testimony to the unusually large drop in industrial activity during the Great Recession.

… characterised by unusually sluggish growth

In addition to an unbalanced pattern, the ongoing recovery is also characterised by unusually sluggish GDP growth. Signals from hard data have so far not been as strong as relatively upbeat survey readings would have suggested (see Graph III.3.4). There are several possible explanations for this decoupling:

- There was a well-known decoupling between hard and soft data around the trough of the cycle which can be mainly explained by the existence of non-linearity at times of very deep recession. [53] At this stage of the cycle, however, the non-linearity should not affect data anymore.

- The present decoupling could signal a period of overshooting in household and business confidence. Statistical tests suggest, however, that the decoupling has been in place for several years now. This appears quite long for a period of overshooting of confidence.

- Finally, the decoupling could reflect the fact that the euro-area economy has shifted onto a

significantly lower growth path. This explanation would be in line with the information provided by Commission estimates of potential output. [54] It would also be in line with a range of empirical studies which point to significant and lasting losses in GDP growth in the aftermath of major financial or banking crises. [55]

Graph III.3.3: **GDP growth and Economic Sentiment Indicator, euro area (2006Q1 to 2010Q4)**
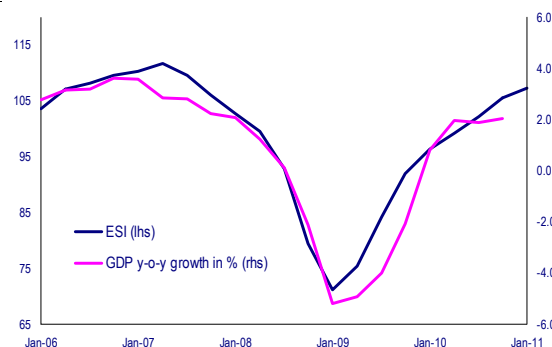
Source: Commission services.

Short-term prospects remain reasonably upbeat in most sectors

Sentiment indicators do not send clear signals of having reached a peak, suggesting that the recovery remains on track. This is particularly clear from survey data for industry which show that *order books* are still rising and that activity is still picking up momentum. By contrast, during the 1993-95 recovery, a stabilisation of order books was already visible at this stage of the cycle. Another positive signal comes from the relationship between stocks and production expectations, which is now normalising after diverging from its usual path during the recession period. Manufacturers' *assessment of stocks* is at historical lows, suggesting that stock-building will contribute significantly to demand in the coming months (Graph III.3.4).

Regarding short-term prospects for services, the latest readings of the surveys are also encouraging, although somewhat weaker than in industry. *Demand expectations* have levelled off in the past couple of months but *observed demand*

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[53] Whereas there is, in practice, no lower bound to a rate of contraction of GDP, there is a lower limit to confidence indicators due to the fact that, once 100% of respondents report a deterioration in activity, no further loss in the confidence indicator is possible.

[54] See, European Commission's AMECO database
[55] See for instance Reinhart, C and K. Rogoff (2009), 'This time is different: Eight centuries of financial folly', Princeton University Press.
IMF (2009), 'What's the damage? Medium-term output dynamics after financial crises', *World Economic Outlook* (October).

remains on an upward path. Positive signals for domestic demand are also coming from the retail trade sector, where confidence has followed an upward, albeit volatile, recovery path since March 2009, settling now well above its long-term average and at pre-crisis peak levels.

Graph III.3.4: **Assessment of stocks, euro-area industry (Jan 85 to Feb 11) (balances)**
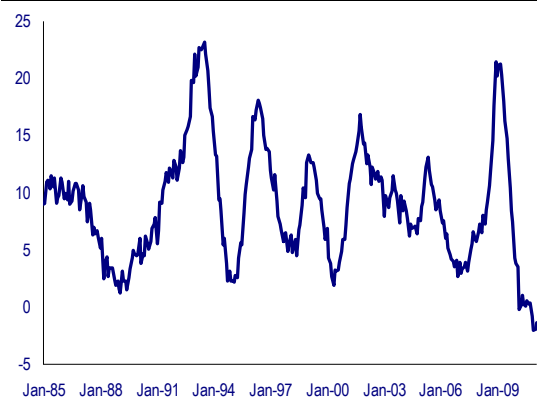
Source: Commission services.

