European Commission

ISSN 1830-6403

Quarterly Report on the Euro Area

Volume 12 N. 3 (2013)

Highlights in this issue

- Focus: Financial dependence and growth since the crisis
- Labour costs pass-through, profits and rebalancing in vulnerable Member States
- Cross-border spillovers in confidence

Economic and Financial Affairs

This paper exists in English only and can be downloaded from the website
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KC-AK-13-003-EN-N
ISSN 1830-6403

KC-AK-13-001-EN-N
ISSN 1830-6403

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Marco Buti
Director General

The euro area now seems to have exited a recession that lasted for six quarters, recording moderate positive growth again in the second quarter of this year. Despite all reservations and caveats that tend to accompany such announcements, this is unambiguously good news and most analysts expect growth to gradually solidify in the coming quarters. The recovery will remain fragile, however, with prospects for investment spending being a particular source of concern. Some advanced economies have witnessed a lasting recovery in capital formation after the 2009 recession. By contrast, a number of factors explain why investment spending has remained weak in the euro area so far and why a sustainable, investment-led recovery will be difficult to achieve in the euro area unless authorities stick to the commitments made at national and EU level.

Balance sheet recessions are now better understood. Past experience tells us that private sector deleveraging as well as sectoral rebalancing are protracted processes that weigh on domestic demand and labour markets well after the initial recessionary phase. Compared to the US, deleveraging and bank balance sheet repair have been slower in the euro area, which is holding back both credit demand and supply and inhibiting investment. The euro area has additionally suffered a fragmentation of its single financial market along national regulatory lines, which has driven up financing costs in more vulnerable Member States and fostered damaging negative bank/sovereign feedback loops. In effect, financial fragmentation has impaired monetary policy transmission at the expense of weaker euro area members.

How to make progress on this basis towards a more durable recovery? The euro area's starting position has already improved greatly due to the elimination of major tail risks through determined action of Member States and the ECB. Furthermore, fiscal consolidation is progressing well and, although the road to sustainable debt levels still is a long one, the fiscal drag on growth will ease in the years to come. While these developments will buttress the recovery, three further prerequisites are needed for investment to fully flourish again. First, the lingering uncertainty concerning both policy and economic developments needs to be lifted. The previous edition of the Quarterly Report presented empirical evidence on the negative impact of uncertainty on private consumption and investment. At the current juncture uncertainty magnifies the effect of credit constraints and weak balance sheets. It forces banks to rein in credit further and discourages corporate investment as both constitute risky commitments that are costly if not impossible to reverse in the short to medium term. What policy can do – and what the Commission will continue to do – in this situation is to shed light on pressing economic and governance challenges and to push for a completion of EMU architecture in vital policy areas.

A second precondition for an investment revival is ensuring a fully functioning financial system. This requires the repair of banks' balance sheets, starting with a rigorous and transparent assessment of the assets of individual institutions, and any detected vulnerabilities must be eradicated through proper recapitalisation. But such micro-level improvements will not be sufficient to dispel doubts on the euro area financial sector's systemic stability as long as supervisory arrangements, resolution regimes and their funding remain in national hands. We have seen time and again that large banking groups are beyond the limits of what individual countries can effectively regulate and reliably backstop. When also taking into account the substantial spillovers and externalities within the euro area, a full banking union, including appropriate backstops financed by the banking sector, becomes imperative.

A final prerequisite for a return of robust fixed investment growth lies in creating new investment opportunities that can both enhance economies' growth potential and contribute to macroeconomic rebalancing processes. Structural reforms have the potential to deliver significant benefits to consumers and can open up entire markets to new investment and employment. Macroeconomic rebalancing within the euro area can be integrated into such reforms by prioritising tradable sectors in Member States with external deficit or debt problems and non-tradable sectors in those with external surpluses. Enhancing growth prospects and investment opportunities will also require that the necessary fiscal adjustment is as growth friendly as possible. For that purpose adjustment has been and will have to continue to be differentiated across Member States' and to be based

on a growth-friendly composition that preserves in particular growth enhancing expenditure categories such as education, innovation and infrastructure.

What should be done in concrete policy terms? First, it is important that all policy actors stick to their commitments. The euro area unfortunately has a clear track record of policies being held back as soon as early signs of economic improvement are detected. This time, the recovery needs to be underpinned by resolute implementation of agreed policies.

Second, next year's asset quality review and stress tests will be an important step towards restoring credibility in the euro area financial system and will have to be carried out rigorously and earnestly. Rapid completion of a fully-fledged Banking Union is also essential to ensure a proper functioning of the Single Market, facilitate adjustment in EMU and foster the recovery by reversing the process of financial fragmentation. A major step forward was made in September with the adoption of the Single Supervisory Mechanism by the European Parliament. It must now be followed by rapid progress with the Single Resolution Mechanism.

Finally, for its part, the European Commission will continue to monitor, coordinate and guide Member States' macroeconomic and structural policies through the EU Semester. With the entry into force of the Two-Pack, the European Commission is now equipped to monitor Member States' draft budgetary plans and ensure an early coordination and better synchronisation of national budgets. Mid-November, the Commission will present its assessment of Member States' draft budgetary plans as well as an overall assessment of the euro area fiscal stance. Together with the Annual Growth Survey, which sets the main policy priorities for the year ahead, and the Alert Mechanism Report, which reviews developments in macroeconomic imbalances in the EU, this will form the Autumn surveillance package that kick starts the EU's annual economic surveillance cycle and will be discussed by the Eurogroup on the 22nd of November.

Clear and resolute efforts in these three areas by all policy actors concerned will give the euro area the best chance to recover and grow by turning formerly vicious circles into virtuous ones.

I. Financial dependence and growth since the crisis ([1])

One of the fundamental roles of the financial sector is the efficient allocation of savings and investment through the relocation of external funds towards firms with investment opportunities, but with less available internal funding possibilities. This focus section examines whether the financial and sovereign crisis have had a deeper impact on growth in the euro area's industries that are more dependent on external finance and, thereby, on financial sector development and banks' credit supply.

Regression results show that more developed financial markets have, to some extent, helped cushion the impact of the crisis on the industries that are more dependent on external funds in the euro area. The balance sheet structure of monetary financial institutions (MFIs) also seems to have played an important role. These effects have been differentiated across industries (tradable vs. non-tradable/services sectors) and asymmetric across countries (core vs. periphery euro area economies).

Although manufacturing is generally less dependent on external funds than services, the crisis effects on growth stemming from the interactions between external financial dependence and financial sector development or MFI balance sheets are essentially present in the manufacturing sector. Market service industries attracted most of the surge in credit in the euro area economies during the boom years but the impact of financial development or MFI balance sheet structure on growth in these industries does not seem to have changed since the crisis.

The persistence of some of the estimated effects over the 2010-11 period also suggests that the changes in the supply of finance brought by the crisis have a lasting nature. Firms' access to finance appears to have been durably altered by the crisis and not to have been just temporarily impaired during the sharp recession of 2008-09. In particular, there are some indications that manufacturing industries that have moved funding sources away from bank loans towards bonds and equities have benefited from faster growth in 2010-11, while the MFIs balance sheet structure and leverage seem to have continued to have a strong negative impact on industrial growth long after the 2008-09 recession, in particular in the core euro area economies.

I.1. Introduction

The global financial crisis has deeply affected the growth and finance nexus via several channels, including wide-scale private deleveraging, tighter credit constraints for some economic agents, e.g. small and medium size enterprises (SMEs) and, more generally, possible changes in lending practices due to more cautious risk attitudes.

To gain a better understanding of possible changes in the growth and finance nexus in the euro area, this focus section examines whether the financial and sovereign crises have had a deeper impact on growth in the industrial sectors that are more dependent on external finance, leading to potential changes in the relationship between growth and external financial dependence.

Since the seminal work by Rajan and Zingales (1998), a range of studies have explored the growth-finance nexus by relating growth in industrial sectors to measures of external financial dependence and of financial market development. ([2]) In particular, the methodology has been applied to assess the impact of financial and banking crises or to estimate the size of a possible credit crunch in the 2008-09 global recession. ([3]) The present section follows a similar econometric approach to analyse possible changes in the relationship between growth and finance both during the 2008-09 global recession and its immediate aftermath (2010-11). ([4]) This allows to check whether the 2008-09 credit crunch documented in some studies ([5]) has been followed by a more lasting alteration of the supply of finance in the euro area. The work presented here departs

([1]) Section prepared by Narcissa Balta and Plamen Nikolov.

([2]) Rajan, G. and L. Zingales (1998), "Financial dependence and growth", *The American Economic Review*, Vol. 88(3); pp. 559-586.

([3]) See for instance:
Bijlsma M., A. Dubrovik and B. Straathof (2013), "How large was the credit crunch in the OECD?", *CPB Discussion Paper*, No. 232.
Dell' Ariccia G., E. Detragiache and R. Rajan (2004), "The real effect of banking crises", *Journal of Financial Intermediation*, Vol. 17(1), pp. 89-112, January
Kannan P. (2012), "Credit conditions and recoveries from financial crises", *Journal of International Money and Finance*, Vol. 31, pp. 930-947.

([4]) Data for 2012 are not available yet.

([5]) See for instance Bijlsma et al. (2013), op. cit.

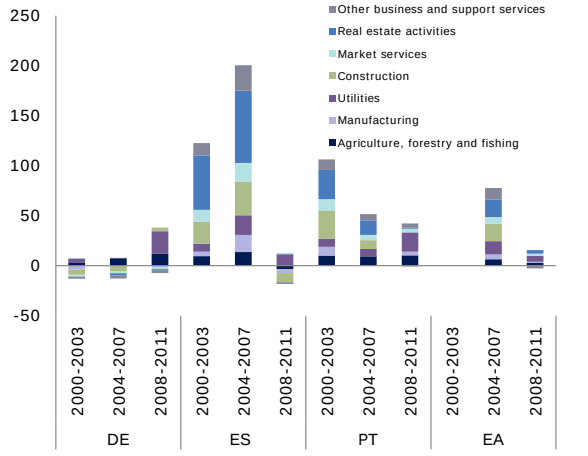
from previous studies in that it is based on new country specific indicators of external financial dependence and it is not restricted to manufacturing industry but also covers services. Due to data limitations, the analysis is carried out only for a small set of euro area Member States but offers some interesting insights regarding possible differences between Member States in the core and the periphery.

The remainder of this focus is divided in five sections. Section I.2 reviews developments in credit allocation and growth at sectoral level. Section I.3 presents the external financial dependence of sectors in selected euro area countries. (6) Section I.4 shows a range of indicators of financial market development across the countries. Section I.5 discusses the main results from the econometric analysis. Section I.6 concludes.

I.2. A look at credit and growth data at the sectoral level

Graph I.1: **Credit growth by industry, selected euro area countries (1)**

(avg. annual growth in %)



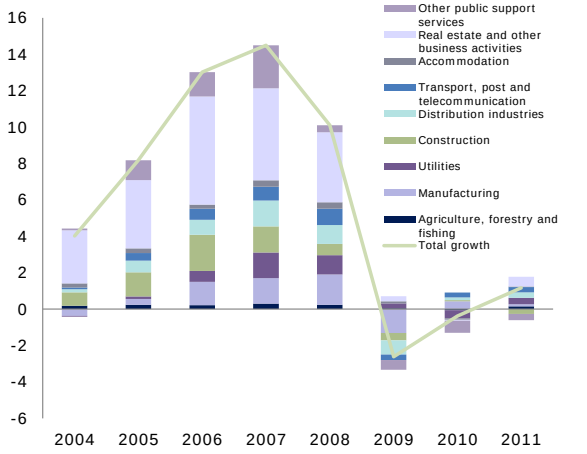
(1) Sectors' definition NACE Rev. 2. Utilities: electricity, gas, water and mining (sectors D, E, and B). Market services: distribution, transport, accommodation and information and communication (sectors G, H, I and J). Other business and support services: sectors M to S.
Source: National central banks and ECB.

The first decade of the euro has been marked by an extraordinary integration of financial markets through the elimination of intra-area currency risk and a global financial boom. Credit to non-financial industrial sectors in the euro area grew at an annual average rate of 11 % in the years preceding the global financial crisis. Moreover, in the periphery (e.g. ES) some services industries registered annual average rates of even up to 70 % (see Graph I.1).

The credit boom of the mid-2000s can be observed at the euro area level in almost all sectors. (7) Sectors where it was particularly pronounced were the non-tradable/services sectors, with construction, real estate activities, other business and support services taking the top positions, followed closely by distribution industries and utilities. Manufacturing also registered significant positive credit growth rates, but its share in total credit decreased continuously in the boom years of 2004-07 (see Graph I.2).

Graph I.2: **Credit allocation by industry, euro area (1)**

(% contribution to total credit growth)



(1) Sectors definition in NACE Rev. 2. Utilities: electricity, gas, water and mining (sectors D, E and B). Real estate and other business activities (sectors L, M and N). Other public support services (sectors P to S, incl. health and education).
Source: National central banks and ECB.

One of the fundamental roles of the financial sector is to facilitate the reallocation of savings towards firms with a shortage of funds and better investment potential. By reducing the transaction costs of savings and investment, the financial sector lowers the cost of capital in the economy in general.

Moreover, to the extent that financial markets are able to overcome problems of moral hazard and adverse selection, financial development should

(6) Due to data availability, the selected euro area countries for the purpose of this analysis are: BE, DE, FR, IT, ES and PT.

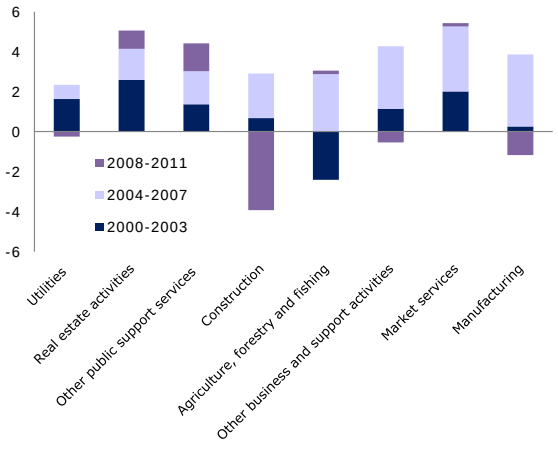
(7) This applies to all sectors, except utilities (e.g. electricity, gas, water and mining).

also reduce the wedge between the costs of external finance through credit and/or equity and internal funds, such as profits. Starting with the work of Rajan and Zingales (1998), a number of empirical studies have shown that because of a lower wedge between external finance and internal funds, sectors that are relatively more in need of external finance tend to grow disproportionately faster in countries with more developed financial markets.

Looking at gross value added growth across sectors at the euro area level, the highest growth over the per-crisis boom years can be observed in the manufacturing sector, while construction, real estate activities and utilities are at the lower range of growth over 2004-07 (see Graph I.3, sectors ordered by average growth in 2004-07). Moreover, during the crisis years, 2008-11, with the exception of the construction sector, the more indebted services sectors seem to have gone through a rather modest fall in activity relative to the manufacturing sector. This may reflect several traditional macroeconomic factors, including the fact that the non-tradable sectors, by definition, were not directly exposed the collapse in world trade and in many cases face a more inelastic demand. However, this could also be an indication of a different relationship between market funding and growth in these sectors.

Graph I.3: **Gross value added growth, euro area (1)**

(avg. annual growth, in %, volumes)



(1) Sectors definition NACE Rev. 2. Utilities: electricity, gas, water and mining (sectors D, E and B). Market services (sectors G, H, I, and J). Other business and support activities (sectors M and N). Other public services (sectors P to S, including health and education).
Source: Eurostat.

The persistence of the credit allocation pattern across sectors over the boom years in the euro area suggests that the decrease in the cost of capital in the first decade of the euro benefitted primarily the non-tradable/services sectors, while the same sectors also seem to have been more protected during the crisis. The question arises whether there have been significant differences across euro area economies, and whether the degree of dependence on external finance has played any role.

The next two sections look into the nature of the dependence of sectors on external finance and developments in a number of external financing sources across selected euro area Member States.

I.3. Quantifying external financial dependence

Estimating the sector-specific external financial dependence is a key step in assessing the impact of finance on growth. Actual data on external funding reflect the equilibrium between demand and supply of credit realized on financial markets at a given moment in time. This means that measures of financial dependence are likely to be affected by a range of factors. For instance, business cycle fluctuations may play a role. A technology shock in one sector will boost its investment spending and will temporarily push measured external dependency up. Measures of external dependency can also be affected by credit rationing. Credit rationing plays a role in financial intermediation because of information asymmetry between borrowers and lenders. The asymmetry increases the costs of capital and smaller firms in particular often fall short of securing the amount of outside capital that their sector-specific technology requires.

Difficulties in disentangling demand and supply determinants of external dependency, combined with data scarcity, have led Rajan and Zingales (1998), as well as subsequent studies, to use a sector-specific measure of external financial dependence that is common to all countries. This measure is the sectoral gap between investment and operating cash flow, based on large-company US data. If, as assumed by the authors, the supply of capital for large firms in the US is very elastic, the gap will mostly represent the extent to which firms in a given sector are in need of outside funding due to reasons beyond credit supply. The authors assume further that this measure of dependency should also be a good proxy for the

underlying demand for external funds as driven by technological and structural factors (not related to financial development) in all other countries.

In practice, the assumption of common underlying external funding needs across countries has never been tested due to lack of data. There are, however, reasons to suspect that these needs could vary across countries in some sectors. In particular, growth in the non-tradable/services sectors tends to be driven by country-specific factors rather than EU (or worldwide) trade-related factors. This may translate into different underlying funding needs. There are also factors which affect corporate savings (e.g. taxation and the level of competition), which vary to some degree across the euro area. Finally, even in manufacturing sectors, demand for external funding in a sector may vary across countries if the sub-sector composition of this sector varies across countries.

Therefore a sector and country-specific measure of external dependence in the pre-boom-EMU years, 2000-04, is used for this focus section. The period choice is dictated by several considerations. The measure should be taken as an average over a period long enough to mitigate short-term fluctuations in activity. As the econometric analysis presented in Section I.5 focuses on the crisis and its aftermath, a pre-crisis period is required to mitigate endogeneity issues. Pre-crisis boom years (2005-07) may be associated with some cyclical distortions in funding needs and should therefore preferably be excluded. Finally, pre-2000 data cannot be considered due to limitations in data availability.

The dependence to external finance is measured by the degree to which cash flow generated by operational activities is sufficient to cover investment. Data on operating profits and investment come from BACH, a database managed by the European Committee of Central Balance-Sheet Data Offices (ECCBSO). ([8])

The measure of external dependence varies significantly across sectors. This is illustrated in Table I.1 and motivates the use of a country and sector-specific external dependence indicator in the empirical analysis in Section I.5.

([8]) The European Committee of Central Balance-Sheet Data Offices (ECCBSO) is an informal body whose members come from National Central Banks or Statistical Offices in EU Member States.

Table I.1: **Dependence on external finance, selected industries (1)**

(avg., 2000-2004)

	DE	FR	IT	ES	BE	PT
Externally dependent sectors						
Computers and electronics	2	2	5		17	24
Motor vehicles	6	4	1	6	16	21
Water supply	11	11	6	3	2	4
Accommodation and food services	10	7	15	10	7	8
Transportation	9	6	2	4	4	6
Agriculture	8	8	3	5	5	5
Other services	3	9	4	16	9	1
Externally independent sectors						
Pharmaceuticals	20	30	27	26	21	27
Wholesale and retail trade	25	28	23	25	30	28
Textiles and wearing apparel	26	29	24	23	24	12
Furniture and other manufact.	21	23	19	22	23	19
Sectors where dependency varies across countries						
Arts and entertainment	1	16	8	12	22	3
Real estate activities	15	3	28	2	1	9
Health services	4	21	25	15	19	2
Construction	14	26	18	13	13	16
Electricity and gas	27	5	11	8	26	14
Information and communication	24	19	13	18	15	25

(1) Ranking from 1 to 30, a top position means a more externally dependent sector.
Source: BACH.

The average external dependence at the beginning of the 2000s is consistently high in certain sectors and low in others in all countries. ([9]) The non-tradable/services sectors, with the exception of distribution industries and information and communication, come out more dependent on external funding than the manufacturing sectors. Among the manufacturing sectors, only computers and electronics industry seems to be as dependent on external funds as most non-tradable/services sectors. Non-tradable/services sectors appear to have more external funding needs than the manufacturing sectors in all countries, likely to reflect a technological need for more infrastructure investment than the manufacturing sector, but also less profitability.

([9]) Similarly to the US data, aggregated from a sample of large publicly traded manufacturing firms, presented in Rajan and Zingales (1998), manufacturing sectors such as textiles and wearing apparel are relatively externally independent, while others such as motor vehicles are relatively externally dependent in the euro area countries included. This is not surprising as the technological characteristics of manufacturing sectors and their capital intensity should not differ substantially between the euro area Member States and US. Yet, some variation of the relative position of sectors between the euro area data for the early 2000s and the US data in Rajan and Zingales (1998) (data computed for the 1980s) can be expected. A notable example is the pharmaceutical sector, which was very externally dependent in the US in the 1980s and much less dependent in the euro area countries in the early 2000s. This fact explains why an average external dependence over a recent period is used in the empirical analysis presented in this focus section.

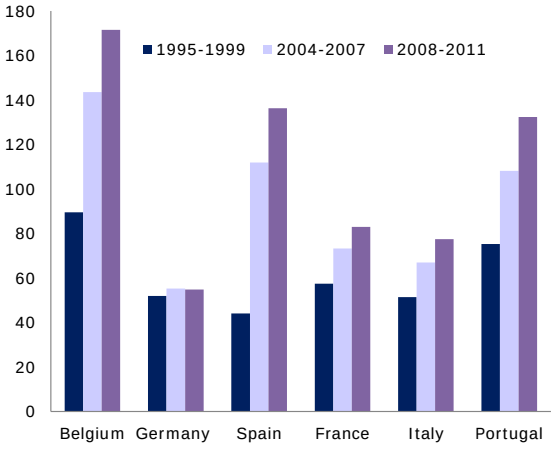
Beyond these similarities, important country differences stand out. A range of services with a relatively low degree of competitiveness, such as arts and entertainment, health services, electricity and gas distribution, show a marked divergence in external dependence in the six countries. These are joined by construction and real estate which also follow more country-specific developments. Cross country differences are also noticeable in some manufacturing sectors, including computer and electronics and motor vehicles.