The only industrial sector where the short-term outlook remains clearly sluggish is construction. The sector has so far shown limited signs of recovery. Confidence remains well below historical averages and since the last fall it has shown very limited gains, with discontinuities due to temporarily constrained activity following adverse weather conditions in December and January. Weather-related constraints have now faded away, but despite very low interest rates the sector's outlook remains hampered by weak demand and order books still well below historical averages. Overall, the euro-area construction sector seems to be in for a long period of adjustment following its pre-crisis boom.

But there are causes for concern on medium-term recovery prospects on the consumer side…

Notwithstanding these positive short-term signals, surveys also point to a number of possible impediments to the ongoing recovery that could weigh on growth in the medium term. A systematic comparison with developments in sentiment in the aftermath of the 1992-93 recession (i.e. the recovery of 1993-95) points to a number of worrying patterns in the ongoing recovery, including lingering uncertainties among consumers, weak corporate investment plans and possible supply constraints in industry. (56) The

comparison also shows that the ongoing recovery has so far been comparatively uneven across euro-area countries, pointing to an unusual degree of divergence among Member States.

Turning first to consumers, the ongoing recovery in sentiment has shown, so far, a dynamic relatively similar to that observed after the 1992-1993 recession: a strong and fast rebound during the first year, followed by a deceleration/stagnation period. However, while the 1993-1995 recovery saw the stagnation phase start once crisis losses had been broadly recouped, consumer confidence currently remains well below the peak levels registered in 2007, and also lower than at a similar stage of the 1993-95 recovery. This suggests a premature stabilisation of sentiment, which could weigh on medium-term prospects for consumption.

Graph III.3.5: **Consumers' expectations as to the general economic situation, euro area (balances) (1)**
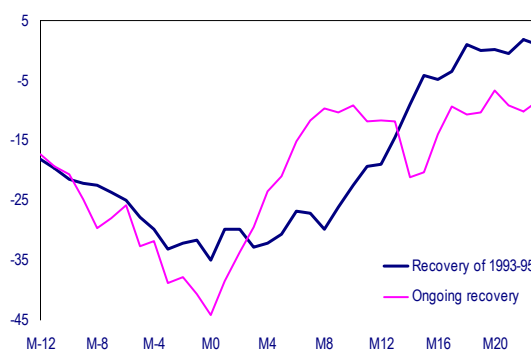
(1) M0 marks the trough of the downturns (as measured by the confidence indicator for consumers) in March 1993 and March 2009.
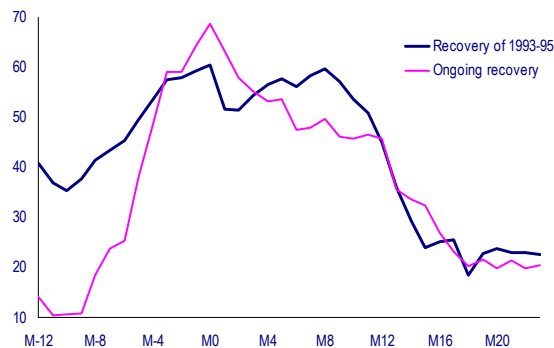*Source:* Commission services.