I.4. Developments in external financing sources

The empirical analysis presented in Section I.5 relies on several country-specific variables of financial development and of monetary financial institutions (MFIs) balance sheets. To reflect, the importance of various financial intermediation channels, the former include bank loans, quoted shares of non-financial corporations and bonds of non-financial corporations – all as a ratio to GDP. MFI balance sheet variables include the ratio of total assets to loans, which captures the degree to which financial institutions have been able to diversify away from the traditional business model of granting loans. They also include a measure of leverage. The remainder of this section takes a rapid look at each of these variables.

Graph I.4: **Credit markets, selected euro area economies (1)**

(average, in % of GDP)

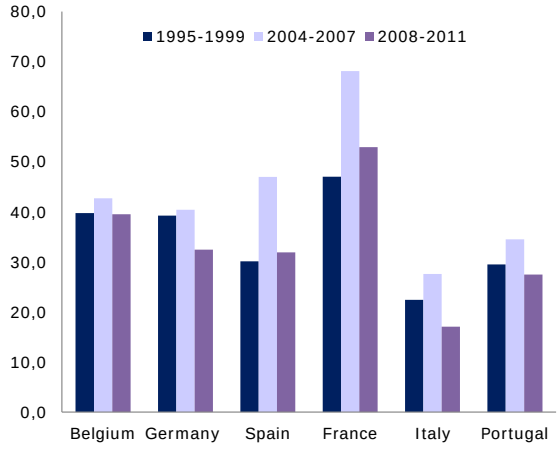


(1) Loans liabilities of the non-financial corporate sector as % of GDP.
Source: Eurostat, Financial accounts.

During the first decade of the EMU, financial markets in the euro area have gone through a deep process of integration that together with the global financial boom has led to a significant growth in the weight of the financial sectors in most euro area economies, but in particular in peripheral countries (e.g. ES, PT). Moreover, there seems to have been a disproportionate growth of loan markets vis-à-vis equity or bond markets, in particular in the peripheral countries (e.g. ES and PT) (see Graph I.4, Graph I.5 and Graph I.6).

Graph I.5: **Equity markets, selected euro area economies (1)**

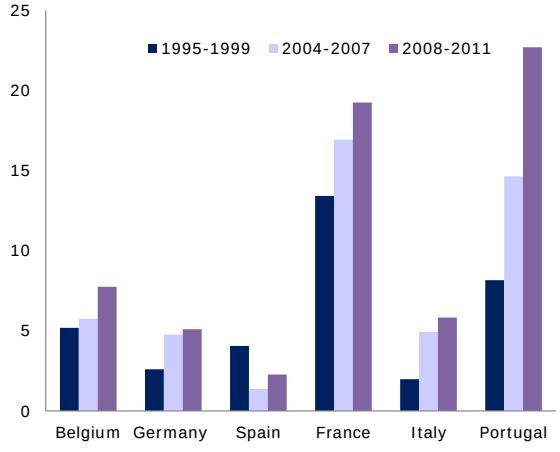
(average, in % of GDP)



(1) Shares other than securities, liabilities of the non-financial corporate sector as % of GDP.
Source: Eurostat, Financial accounts.

Graph I.6: **Corporate debt markets, selected euro area economies (1)**

(average, in % of GDP)



(1) Securities other than shares, liabilities of the non-financial corporate sector as % of GDP.
Source: Eurostat, Financial accounts.

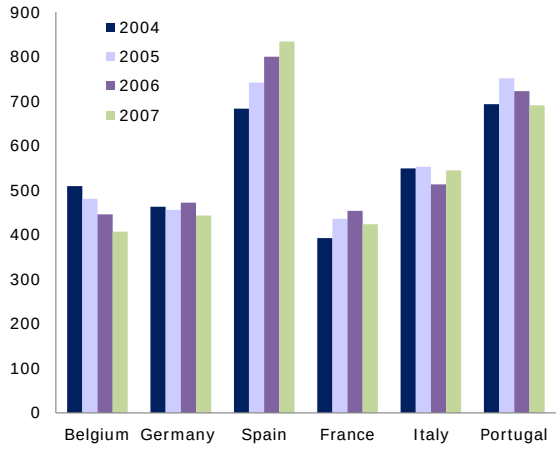
Cross-country differences in corporations' external funding are particularly large for bonds. The corporate sector receives considerably higher outside financing through bonds and other debt

instruments in France and Portugal than in the four other countries analysed in this section. Sectoral data for 2004-07 in BACH suggests that the high level of bond financing in Portugal in this period is concentrated in sectors such as utilities, wood and paper products and information and communication. In these sectors outstanding corporate debt securities compared to and even exceeded bank loans.

The balance sheet structure of financial institutions at the beginning of the crisis, as illustrated by the ratio of total assets to loans, shows to which extent financial sector balance sheets were dominated by non-traditional bank business, such as money market and corporate debt (Graph I.7). A higher ratio indicates a financial sector that has diversified more its asset portfolio towards non-core bank assets. ([10])

Graph I.7: **MFI balance sheet structure (1)**

(in %)



(1) Total financial assets as % of loans, monetary financial institutions.
Source: ECB, MFIs balance sheet database.

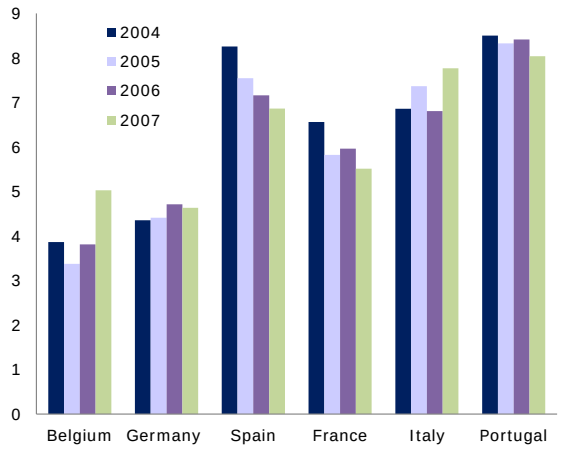
Just before the crisis, financial institutions in the euro area periphery, notably in Spain and Portugal, had relatively a high weight of non-core business, compared to the core euro area economies (DE, BE and FR). Despite the rapid increase in traditional lending after 2004, the MFIs in these countries, notably in Spain, have also seen a steady increase in the share of their non-core business. By contrast, in the core euro area economies (in particular in Belgium and Germany) the ratio of total assets to loans either decreased or remained relatively stable, indicating that the financial sector in these countries remained relatively more oriented towards traditional bank lending.

However, financial institutions appear to have been more leveraged in the core euro area economies than in the periphery at the beginning of the crisis, as measured by the ratio of capital and reserves to total assets/liabilities (Graph I.8). A lower ratio of capital to total liabilities indicates a higher leverage.

Such differences in the balance sheet structure and exposure of the financial institutions between the core and the periphery are likely to have led to an asymmetric impact of the crisis on financially dependent industries in these economies.

Graph I.8: **Capital and reserves to total assets/liabilities (1)**

(in %)



(1) Capital and reserves as % of total assets/liabilities, monetary financial institutions.
Source: ECB, MFIs balance sheet database.

I.5. Financial dependence on external funds and growth since the crisis

Have the industries that are more dependent on external finance been hit harder during the current crisis in the euro area? In a well-functioning complete financial market, there should be no cost wedge between internal and external financing for a firm, and industrial growth should not be affected by the source of funding. However, such a wedge occurs when there is a differential in financial development or a change in finance supply. Therefore, the econometric analysis presented below aims at measuring the differentiated impact of the crisis on growth in industries that are more dependent on external finance and how this impact depends on country differences in the development

([10]) The ratio does not reveal the relative distribution of non-core business among banks and other financial intermediaries in a given country.

of the main market funding channels or country differences in MFIs balance sheets.

The main empirical results presented in this section are derived from a panel regression analysis based on industry and financial data for 6 euro area countries. The regressions relate growth at the industry level to industries' external financial dependence and a number of control variables (see Box I.1for more details). To better understand the possible channels through which the crisis may have affected growth in industries that are more dependent on external finance, the regressions include interactions terms combining external dependence and various measures of financial development and/or financial institutions balance sheet structure. These include measures of the size of equity, bond and credit markets as well as measures of MFIs balance sheet structure and leverage. Contrary to the external dependency variable which is available by country and by industry, a majority of the financial development and MFIs indicators are available at the country level. ([11]) Interacting the external dependence ratio with these financial development measures allows exploiting both the industry and country dimension of the dataset.

The financial development variables are averaged for the period 2000-04. The choice of this interval is dictated by several factors. The period is sufficiently distant from the main period of interest in this analysis (the global financial crisis and its aftermath) to reduce substantially possible endogeneity issues. Covering the early years of the euro, it also includes a period after the occurrence of possible structural breaks with the introduction of the single currency while avoiding possible distortions brought by the overheating seen in some Member States at the peak of the cycle. The measures of MFIs balance sheet structure or leverage are taken for the year 2007 to capture vulnerabilities in the financial sector existent at the onset of the crisis.

The regressions include country-time effects to control for macroeconomic fluctuations at the country level as well as country-sector fixed effects. Moreover, in order to account for shocks which could affect specific industries across all countries (e.g. related to internal market integration or to changes in common euro area risk premia), an industry-time effect common across all countries is also added.

While the regressions are run for the period 1995-2011, the analysis focuses on possible changes in the growth-finance relationship since the global financial crisis. This is done by testing changes in the overall estimated relationship with dummies for the period 2008-11. As this period covers several cyclical phases, the last two years (2010-11) are also looked at separately in order to disentangle the possible recessionary effects of a credit crunch episode caused by the global financial crisis from more persistent effects also observed during the ensuing (and short-lived) recovery. As the available data end in 2011, it is unfortunately not possible to analyse the full effects of the sovereign crisis.

Following Rajan and Zingales (1998), a number of studies have analysed the growth finance nexus using industry data on growth and external financial dependence. The methodology used here follows largely the approach proposed by Bijlsma at al. (2013), and previously by Dell'Ariccia at al. (2008). The results presented in this section are, however, based on a different data set. As already highlighted, the financial dependency indicator is constructed from data collected in each country and therefore differs across countries and includes, besides the manufacturing industries, all market services and few non-market services sectors such as education, health, and some other support services. In contrast, Bijlma et al. (2013) use the traditional Rajan and Zingales approach which consists in applying the same financial dependency indicator across all countries to the manufacturing industries.

The results show that growth has been hit more severely by the global financial crisis in sectors more dependent on external finance. More developed financial markets have, to some extent, helped cushiong this impact. Well-developed credit markets seem to have helped in the early stage of the crisis (2008-09) but this effect turns negative during the ensuing limited recovery (2010-11). Well-developed bond markets appear to have been a positive factor for growth in externally dependent sector and more significantly so over the 2010-11 period, probably reflecting intensified pressures to diversify credit sources and move

([11]) The two exceptions are the bond and the credit indicators which are available at the industry and country levels.

Box 1.1: External financial dependence and growth during the crisis

To study whether industries that are more dependent on external funds have experienced more severe output loss during the crisis, following the methodology developed by Rajan and Zingales (1998), growth in value added in industry j at time t in country k ($y_{j,k,t}$) is regressed on industry-country, country-time, and industry-time fixed effects and an interaction term given by the product of the financial dependence measure for industry j in country k ($ExtDep_{j,k}$), the crisis dummy for year t ($CRISIS_t$), and a measure of financial development in country k ($FINDEV_k$). As in Rajan and Zingales (1998), the lagged share of industry j in country k ($SIZE_{j,k,t-1}$) is included to account for "convergence" effects, i.e. larger sectors tend to experience slower growth. Moreover, to account for possible common euro area industry j characteristics, such as different risk premia across sectors during the crisis, industry-time fixed effects are included in the regression. The benchmark regression is:

$$y_{j,k,t} = \sum_{jk} \alpha_{j,k} d_{j,k} + \sum_{kt} \beta_{k,t} d_{k,t} + \sum_{jt} \chi_{j,t} d_{j,t} + \delta_1 ExtDep_{j,k} \bullet CRISIS_t + \delta_2 ExtDep_{j,k} \bullet CRISIS_t \bullet FINDEV_k + \ldots$$

$$\ldots + \gamma SIZE_{j,k,t-1} + \varepsilon_{j,k,t}$$

A negative and significant δ_1 indicates that the crisis has had a relative worse impact on industries that are more financially dependent on external funds, while a negative and significant δ_2 indicates that the crisis has had a relatively worse impact on industries that are more dependent on external finance even in countries with a more ex-ante developed financial market. The fixed effects should control for most shocks affecting industry performance, global shocks to the industry, aggregate country-specific shocks, correcting for omitted variable bias. The external dependence variable alone also captures to a certain extent shocks varying simultaneously across countries, industrial sectors and time. It is not a perfect industry-country-time fixed effect as its variability in time is limited to the 2000-04 average, some shocks that vary simultaneously across countries, industrial sectors and time might not be accounted.

Data. Several crisis dummies have been considered alternatively in the benchmark regression to account for different developments during the crisis: dummy for 2008/09-11, dummy for 2010-11, and dummy only for 2011. Our sample, ending in 2011, does not fully take into account the impact of the sovereign debt crisis of 2011-12. The analysis includes 6 euro area Member States during the period 1995-2011 (DE, FR, BE, IT, ES, and PT) and 29 sectors (13 manufacturing sectors disaggregated at 2-digit NACE Rev. 2 level, and 26 sectors, including market services and other public support sectors disaggregated at 1-digit, NACE Rev. 2 level).

The measures of financial development are: 1/ quoted shares liabilities of the non-financial corporate sector to GDP ($qshares\_gdp_k$); 2/the ratio of total assets of monetary and financial institutions (MFIs) to loan assets ($MFI\_bs\ structure_k$), as a measure of financial sector balance sheet structure; and 3/ two measures that vary also by industry j: bonds issued by industry j in country k ($bonds_{j,k}$) and bank credit of industry j in country k ($bank\_credit_{j,k}$), as a share of the industry j balance sheet. An additional variable measuring exposure of MFIs through leverage has also been included: 4/ the ratio of capital and reserves to total assets/liabilities ($MFI\_leverage_k$) Data for the variables (1) are from EUROSTAT, financial accounts balance sheet database, for the variable (2) and (4) from ECB, MFIs balance sheets, while the data for both industry-country specific variables (3) are from BACH database. The ex-ante financial development is defined as the average of the respective variables over the beginning of the boom years, 2000-04. The MFIs balance sheet structure and leverage measures are taken for the year just before the start of the crisis, 2007.

Growth in real gross value added has been defined as the natural logarithm of real gross value added at time t minus t-1, while the size of the sectors has been computed as the natural logarithm of real gross value added in industry j in country k minus real total gross value added of country k at time T. Data are from EUROSTAT for the period 1995-2011, chain-linked volumes, reference year 2005.

A dummy for the peripheral euro area economies (i.e. ES, PT and IT), *Periphery*, is also considered in the regressions, the estimated coefficient should be interpreted as a differential relative to the estimate for the rest of the countries in the sample (i.e. DE, FR and BE), which is shown first in the results tables below.

(Continued on the next page)

Box (continued)

Results

Benchmark specifications: market sectors

The results for the whole sample show that over the crisis period, 2009-11, the sectors that are more dependent on external funds have actually been better off in the core countries where either credit or bonds markets were ex-ante more developed. By contrast, in the periphery, the sectors more dependent on external funds have been worse off since the acute phase of the global financial crisis, the benefits stemming from higher financial development being almost insignificant (*Column (1), (2) and (3)*). When looking at the second stage of the crisis in 2010-11, the effects are coming mainly from MFIs balance sheet structure and leverage and the corporate bonds market.

When it comes to MFIs balance sheet structure and leverage, the impact has also been asymmetric between core and periphery. While MFIs balance sheet structure has had a significant negative impact on the financially dependent industries in the core, this effect turns to be much less negative or even close to zero in the periphery, reflecting a less unfavourable effect stemming from the MFIs diversified asset structure in the periphery (*Column (4)*). Lower MFIs leverage, as measured by the ratio of capital to total assets/liabilities, has helped industrial growth in the core, while in the periphery this impact has been less important in magnitude during the crisis, partly reflecting a better starting position with higher capital ratios of MFIs in the periphery than in the core in 2007 (*Column (5)*). It is important to note that MFIs' balance sheet structure seems to have had a much bigger impact on industrial growth than MFIs leverage.

Market sectors

Variable	1		2		3		4		5	
Crisis dummy (C)	2009-11	2010-11	2009-11	2010-11	2009-11	2010-11	2009-11	2011	2009-11	2011
Interaction: ExtDep x C x QSHARES (k)	0,0193	0,0212								
Periphery x ExtDep x C x QSHARES (k)	-0.0263	0,044								
Interaction: ExtDep x C x BONDS (j, k)			0.0099*	0.022***						
Periphery x ExtDep x C x BONDS (j, k)			-0.0115**	-0.0229***						
Interaction: ExtDep x C x BANK CREDIT (j, k)					0.0238**	-0.021*				
Periphery x ExtDep x C x BANK CREDIT (j, k)					-0.0135	0,0167				
Interaction: ExtDep x C x MFI bs structure (k)							-0.3838**	-0.9853***		
Periphery x ExtDep x C x MFI bs structure (k)							0.3756**	0.9845***		
Interaction: ExtDep x C x MFI leverage (k)									0.1649*	0.3839**
Periphery x ExtDep x C x MFI leverage (k)									-0.1565	-0.3922**
Size of industry j in country k (t-1)	-0.1408***	-0.1401***	-0.1607***	-0.1582***	-0.1216***	-0.1339***	-0.1367***	-0.1355***	-0.1389***	-0.1375***
industry-country, f.e.	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
industry-time, f.e.	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
country-time, f.e	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

*Note: ***, ** and * denote respectively statistical significance at 1, 5 and 10%.*

Benchmark specifications: manufacturing

The interaction between financial dependence and financial market development and MFIs balance sheet structure/leverage has affected the most the manufacturing sector. The estimated impact coefficients grow in magnitude relative to the estimates with the entire sample. Among all interaction variables, the greatest impact on growth has come from the interaction of industrial financial dependence with MFIs balance sheet structure/leverage (*Column (4) and (5)*), the effect being again asymmetric in the core vis-à-vis the periphery.

Manufacturing

Variable	1		2		3		4		5	
Crisis dummy (C)	2009-11	2010-11	2009-11	2010-11	2009-11	2010-11	2009-11	2011	2009-11	2011
Interaction: ExtDep x C x QSHARES (k)	0,0819	0.1159*								
Periphery x ExtDep x C x QSHARES (k)	-0.0982	-0,0353								
Interaction: ExtDep x C x BONDS (j, k)			0,0025	0.0246**						
Periphery x ExtDep x C x BONDS (j, k)			-0.0042	-0,0217						
Interaction: ExtDep x C x BANK CREDIT (j, k)					0.0449***	-0.0354*				
Periphery x ExtDep x C x BANK CREDIT (j, k)					-0.0327	0,0263				
Interaction: ExtDep x C x MFI bs structure (k)							-0.8207*	-2.7721***		
Periphery x ExtDep x C x MFI bs structure (k)							0.8116*	2.7753***		
Interaction: ExtDep x C x MFI leverage (k)									0.4271**	1.1108***
Periphery x ExtDep x C x MFI leverage (k)									-0.3974*	-1.0396***
Size of industry j in country k (t-1)	-0.1473***	-0.1458***	-0.1472***	-0.1436***	-0.1111***	-0.1396***	-0.1338***	-0.13***	-0.1411***	-0.14079**
industry-country, f.e.	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
industry-time, f.e.	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
country-time, f.e	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

*Note: ***, ** and * denote respectively statistical significance at 1, 5 and 10%.*

(Continued on the next page)

Box (continued)

Benchmark specifications: services sectors

Market services appear to have been the least affected during the crisis by the interaction of these industries' financial dependence with financial markets development and/or MFIs balance sheet structure/leverage. Growth within these sectors seems to have been mainly driven by country-specific characteristics.

Services sectors

Variable	1		2		3		4	
Crisis dummy (C)	2009-11	2010-11	2009-11	2010-11	2009-11	2010-11	2009-11	2011
Interaction: ExtDep x C x QSHARES (k)	-0,0141	-0,0154						
Periphery x ExtDep x C x QSHARES (k)	0,0329	0,0399						
Interaction: ExtDep x C x BONDS (j, k)			0,0041	-0.0067				
Periphery x ExtDep x C x BONDS (j, k)			-0,0014	0,0073				
Interaction: ExtDep x C x BANK CREDIT (j, k)					-0.0209*	-0.0039		
Periphery x ExtDep x C x BANK CREDIT (j, k)					0.0449**	-0,0331		
Interaction: ExtDep x C x MFI bs structure (k)							0,1387	0,0112
Periphery x ExtDep x C x MFI bs structure (k)							-0.1106	0,0554
Size of industry j in country k (t-1)	-0.1113***	-0.1074***	-0.14***	-0.1266***	-0.1256***	-0.1122***	-0.1113***	-0.1068***
industry-country, f.e.	yes	yes	yes	yes	yes	yes	yes	yes
industry-time, f.e.	yes	yes	yes	yes	yes	yes	yes	yes
country-time, f.e	yes	yes	yes	yes	yes	yes	yes	yes

*Note: ***, ** and * denote respectively statistical significance at 1, 5 and 10%.*

Benchmark specifications: non-productive market services

Growth in the non-productive sectors that are dependent on external funds such as utilities and other public support industries has been affected during the crisis through the interaction with bank credit development and equity and bonds markets (*Column (1), (2) and (3)*). The MFIs balance sheet structure/leverage does not seem to come out as a significant factor affecting growth in the financially dependent industries of this sector. However, these results should be interpreted with caution due to sample size limitations.