As in the 1993-1995 recovery, consumers' views on overall prospects for the economy (namely their expectations about the *general economic situation* and *unemployment* fears) have been the main driver of confidence. In particular, consumers' assessment of general economic prospects began to stall at the end of 2009, i.e. much earlier than in the recovery of the previous decade (see Graph III.3.5). The recent dynamics of that indicator, in particular its temporary sharp drop in May and June 2010, could suggest that the sovereign debt tensions are having a significant

(56) In the remainder of this section, comparisons with previous major recoveries are restricted to the 1993-95 recovery. Comparisons with the recovery of the early 2000s are less meaningful as the downturn of the early 2000s was relatively shallow and not a recession per se. Comparisons with the recession of the early 1980s are unfortunately not possible as survey data are only available since 1985.

effect on consumer confidence in the euro area. In any event, consumers' concerns about the general economic situation are now greater than at a similar stage of the 1993-95 recovery.

Consumers' concerns in terms of *unemployment fears* have evolved in broadly similar ways during the two recoveries. It is noteworthy, however, that the deterioration in sentiment regarding unemployment was far bigger in the latest recession than during its predecessor of the 1990s (Graph III.3.6). As a result, whereas unemployment fears had receded to their pre-crisis level in 1995, they are now still substantially higher than before the onset of the global financial and economic crisis. This is somewhat surprising given that job losses or rises in unemployment registered rather similar magnitudes during the two recessions. Despite substantial improvements in labour market performance in the 2000s compared with the previous decade (measurable notably in terms of lower structural unemployment), in the wake of the latest recession, consumers in the euro area thus continue to be suspicious about the functioning of labour markets.

Graph III.3.6: **Consumers' unemployment expectations, euro area (balances) (1)**

(1) M0 marks the trough of the downturns (as measured by the confidence indicators for consumers) in March 1993 and March 2009
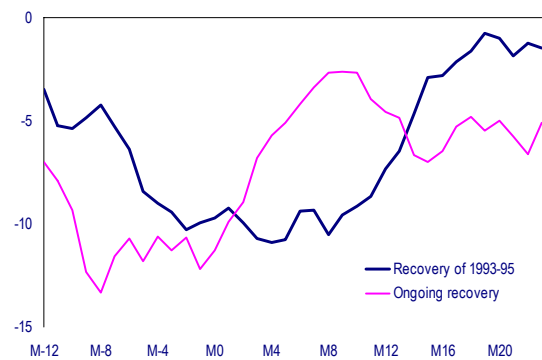*Source:* Commission services.

Finally, and not very surprisingly, the latest recession has left deep scars in sentiment via its impact on consumers' perception of their individual financial situation. This is particularly visible in consumers' assessments of their *expected financial position over the next 12 months* (see Graph III.3.7). The indicator saw a rapid increase in the early stage of the ongoing recovery, which came to halt at the end of 2009 and was followed by significant drops in the period from February to July 2010 with the

escalation of sovereign debt tensions. The indicator is now well below its 1995 level.

Overall, the comparison with the cycle of the early 1990s points to lingering worries among consumers involving both general macroeconomic uncertainties and concerns about the effect of the crisis on their personal financial situation. This means that precautionary savings could remain high for some time, weighing on prospects for private consumption.

Graph III.3.7: **Consumers' expected financial situation, euro area (balances) (1)**

(1) M0 marks the trough of the downturns (as measured by the confidence indicator for consumers) in March 1993 and March 2009
Source: Commission services.

… and possible impediments to medium-term recovery prospects on the corporate side
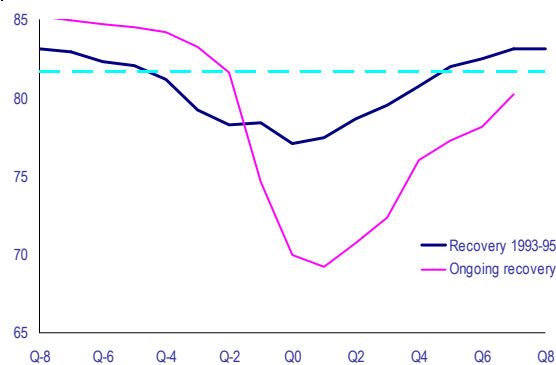
Business surveys also point to possible impediments to the recovery on the supply side. Capacity utilisation reached a trough between 2009Q2 and 2009Q3, following an abrupt and deep downturn leading to its lowest level ever (and well below the level reached in the 1993 crisis — see Graph III.3.8). Against the backdrop of a strong recovery in industrial activity, capacity utilisation has rebounded since 2009Q3, but is currently (7 quarters after the trough) still below its long-term average and significantly below its level at the same stage of the recovery in 1993-95.