Non-productive services sectors

Variable	1		2		3		4	
Crisis dummy (C)	2009-11	2010-11	2009-11	2010-11	2009-11	2010-11	2009-11	2011
Interaction: ExtDep x C x QSHARES (k)	-0.2339**	-0.2046*						
Periphery x ExtDep x C x QSHARES (k)	0.2806**	0.3731**						
Interaction: ExtDep x C x BONDS (j, k)			-0.017*	-0.0223**				
Periphery x ExtDep x C x BONDS (j, k)			0,013	0.0219**				
Interaction: ExtDep x C x BANK CREDIT (j, k)					0.0494**	0.007		
Periphery x ExtDep x C x BANK CREDIT (j, k)					-0.0553	-0.0379		
Interaction: ExtDep x C x MFI bs structure (k)							0,3846	0,1784
Periphery x ExtDep x C x MFI bs structure (k)							-0.333	-0.1692
Size of industry j in country k (t-1)	-0.226***	-0.2093***	-0.2365***	-0.2067***	-0.2256***	-0.2092***	-0.2202***	-0.2086***
industry-country, f.e.	yes	yes	yes	yes	yes	yes	yes	yes
industry-time, f.e.	yes	yes	yes	yes	yes	yes	yes	yes
country-time, f.e	yes	yes	yes	yes	yes	yes	yes	yes

*Note: ***, ** and * denote respectively statistical significance at 1, 5 and 10%.*

away from bank credit. Finally, for the entire sample, the development of equity market does not seem to have played a particular role during the crisis period. This obviously does not mean that equity markets do not matter for growth but rather that their effect on growth has not changed during the crisis.

Turning to the effect of MFIs balance sheets, a higher degree of diversification of MFIs balance sheet away from traditional bank lending (ratio of MFIs total assets to loans) seems to have acted as a magnifier of the impact of the crisis on growth in industries more dependent on external funding, probably reflecting MFIs' poor management of non-loan assets. A high leverage appears to have had a similar effect. As further discussed hereafter, these two effects are, however, essentially visible in core euro area economies and not in the periphery.

The results show that industries that are more dependent on external finance have been hit during the crisis differently depending on whether they belonged to the tradable or non-tradable sectors or whether they were located in the periphery or the core of the euro area. The asymmetry between core

and periphery is mainly due to the asymmetric impact of the balance sheet structure and leverage of the MFIs in these countries during the crisis.

I.5.1. Country dimension: core vs. periphery

While the above general picture holds broadly true for core economies, results in the periphery sometimes differ significantly. The cushioning effect of deep bond markets appears to be essentially present in core countries and small or insignificant in the periphery. More importantly, MFIs balance sheet effects appear to be quite different in the periphery. A financial sector with a diversified assets structure appears to have been much less detrimental for growth in externally dependent sectors in the periphery, the impact being much less negative or even close to zero in the periphery relative to the core.

Lower leverage of MFIs balance sheet, as measured by the capital ratio to total liabilities, has benefited industrial growth in the core euro area economies. The favourable impact has, however, been much lower in the periphery although this should be weighed against an overall much lower leverage in the periphery than in the core at the onset of the crisis.

The estimated asymmetric effect of the development of financial markets in the periphery relative to the core is likely to be explained by special features of the crisis, including a bust in asset prices and a correction in financial institutions' balance sheet weaknesses, and should not be interpreted as a long-term impact of financial development on growth.

I.5.2. Sectoral dimension: tradable vs non-tradable

The general picture for all industries holds by and large also true for manufacturing. However, econometric results differ in three ways when the sample is restricted to manufacturing industries. First, equity markets now seem to matter: deep equity markets have helped cushion the impact of the crisis of externally dependent sectors over the later part of the sample (2010-11) both in the core and the periphery. Second, the impact of MFIs balance are qualitatively the same as in the overall sample but much larger, and the above-mentioned differences between the core and the periphery are also much larger. Third, the positive effect of bond markets on growth in externally dependent sectors is also present in the periphery.

The picture is rather different for market services sectors, which seem to have been driven mostly by country-specific characteristics others than the level of development of financial markets. Service sectors more dependent on external funding have generally not been hit more severely by the crisis than the less financially dependent ones. Furthermore, there is no clear evidence that the level of financial market development or MFIs balance sheets made any significant difference. All interaction terms come out as mostly non-meaningful for market services.

This holds true for both core and the euro area economies, with the exception of the bank credit channel. The development in credit markets seems to have benefited market services sectors in the periphery, while it seems to have had a slightly negative effect in the core.

Growth in those non-market services sectors (such as utilities, education, health, other public support services) that are more dependent on external funds appear to have been affected by the crisis through several channels such as bank credit and equity. While the development of equity markets seems to have made growth in the financially dependent industries of these sectors worse during the crisis, the development in credit markets appears to have had a positive effect. This might reflect the degree of openness to private funding of these sectors, which also benefit from large public spending. More developed credit markets could be beneficial to growth in these industries given that industries in these sectors do not issue equity, while they could still borrow from the credit market given public guarantees.

I.6. Conclusion

The analysis presented in this focus section reveals that the financial crisis has had a negative impact on industrial sectors that are more dependent on external funds in the euro area. However, this impact has been rather asymmetric in the core vs. the periphery euro area economies and differentiated across manufacturing vs. non-manufacturing/services sectors.

There is some evidence that more developed financial markets as measured by the size of bank loans, of bond markets or equity markets have, to

some extent, helped cushion the negative growth effect of the crisis. This effect varies, however, depending on the phase of the crisis. In particular, well developed bank loans seem to have been a supporting factor in the early stages of the crisis but not over the most recent 2010-11 period. The empirical also analysis shows that MFIs balance sheet structure matters. A high degree of diversification of MFIs balance sheet away from traditional bank lending and high leverage seem to have acted as a magnifier of the impact of the crisis on the growth of industries more dependent on external funding.

These results hold for the core countries considered in the analysis. In the periphery of the euro area, some results differ significantly. This is particularly when considering the effect of MFIs balance sheet structure with both the diversification of MFIs balance sheets away from loans and MFIs leverage having much smaller effects in the periphery than in the core.

Despite a higher dependence on external funding, the market services sectors seem to have been more sheltered than the manufacturing sector from the impairment of the market funding channels and the changes in finance supply since the crisis. Market services industries seems to have attracted most of the available credit in the euro area economies during the boom years, however, since the crisis, industrial growths in these sectors has been mostly influenced by country-specific characteristics and not by their higher dependence on external funds and changes in market funding channels.

Overall, the analysis suggests that country-specific and sector-specific considerations play an important role in explaining the changing relationship between external financial dependency and growth since the onset of the crisis. The persistence of some of the estimated effects over the 2010-11 period also suggests that the changes in the relationship have a lasting nature: firms' access to finance appears to have been durably altered by the crisis and not to have just been temporarily impaired during the sharp recession of 2008-09.

II.1. Labour costs pass-through, profits and rebalancing in vulnerable Member States ([12])

This section discusses whether the incomplete pass-through of labour cost moderation into prices observed in some vulnerable countries in the last few years is reflected into profitability developments and whether this is favourable to external rebalancing in vulnerable euro area Member States. In accounting terms, broadly defined measures of operating profits are the link between labour costs and the gross value-added deflators. Macro- and micro-level data are used to better understand the drivers of recent increases in profit measures relative to labour costs. The results suggest that profit margins (gross operating surplus over value-added) increased – particularly in tradable industries – thus absorbing part of the reduction in unit labour costs. However, higher profit margins were not sufficient to contain downward pressures on profitability measured in terms of return on assets, due to surging funding pressures and falling capital productivity. Still, data point to a relative increase of profitability in the tradable sector that is desirable in order to incentivise the reallocation of resources into export oriented industries, thus contributing to external rebalancing within the euro area.

Introduction

Recent adjustments of the current accounts in vulnerable Member States (usually defined as the group of Cyprus, Greece, Spain, Ireland, Portugal, and Slovenia, and on occasion also including Italy) are pointing to the fact that rebalancing is on-going. ([13]) The aggregate current account of the vulnerable Member States, taken as a whole, recorded a surplus in 2012. The adjustment so far has been the result of a mix between lower imports (driven by lower consumption and investment) but also higher exports whose contribution has expanded more recently. However, the limited pass-through of falling wage costs into export prices noticed in the recent years is sometimes singled out as problematic, as it allegedly would only lead to an increase in profits and not to a boost of exports.

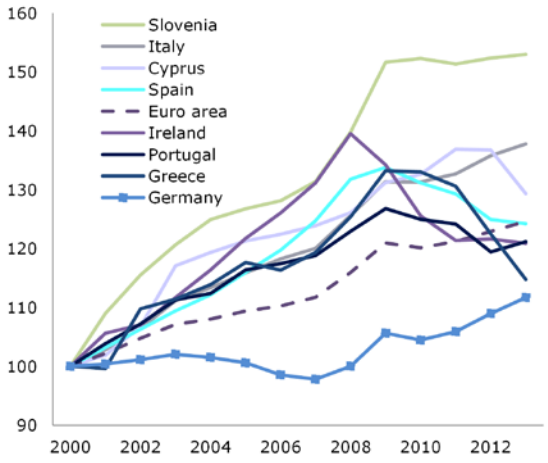
This section takes a more benign view, arguing that an incomplete pass-through is, in part, a natural consequence of the adjustment process. The analysis highlights the main developments of prices and the pass-through of price components – labour and profits – at both the macro and micro levels.

Labour costs and price developments

Evidence from unit labour cost (ULC) developments (Graph II.1.1) suggests that the rebalancing process in vulnerable euro area Member States is underway, as the unwinding of accumulated wage cost imbalances (relative to Germany or the euro area average) has taken place and accelerated in recent years. ([14]) In particular, Greece, Portugal and Ireland have exhibited the most significant reductions, experiencing negative growth of compensation per employee in addition to increasing labour productivity (reflecting employment losses), while Spanish ULC cuts have been driven by productivity rather than wages. Italy experienced no sharp reduction of ULC growth, as compensation per employee continued to rise.

Graph II.1.1: **Nominal unit labour cost**

(2000-2013, Total economy, Index: 2000 = 100)



Source: AMECO.

([12]) Section prepared by Andreas Breitenfellner, Anca Dana Dragu and Peter Pontuch.

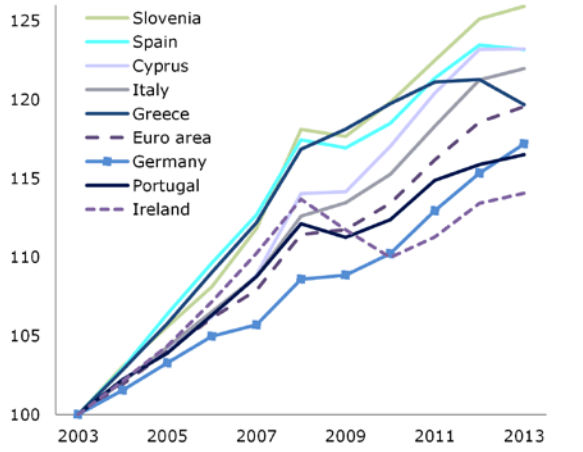
([13]) Ideally, rebalancing is a symmetric process that also implies adjustments in the other member states.

([14]) ULC index series, however, tend to exaggerate the rebalancing needs, depending on their somewhat arbitrarily chosen starting points.

Wage cost reductions have fed only slowly and incompletely into price developments. Partly, this incomplete pass-through can be explained by simultaneous hikes of indirect taxes and administered prices due to fiscal consolidation needs. Adjusting for the impact of tax changes (Graph II.1.2) which have no direct impact on external competitiveness considerations, HICP inflation has moderated since the onset of the crisis particularly in Greece, Ireland and Portugal, implying even price reductions in some cases.

Graph II.1.2: **HICP at constant taxes (1)**

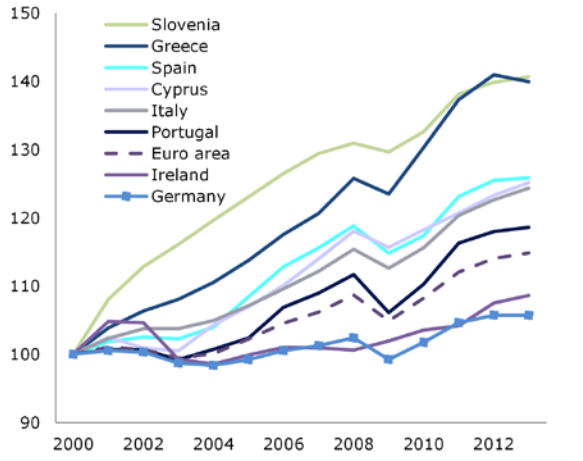
(2000-2013, Index: 2003 = 100)



(1) The HICP-CT index starts with the first complete reporting year 2003. To calculate the last year's average, the last available data (July) has been extrapolated until the end of 2013. Ireland does not report constant-tax HICP figures; therefore all-items HICP figures are taken.
Source: Eurostat.

Graph II.1.3: **Export price deflator**

(2000-2013, Index: 2000 = 100)



Source: AMECO.

As revealed in Graph II.1.3, some adjustment in export prices has taken place, albeit lagging behind labour cost developments. ([15]) The comparison of the last two charts gives a first indication of a different pass-through between domestic and trade-related prices. In any case, the recent trend of low inflation in the vulnerable Member States suggests that labour costs will progressively be passed through into prices.

Aggregate profit margins

The corollary of an incomplete pass-through of wage costs into prices is an increasing profit margin. Indeed, in accounting terms, the link between labour costs (compensation of employees) and the gross value-added deflator is gross operating surplus, apart from less important "other taxes". ([16]) Next the analysis is fine-tuned by more precise profit and price data as well as a disaggregation between tradables and non-tradables. A conventional definition of tradable sectors is used, covering agriculture, mining, manufacturing, energy and utilities, trade, transport, accommodation and food services. Non-tradables include information, communication, finance, other services, construction, and real estate.

Graph II.1.4 shows the decomposition averaged out in three periods of time: 2002-09, 2010-11 and the latter period extended to the latest available data (2013 Q1). In general terms, since the onset of the crisis, profits per unit of output have not mimicked the shrinking path of unit labour costs. The increase in profit margins since 2010 can partly be seen as an offset of their collapse during the global recession in 2008/09. However, their recovery was moderate, as gross operating surpluses had just about returned to their pre-recession levels by late 2011. ([17])

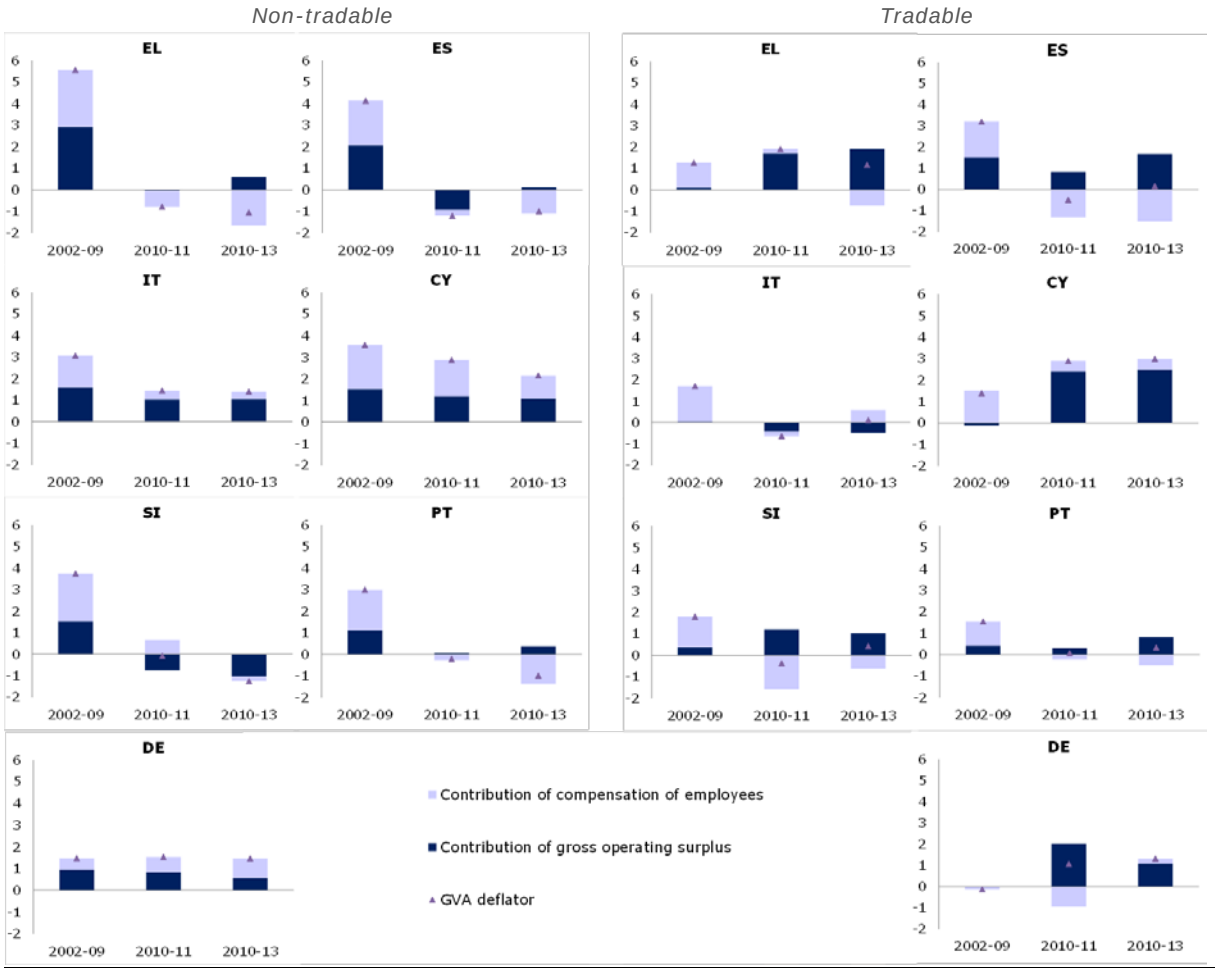
In the post-2010 period, i.e. during the process of rebalancing and when there was a fast reduction in current account deficits, an incomplete pass-

([15]) Ireland appears as an exception as valuation effects of exports which are invoiced in US dollars should be taken into account.

([16]) The contribution of wage costs is computed as $\frac{\frac{\text{compensation of employees(t)}}{\text{GVA at constant prices(t)}} - \frac{\text{compensation of employees(t-1)}}{\text{GVA at constant prices(t-1)}}}{\text{GVA deflator(t-1)}}$. The contribution of profit margins is the residual and includes also the effect of some taxes.

([17]) ECB (2013), Monthly bulletin, March 2013. The topic also touches the debate about the relation between mark-ups and the business cycle. See for example Nekarda, C.J., and V.A. Ramey (2011), "The cyclical behavior of the price-cost markup", *NBER Working Paper,* No. 19099 (June).

Graph II.1.4: **Wage and profit margin contributions to the GVA deflator in non-tradable and tradable sectors (1)**



(1) Non-tradables include: F – Construction, K - Financial and insurance activities, L - Real estate activities, M_N - Professional, scientific and technical activities; administrative and support activities, O_Q - Public administration, defence, education, human health and social work activities, R_U - Arts, entertainment and recreation; other service activities; activities of household and extra-territorial organizations and bodies. Tradables include: A - agriculture, forestry and fishing, B_E - industry except construction, G_I - Wholesale and retail trade, transport, accommodation and food service activities, J - Information and communication.
Source: Eurostat and DG ECFIN calculations.

through in the tradable sector is signalled by an increase in the profit contribution which absorbed part of the reduction in wages. This trend has been accelerating in the most recent period (2012 and early 2013), especially in Portugal and Spain, making the tradable industries more attractive for investment. In the non-tradable sectors developments have been more heterogeneous. In Spain and Slovenia the reduction in the contribution of labour costs to the deflator has not led to an increase producers' margins. ([18]) In Greece and Portugal, after a strong initial adjustment, the contribution of profits has rebounded. However, the contribution of profit margins to deflators in the non-tradable sectors of Cyprus and Italy remained relatively high. These different developments reflect a fundamental difference between the tradable and non-tradable sector in terms of pricing behaviour.

Firm-level profitability

Firm-level evidence complements the above analysis and sheds light on the relationship between labour costs and profitability measured by the return on assets. The concept of profitability is different from the concept of profit margins (i.e. profits per unit of sales) especially in the context of depressed demand that implies falling capital productivity. Even if margins increase with falling

([18]) Slovenia and Spain are the countries with real estate bubble that burst in the initial phase of the crisis.

Table II.1.1: **Effects of labour costs on firm profitability**

Dep. var. Return on Assets(t)	All MS	Vulnerable	Core	All MS	Vulnerable	Core
	Whole period (2004-2011)			**Post-crisis (2010-2011)**		
Size (t-1)	-0.020***	-0.018***	-0.025**	-0.029*	-0.046**	0.012
	(-5.22)	(-4.61)	(-2.85)	(-2.14)	(-3.18)	(0.44)
Capital intensity (t-1)	-0.034***	-0.039***	0.007	0.036	0.041	0.084
	(-3.49)	(-3.94)	(0.21)	(1.31)	(1.41)	(0.80)
Leverage (t-1)	0.024***	0.020***	0.026*	0.032**	0.034**	-0.010
	(4.59)	(3.76)	(1.99)	(2.64)	(2.77)	(-0.23)
Labour cost (t)/Sales(t-1)	-0.003	-0.039*	0.117*	0.102	0.067	0.207
	(-0.17)	(-2.05)	(2.02)	(1.54)	(1.11)	(1.81)
Tradable dummy *	-0.097**	-0.124***	-0.110	-0.196	-0.230*	-0.179
Labour cost (t)/Sales(t-1)	(-3.07)	(-4.30)	(-1.45)	(-1.91)	(-2.40)	(-0.96)
Constant	0.252***	0.241***	0.283***	0.253*	0.383***	-0.046
	(9.33)	(8.53)	(4.26)	(2.46)	(3.46)	(-0.22)
Industry * year dummies	yes	yes	yes	yes	yes	yes
Firm fixed effect	yes	yes	yes	yes	yes	yes
Observations	23569	15994	7575	7711	5243	2468
Adj. R2	0.106	0.136	0.147	0.072	0.091	0.152

(1) The dependent variable is return on assets (earnings before interest and taxes / total assets).
(2) The sample includes observations of independent firms that had a stable number of employees over a given year (employee growth less than ±0.1%) from Germany, France, Finland, Spain, Italy, Portugal, and Slovenia.
(3) t statistics in parentheses. Significance levels: * p<0.05; ** p<0.01; *** p<0.001.

Source: Orbis and DG ECFIN calculations.

labour cost, profitability might still be under pressure, due to low sales.