The current subdued rate of capacity utilisation in the manufacturing sector points to sluggish growth in investment in the near term. This is indeed consistent with manufacturers' investment plans as reported in business surveys. According to the latest investment survey (November 2010), manufacturers intend to raise investment by 2% in volume in 2011. This is well below their investment plans at a similar stage of the business

cycle in the 1990s. ([57]) A more systematic comparison of investment cycles as reported in surveys actually shows that capital formation reached a similar trough in 1993 and 2009 (with a contraction of close to 20% in real terms), but rebounded more strongly in 1993-95 than in 2010-2011. Contrary to the recovery of the 1990s, manufacturers' investment plans are currently more geared at replacing equipment than expanding capacity and suffer from more sluggish demand prospects.

including slower capital accumulation, lost employee skills, temporary losses in supply due to sectoral reallocation, etc. Such inflections are visible in 1993 and, to a lesser degree, in 2002-03. The latest recession, however, stands out with a sharp drop in the estimated level of production capacity in industry, well above anything recorded in the previous decades. This suggests that in the absence of a rapid recovery in investment, the recovery in the euro-area industry could face supply constraints in the near future. ([59])

Graph III.3.8: **Capacity utilisation, euro-area industry (in %) (1)**

(1) Q0 marks the trough of the downturns in 1993Q3 and 2009Q2. The dashed line represents the long-term average
Source: Commission services.

Graph III.3.9: **Production capacity, euro-area industry (index base 1992=100) (1)**

(1) The indicator is constructed as the ratio of industrial production to capacity utilisation in industry (Jan-91 to Jan-11).
Source: Commission services.

Beyond short-term prospects for domestic demand, persistent weakness in corporate investment plans also raises concerns about the euro-area's supply capacity. Graph III.3.9 displays an indicator tracking developments in production capacity in industry. The indicator combines information from surveys (capacity utilisation rate) and hard data (industrial production) to give an assessment of production capacity in industry, i.e. the maximum level of production that manufacturers can attain by mobilising all resources at their disposal. ([58])
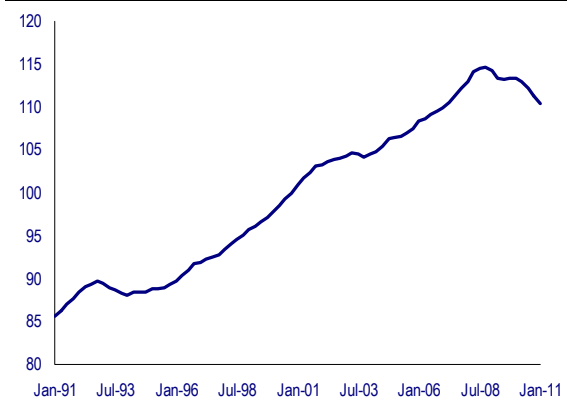
As can be seen from the graph, production capacity in industry generally trends upwards over time, most likely due to a combination of capital accumulation, labour force expansion and technical progress. Major cyclical downturns are associated with a downward inflection of the indicator, most likely due to a number of factors that temporarily hamper supply capacity,

A multispeed recovery across Member States

During the 1993 crisis, sentiment reached its trough in euro-area Member States in a less synchronised way than in the latest crisis, when almost all the euro-area countries bottomed out in March 2009. In contrast, the ensuing recovery was much more homogeneous across countries in 1993 than what can be observed currently. The divergence among Member States as shown in Graph III.3.10 has almost tripled since the beginning of the ongoing recovery, pointing to a much more uneven recovery in sentiment among euro-area Member States than in 1993-95. ([60])

In particular, the divergence mirrors the fact that the rebound of the ESI (Graph III.3.11) observed in core countries (with Germany, Belgium and the Netherlands firmly in the lead) has so far been significantly stronger than in periphery countries

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([57]) In November 1994, manufacturers anticipated an increase in investment of 8% in 1995.