The link between labour cost and profitability measured by the return on assets is studied using an econometric model of firm profitability as a function of firm-level variables, sector-year dummy variables and firm fixed effects. ([19]) The variable of interest in the model is defined as the ratio of current labour expenses to previous year's sales. ([20]) In order to capture the differences in wage pass-through between tradables and non-tradables, this variable is interacted with a dummy variable for tradable sector firms.

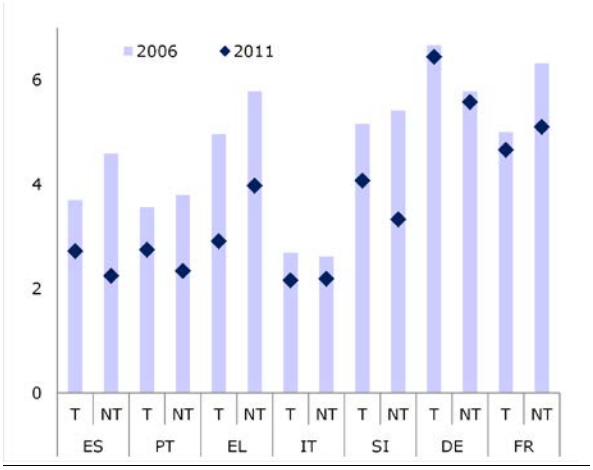
The first column of Table II.1.1 shows that the changes of labour costs were not associated with significant changes of profitability in general, as the coefficient on the corresponding variable is low and statistically not significant. However, the effect of labour costs on firm profitability in tradable industries (row highlighted) seems to be significantly negative. This observation indicates that labour cost increases in tradable sectors tend to be negatively correlated with changes in profitability. The second and third columns further suggest that this effect is mostly driven by firms in the vulnerable member states, while it is also negative but not significant in the core states. On average, a 1 pp. increase in the wages to sales ratio in the vulnerable Member States is associated with a 0.16 pp. decrease of profitability in the tradable sector (since the total coefficient is given by –(0.039 + 0.124)). The last three columns further reveal that the wedge between the impact on tradable and non-tradable sectors in the vulnerable Member States almost doubled in the post-crisis period. In sum this exercise reveals that the pass-through, particularly in the tradable sector, was already limited before the crisis and it has only become more so since then.

([19]) The choice of indebtedness as a firm-level control variable aims to capture any empirical correlation between debt and firm performance, be they causal (e.g., agency theory) or not. The data cover independent companies during 2003-2011 for Spain, Portugal, Italy, Greece, and Slovenia representing the vulnerable Member States, and Germany, France and Finland representing non-vulnerable Member States.

([20]) Using wages and sales of the same period would make the studied relationship meaningless, as it would simply reflect a mechanical effect of an increase in labour costs not covered by a proportional increase of sales on ROA. As an additional filter, a stable labour force between the current and previous year is required, as otherwise the changes in the wages to sales ratio could reflect changes in the size of the company and/or the structure of its labour force (leading to a final sample of 23,569 observations). Similar results are however obtained also when looking at all firms without requiring a stable labour.

These results should be interpreted together with the developments of firm profitability, as presented in Graph II.1.5. Before the crisis, typical profitability in non-tradable sectors was above that of tradables in all vulnerable Member States, except Italy. A similar gap was present in France, while Germany saw the inverse situation where the typical tradable sector firm profitability was above that of non-tradables. In the crisis period, there was a general fall of profitability in all vulnerable Member States and, to a lesser extent, France and Germany. However, the fall of profitability in the vulnerable countries (except Greece) was stronger in the non-tradable industries. In 2011, tradables' profitability was somewhat above that of non-tradables in Spain, Portugal, and Slovenia, but not in Greece. Lastly, the graph shows that the limited wage pass-through in tradable industries has not led to abnormal profits. Instead, the improved margins compensate for the fall in revenues driven by weak demand. Profitability is still depressed, both compared to pre-crisis levels and to core Member States.

Graph II.1.5: **Median firm profitability in the tradable and non-tradable sector**



(1) Profitability is measured after tax as earnings before interest after taxes/total assets. T stands for tradable sectors, NT for non-tradable sectors.
Source: Orbis and DG ECFIN calculations.

Implications for rebalancing

Growth-friendly rebalancing requires a shift of resources from the non-tradable to the tradable sector, leading to an increase in the export capacity and actual exports. As resources are driven by their expected returns, the attractiveness of the tradable sector has to increase relative to the non-tradable one. The incomplete pass-through of wage cuts into prices is therefore consistent with, and effectively part of, the rebalancing process in the vulnerable Member States, provided that it occurs predominantly in the tradable sector. Firms in the tradable sector, in particular in small economies, have in general less influence on prices (they are closer to being price-takers) ([21]) than firms in non-tradable sectors. Hence, downward developments in wage costs make room for restoring profit margins of these firms.

Looking beyond price-taking behaviour, ([22]) there are a number of factors explaining the resilience of margins in vulnerable Member States, including the fall in capital productivity, firm's deleveraging needs, increased borrowing costs, and weaker competition. Deleveraging pressures have indeed been increasing in the overly indebted corporate sector, notably in the vulnerable Member States. Large drops in firm indebtedness have been observed in Spain, Greece and Italy, mainly driven by negative net credit flows. ([23]) Furthermore, financing costs for the corporate sector have considerably increased in vulnerable countries throughout the recent crisis period. Indeed, the highest corporate lending rates were reported in Greece, Cyprus, Portugal, and Slovenia, followed by Italy and Spain. ([24]) An improvement of financing conditions becomes even more relevant, in order to allow tradable sector firms to offset the decline in domestic markets by finding external ones, and, in a broader sense, to reallocate resources in the tradable sector.

The above findings are mirrored by company surveys. In 2010, firms considered that small margins, high labour costs and insufficient financing, including necessary investment into equipment were among the most important factors – after negative economic outlook and lack of domestic demand – expected to limit their business

([21]) Moreover the price-elasticity of their exports is relatively high (see e.g. Imbs, J. and I. Mejean: "Trade elasticities: A final report for the European Commission", *European Economy-Economic Papers*, No. 432, DG ECFIN, European Commission, December 2010.

([22]) The evidence of price-taking in the export sector is mixed and possibly tilted towards smaller firms. For instance, Spanish export prices and ULC moved in tandem before the crisis, both when looking at simple indices and real effective exchange rates, suggesting some pricing power.

([23]) See Cuerpo Caballero, C., I. Drumond and P. Pontuch (2013), "Assessing the private sector deleveraging dynamics", *Quarterly Report on the Euro Area,* Vol. 12, No. 1.

([24]) See Jevčák, A. and L. Briciu (2013), "Drivers of diverging financing conditions across Member States", *Quarterly Report on the Euro Area,* Vol. 12, No. 1.

growth. ([25]) A more recent survey ([26]) indicates that at the beginning of 2013 access to finance was the most pressing problem faced by companies in Greece and Ireland and second most important in Portugal and Spain, after "finding customers". The same survey indicates a continuation of the decline of profits in all vulnerable countries, as a consequence of turnover and cost developments.

Overall, if developments in the pass though appear benign in the tradable sectors, there is still room for policy action in the non-tradable sector to facilitate the rebalancing process. Recent data on product market policy areas indicate that there are challenges in the tradable sector of most vulnerable Member States. ([27]) Moreover, the crisis may have reduced the intensity of competition, as many companies went bankrupt or withdrew from the markets, given low demand expectations and high uncertainty. Increasing competition in non-tradables and reducing margins would (i) contribute to faster reallocation of resources, (ii) improve price competitiveness of tradables using non-tradable goods and services as inputs, (iii) mitigate the pressures on disposable incomes for those affected by employment reduction and wage cuts, and (iv) compensate for price increases resulting from tax hikes, as part of the fiscal consolidation process.

Although the conditions for resource reallocation are emerging, the rebalancing process is in its early stages and not yet symmetric. This evolution is highlighted by plotting together both value added and employment in tradables relative to their respective pre-crisis totals (Graph II.1.6). On the one hand, some reallocation is visible in terms of activity, as tradables' value added has been growing faster (or contracting slower) compared with non-tradables, overpassing its pre-crisis value (e.g., in Spain, Portugal, Slovenia and marginally in Cyprus).

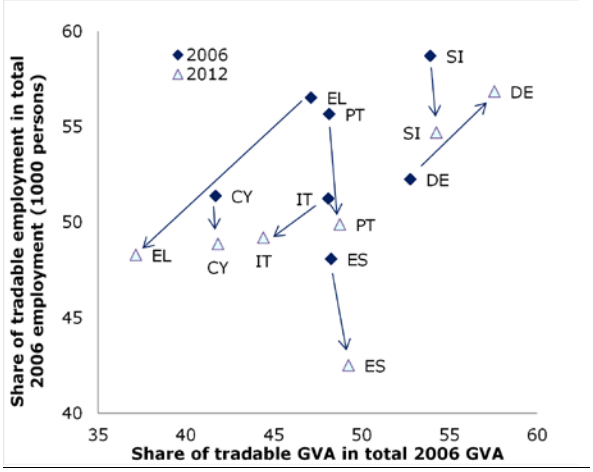
([25]) Survey on access to finance of SMEs, Eurostat. SMEs are relevant for this analysis as they are in general price takers. http://epp.eurostat.ec.europa.eu/portal/page/portal/european_business/special_sbs_topics/access_to_finance

([26]) Survey on the access to finance of SMEs in the euro area (SAFE), ECB, http://www.ecb.europa.eu/pub/pdf/other/accesstofinancesmallmediumsizedenterprises201304en.pdf?60898720eeff7420c0a7c03f977e086a

([27]) The data bank LAF provides for each country an aggregate relative score on several policy areas including product market reforms (available at http://ec.europa.eu/economy_finance/indicators/economic_reforms/Quantitative/laf/).

Developments in Greece and Italy are less encouraging, as value-added in the tradable sector has contracted significantly against the 2006 level. On the other hand, the graph reveals a significant decline of employment in tradables in 2012 compared with 2006 in all vulnerable Member States, in the context of overall shrinking employment. Taken together, these developments are in contrast with those in Germany, where the tradables' share in both employment and value added have increased – beyond what overall GDP and employment growth would have implied – while rebalancing would rather be associated with movements in the opposite direction.

Graph II.1.6: **Employment and value added in tradable sector in selected countries**



(1) VA measured in constant prices. In order to capture the decline of employment and value added since the onset of the crisis, both ratios are computed using as denominator the values of the pre-crisis year (2006)
Source: Eurostat.

Conclusion

This section reveals that labour cost moderation in the vulnerable Member States is actually feeding through into prices, though not completely, due to recovering profit margins. Yet, profitability as measured by the return on assets is declining, as it takes into account the fall in sales. Changes in wage costs and profit margins seem to be occurring in opposite directions, both in the boom years and in the rebalancing period, being expressions of the same mechanism. As summarized in Table II.1.2, both macro and micro level evidence points to a limited pass-through of wage costs into prices, particularly in tradable industries.

The observed partial transmission of labour cost moderation into prices can be ascribed as potentially benign if it leads to a reallocation of resources away from rather sheltered domestic industries towards more export-oriented and import-competing industries. So far, however, the evidence of cross-sector shifts in employment and activity is mixed, which may reflect continuing deleveraging pressures and financial constraints.