([58]) More precisely, the indicator is constructed as the ratio of industrial production to capacity utilisation in industry. The indicator is smoothed by taking a four-quarters moving average. It can be interpreted as a measure of industrial capacity consistent with the capacity utilisation rate reported in surveys.

([59]) It is worth stressing that corporate investment is probably not the only area where action is needed to restore capacity. Improving labour skills and facilitating the sectoral reallocation of production resources triggered by the economic crisis are important areas as well.

([60]) Divergence is measured as the standard deviation of the ESI across countries over two years.

(Greece, Portugal and Spain), where confidence has recovered only partially and still stands below 'normal' levels (long-term average).
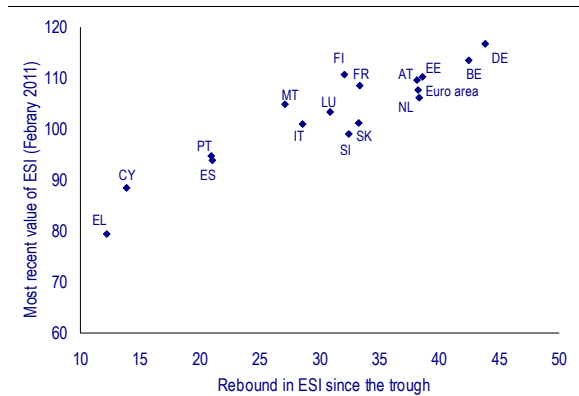
Graph III.3.10:   **Standard deviation of the ESI across EA-17 Member States (in %)**
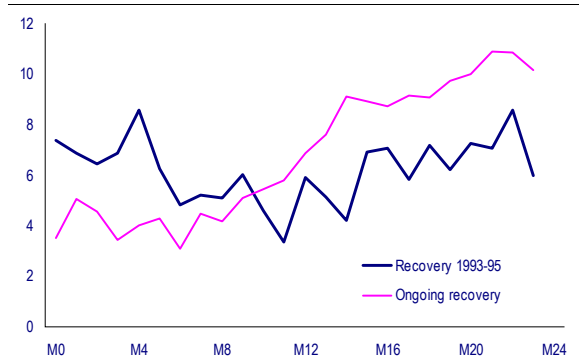
(1) M0 marks the trough of the downturns in July 1993 and March 2009.
Source: Commission services.

Graph III.3.11:   **ESI rebound vs ESI level**

Source: Commission services

Conclusion

Business and consumer survey data are an important tool to analyse business cycle developments. Survey data show that the recovery which began in spring 2009 and is still ongoing has been closely synchronised across sectors but has also been unbalanced – mostly driven by industry – and associated with unusually sluggish GDP growth.

At this stage, sentiment indicators do not send clear signals of having reached a peak, suggesting that the recovery from the Great Recession remains on track. Nevertheless, a systematic comparison with developments in sentiment in the aftermath of the 1992-93 recession points to a number of patterns in the ongoing recovery. Lingering uncertainties among households, particularly about their financial situation, unemployment risks and general economic prospects point to downside risks on private consumption. On the corporate side, manufacturers' investment plans remain sluggish and there is evidence that the crisis may have brought about significant losses in production capacity. Finally, the recovery is also characterised by more marked differences in the pick-up of activity across countries than in previous similar cyclical episodes, a factor that calls for differentiated policy approaches across the euro area.

IV. Recent DG ECFIN publications

1. Policy documents

EUROPEAN ECONOMY 3. May 2010.
Convergence report 2010
http://ec.europa.eu/economy_finance/publications/european_economy/2010/ee3_en.htm

EUROPEAN ECONOMY 4. June 2010.
Public finances in EMU - 2010
http://ec.europa.eu/economy_finance/publications/european_economy/2010/ee4_en.htm

EUROPEAN ECONOMY 5. July 2010.
Labour market and wage developments in 2009
http://ec.europa.eu/economy_finance/publications/european_economy/2010/ee5_en.htm

EUROPEAN ECONOMY 6. October 2010.
Directorate General for Economic and Financial Affairs (ECFIN) and Directorate General for Taxation and Customs Union (TAXUD), European Commission
Monitoring tax revenues and tax reforms in EU Member States 2010 - Tax policy after the crisis
http://ec.europa.eu/economy_finance/publications/european_economy/2010/pdf/ee-2010-6_en.pdf

EUROPEAN ECONOMY 7. November 2010.
European economic forecast – autumn 2010
http://ec.europa.eu/economy_finance/publications/european_economy/2010/pdf/ee-2010-7_en.pdf

EUROPEAN ECONOMY. OCCASIONAL PAPERS. 71. November 2010.
Progress and key challenges in the delivery of adequate and sustainable pensions in Europe (A Joint Report on Pensions)
http://ec.europa.eu/economy_finance/publications/occasional_paper/2010/pdf/ocp71_en.pdf

EUROPEAN ECONOMY. OCCASIONAL PAPERS. 72. December 2010.
The Economic Adjustment Programme for Greece – Second review – autumn 2010
http://ec.europa.eu/economy_finance/publications/occasional_paper/2010/pdf/ocp72_en.pdf

EUROPEAN ECONOMY. OCCASIONAL PAPERS. 73. December 2010.
Progress towards meeting the economic criteria for accession : the assessments of the 2010 Progress Reports and the Opinions
http://ec.europa.eu/economy_finance/publications/occasional_paper/2010/pdf/ocp73_en.pdf

EUROPEAN ECONOMY. OCCASIONAL PAPERS. 74. December 2010.
Joint Report on Health Systems
http://ec.europa.eu/economy_finance/publications/occasional_paper/2010/pdf/ocp74_en.pdf

EUROPEAN ECONOMY. OCCASIONAL PAPERS. 75. February 2011.
Capital flows to converging European economies – from boom to drought and beyond
http://ec.europa.eu/economy_finance/publications/occasional_paper/2011/pdf/ocp75_en.pdf

EUROPEAN ECONOMY. OCCASIONAL PAPERS. 76. February 2011.
The Economic Adjustment Programme for Ireland
http://ec.europa.eu/economy_finance/publications/occasional_paper/2011/pdf/ocp76_en.pdf

EUROPEAN ECONOMY. OCCASIONAL PAPERS. 77. February 2011.
The Economic Adjustment Programme for Greece - Third Review
http://ec.europa.eu/economy_finance/publications/occasional_paper/2011/pdf/ocp77_en.pdf

2. Analytical documents

EUROPEAN ECONOMY. ECONOMIC PAPERS. 431. December 2010
Costas Karfakis (University of Macedonia)
The portfolio balance effect and reserve diversification: an empirical analysis
http://ec.europa.eu/economy_finance/publications/economic_paper/2010/pdf/ecp431_en.pdf

EUROPEAN ECONOMY. ECONOMIC PAPERS. 432. December 2010
Jean Imbs, Isabelle Méjean
Trade Elasticities: A Final Report for the European Commission
http://ec.europa.eu/economy_finance/publications/economic_paper/2010/pdf/ecp432_en.pdf

EUROPEAN ECONOMY. ECONOMIC PAPERS. 433. December 2010
Anna Iara, Guntram B. Wolff, European Commission
Rules and risk in the euro area: does rules-based national fiscal governance contain sovereign bond spreads?
http://ec.europa.eu/economy_finance/publications/economic_paper/2010/pdf/ecp433_en.pdf

EUROPEAN ECONOMY. ECONOMIC PAPERS. 434. December 2010
Staffan Lindén, European Commission
The Price and Risk Effects of Option Introductions on the Nordic Markets
http://ec.europa.eu/economy_finance/publications/economic_paper/2010/pdf/ecp434_en.pdf

EUROPEAN ECONOMY. ECONOMIC PAPERS. 435. December 2010
Lars Jonung, Lund University and Swedish Fiscal Policy Council, and Staffan Lindén, European Commission
The forecasting horizon of inflationary expectations and perceptions in the EU – Is it really 12 months?
http://ec.europa.eu/economy_finance/publications/economic_paper/2010/pdf/ecp435_en.pdf

EUROPEAN ECONOMY. ECONOMIC PAPERS. 436. February 2011
Michael G. Arghyrou, Cardiff Business School and Alexandros Kontonikas, University of Glasgow Business School
The EMU sovereign-debt crisis: Fundamentals, expectations and contagion
http://ec.europa.eu/economy_finance/publications/economic_paper/2011/pdf/ecp436_en.pdf

EUROPEAN ECONOMY. ECONOMIC PAPERS. 437. February 2011
Ronald Albers, European Commission, DG Ecfin; Marga Peeters.
Food and Energy Prices, Government Subsidies and Fiscal Balances in South Mediterranean Countries
http://ec.europa.eu/economy_finance/publications/economic_paper/2011/pdf/ecp437_en.pdf

EUROPEAN ECONOMY. ECONOMIC PAPERS. 438. February 2011
Jordi Suriñach (AQR-IREA - UB), Fabio Manca (AQR-IREA - UB), Rosina Moreno (AQR-IREA - UB).
Extension of the Study on the Diffusion of Innovation in the Internal Market
http://ec.europa.eu/economy_finance/publications/economic_paper/2011/pdf/ecp438_en.pdf

EUROPEAN ECONOMY. ECONOMIC PAPERS. 439. February 2011
Pedro Gomes, Universidad Carlos III de Madrid
Fiscal policy and the labour market: the effects of public sector employment and wages
http://ec.europa.eu/economy_finance/publications/economic_paper/2011/pdf/ecp439_en.pdf

EUROPEAN ECONOMY. ECONOMIC PAPERS. 440. March 2011
Paolo A. Pesenti and Jan J.J. Groen, Federal Reserve Bank of New York
Commodity prices, commodity currencies, and global economic developments
http://ec.europa.eu/economy_finance/publications/economic_paper/2011/pdf/ecp440_en.pdf

EUROPEAN ECONOMY. ECONOMIC PAPERS. 441. March 2011
Matteo Barigozzi, Antonio M. Conti, Matteo Luciani

Measuring Euro Area Monetary Policy Transmission in a Structural Dynamic Factor Model
http://ec.europa.eu/economy_finance/publications/economic_paper/2011/pdf/ecp441_en.pdf

3. Regular publications

Business and Consumer Surveys (harmonised surveys for different sectors of the economies in the European Union (EU) and the applicant countries)
http://ec.europa.eu/economy_finance/db_indicators/surveys/index_en.htm

Business Climate Indicator for the euro area (monthly indicator designed to deliver a clear and early assessment of the cyclical situation)
http://ec.europa.eu/economy_finance/publications/cycle_indicators/2010/pdf/ebci12_en.pdf

Key indicators for the euro area (presents the most relevant economic statistics concerning the euro area)
http://ec.europa.eu/economy_finance/db_indicators/key_indicators/documents/key_indicators_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/bond_market/index_en.htm

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

Contributors to this issue are:

Focus: The EU's comprehensive policy response to the crisis	*R. Kuenzel*
Focus: Inflation developments in the euro area	*C. Buelens, B. Doehring and J. Canton*
Economic impact of changes in capital requirements in the euro-area banking sector	*W. Roeger*
Estonia in the euro area: staying fit in monetary union	*N. Lubenets*
Dissecting the recovery with survey data	*A. d'Elia and O. Biau*
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