Table II.1.2: **Summary of findings**

		Tradable sector	Non-tradable
Macro evidence	**Pre-2010**	wage increases eroded margins (to a lesser extent for ES)	margins increases were stronger than wages
	2010-11	labour cost moderation and restoration of margins (except IT)	labour cost moderation, profit margins rebound somewhat (EL, ES and PT)
Micro evidence	**Pre-2010**	high labour costs imply lower profitability	high labour costs slightly reduce profitability
	2010-11		no relationship between labour costs and profitability

Source: DG ECFIN.

II.2. Cross-border spillovers in confidence ([28])

The recent crisis has been characterised by a sizeable decline in consumption and in consumer confidence and by significant spillover effects across countries. However, the question of whether confidence indicators are useful predictors of consumption by carrying information beyond economic fundamentals remains open. Moreover, while there is evidence of significant cross-country financial spillovers, the role of the confidence channel for the transmission of shocks is relatively unexplored. This section addresses these issues by analysing the link between real consumption and consumer confidence and the role of confidence spillover effects in the euro area. Real consumption and consumer confidence in the euro area show a close correlation, as well as measures of confidence across a number of euro area countries. An econometric analysis is carried out in order to test whether the correlation stems from the information about economic fundamentals contained in the confidence indicators or whether the latter have an additional predictive power and to assess the existence of confidence spillovers. Measures of consumer confidence abroad appear to be meaningful predictors of domestic confidence and consumption, lending support to the hypothesis that there exist significant cross-country confidence spillovers.

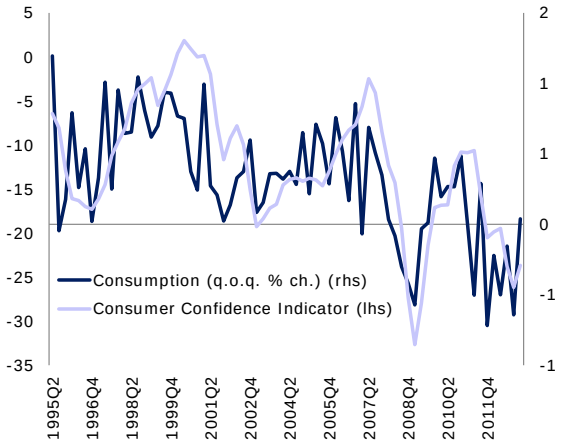
The dynamics of real private consumption and consumer confidence in the euro area

Real private consumption in the euro area has been severely affected during the recent crisis. This has been partly attributed by many commentators to an erosion of consumers' confidence, which is thought to have contributed to the protracted impact of the crisis on the real economy.

Graph II.2.1 illustrates the dynamics of euro area real private consumption and of the Consumer Confidence Indicator, developed by the European Commission as part of the Joint Harmonised EU Programme of Business and Consumer Surveys (BCS), over the period 1985Q1-2013Q1. The graph shows a close co-movement between the two variables, in particular over recent years. After reaching a peak in the second quarter of 2007, consumer confidence in the euro area started declining, plummeting in the first quarter of 2009. Since then, a partial recovery was followed by a new deterioration at the height of the sovereign debt crisis. The indicator, however, showed an improvement in the first half of 2013. The growth rate of private consumption followed a very similar pattern, showing its largest decline in the last quarter of 2011 (-0.72%), remaining negative over the course of 2012 and improving slightly in the first quarter of 2013.

Graph II.2.1: **Confidence and private consumption, euro area**

(1995Q2-2013Q1)



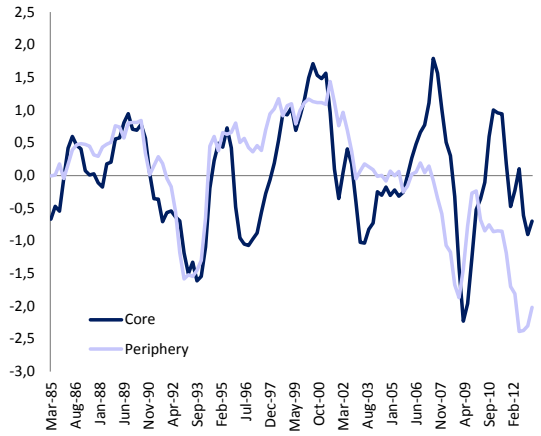
Source: Eurostat and DG ECFIN calculations based on EU Business and Consumer Surveys.

The overall euro area picture hides significant differences at the Member States' level. Graph II.2.2 shows the evolution of the Consumer Confidence Indicator in the core and the peripheral countries since 1985. The indicators for the two groups of countries displayed a similar dynamics in the early years of the sample (with the exception of the years leading to the adoption of the euro, when confidence was higher in the periphery). However, since 2002 and, more markedly, starting from 2009 the link appears to have become much weaker. While the indicators move in the same direction, the rebound in consumer confidence since 2009 in peripheral countries has been considerably more fragile and the subsequent deterioration larger than in core countries. While there was some improvement in the first half of 2013, consumer confidence in peripheral Member States remains at very low levels, particularly in Greece and Portugal.

([28]) Section prepared by Francesca D'Auria.

Graph II.2.2: **Consumer Confidence Indicator in core and peripheral countries**

(1985Q1-2013Q1)



(1) Core: Austria, Belgium, Finland, France, Germany and Netherlands. Periphery: Greece, Ireland, Italy, Spain and Portugal. The Consumer Confidence Indicators have been standardised before aggregation.
Source: DG ECFIN calculations based on EU Business and Consumer Surveys.

The data suggest the existence of a stronger link between consumer confidence indicators across Member States belonging to the core or the periphery.

Table II.2.1: **Consumer Confidence Indicator - Correlation matrix**

(1996Q1-2013Q2)

	Core						Periphery				
	AT	BE	FI	FR	DE	NL	EL	IE	IT	PT	ES
AT	1,00	0,74	0,66	0,80	0,74	0,49	0,26	0,08(1)	0,30	0,26	0,37
BE	0,74	1,00	0,70	0,89	0,62	0,71	0,53	0,49	0,61	0,60	0,70
FI	0,66	0,70	1,00	0,70	0,41	0,80	0,48	0,46	0,51	0,62	0,68
FR	0,80	0,89	0,70	1,00	0,62	0,68	0,56	0,48	0,50	0,60	0,64
DE	0,74	0,62	0,41	0,62	1,00	0,36	-0,14(1)	-0,01(1)	-0,01(1)	0,03(1)	0,19
NL	0,49	0,71	0,80	0,68	0,36	1,00	0,64	0,74	0,65	0,82	0,75
EL	0,26	0,53	0,48	0,56	-0,14(1)	0,64	1,00	0,70	0,81	0,83	0,71
IE	0,08(1)	0,49	0,46	0,48	-0,01(1)	0,74	0,70	1,00	0,64	0,85	0,68
IT	0,30	0,61	0,51	0,50	-0,01(1)	0,65	0,81	0,64	1,00	0,85	0,80
PT	0,26	0,60	0,62	0,60	0,03(1)	0,82	0,83	0,85	0,85	1,00	0,85
ES	0,37	0,70	0,68	0,64	0,19	0,75	0,71	0,68	0,80	0,85	1,00

(1) Not statistically significant at conventional levels.
Source: DG ECFIN calculations based on EU Business and Consumer Surveys.

Table II.2.1 displays simple correlations between the confidence indicators of the countries classified within the two groups. In core countries, with the exception of the Netherlands, the correlation of consumer confidence indicators with other members of the group is stronger than with members of the periphery. The observed correlation of confidence indicators is also stronger across peripheral countries than between these and core countries, in particular in the case of Portugal. These relationships, which characterised the whole sample period, further strengthened during the crisis. ([29]) The high correlation can be indicative of a strong synchronisation of the business cycle, but also of confidence spillover effects across a number of euro area countries.

Confidence, consumption and the role of spillovers

The way consumers' attitudes influence the real economy is much debated in the literature. ([30]) From a theoretical point of view, departures from the permanent income hypothesis can in part be justified by uncertainty about expected income. The extent to which confidence indicators capture information about future economic conditions can explain their predictive power for consumption series. Secondly, the link between consumption and consumer confidence could be explained in terms of 'animal spirits', as the indicators could convey information about non-economic factors affecting consumption. ([31])

Empirically, significant attention has been devoted to the strength of the relationship between confidence and consumption and to the issue of causality. A number of studies, for example Carroll, Fuhrer and Wilcox (1994), find evidence of a strong correlation between consumer confidence and real consumption. ([32])

However, a close correlation between the dynamics of private consumption and confidence indicators is not necessarily indicative of a relation of causality, as consumption and consumers' confidence are largely driven by the same determinants. In other words, the question is whether confidence indicators carry information beyond economic fundamentals. The evidence is

([29]) In particular, the moderately positive and robust correlations between consumer confidence indicators in Germany and in peripheral countries turned negative and not statistically significant since the onset of the crisis. Moreover, over the period 2008Q1-2013Q2, consumer confidence in the Netherlands became more strongly correlated with consumer confidence in core countries than with confidence in the periphery.

([30]) See Dées S. and P. Soares-Brinca (2011), "Consumer confidence as a predictor of consumption spending – Evidence for the United States and the Euro Area", *ECB Working Paper*, No. 1349 for a discussion of the theoretical arguments in support of the relationship between consumption and consumer confidence.

([31]) See, for example, Acemoglu D. and A. Scott (1994), "Consumer confidence and rational expectations: Are agents' beliefs consistent with the theory?", *The Economic Journal*, No. 104, pp. 1-19.

([32]) Carroll C., J. Furher and D. Wilcox (1994), "Does consumer sentiment forecast household Spending? If So, Why?", *American Economic Review*, Vol 84, pp. 1397-1408.

Box II.2.1: **Confidence spillovers and consumption**

This box assesses the impact of confidence spillovers on consumption for a sample of 8 euro area Member States (Austria, Finland, France, Germany, Greece, Italy, Portugal and Spain) using quarterly data over the period 1999Q1-2012Q4. This is done by developing an error correction model consisting of a medium-term co-integrating equation and a short-term equation. (1) The first equation tests the relationship between consumption and real disposable income, real net financial wealth, real house prices and the ratio of household credit to house prices. The latter is assumed to be correlated with banks' loan-to-value ratios, implying that an increase in the ratio can be interpreted as an easing of credit constraints. The medium-term relationship is estimated by dynamic OLS including a time trend (all variables are in logs). The table below displays the results for the medium-term equation.

Real consumption- Estimation of medium-term co-integrating equation

	Real disposable income	Real net foreign assets	Real house prices	Ratio of credit to house prices
Coefficient	-0.1950***	-0.0436***	-0.2195***	-0.1702***

*Note: *** denotes statistical significance at the 1% level.*

The estimation of the short-term equation allows to test the role of confidence spillovers across the countries included in the sample. The equation relates consumption to first differences of the variables included in the medium-term equation, to the error correction term from the medium-term equation and to the real long-term interest rate. In addition, the equation includes the domestic BCS Consumer Confidence Indicator and an indicator of foreign confidence. The latter is constructed by combining confidence indicators for a sample of 14 countries (including, in addition to the countries included in the panel, Belgium, Ireland, Netherlands, Sweden, United Kingdom and United States) using trade weights. (2)

Real consumption - Estimation of short-term equation

Variable	1	2	3
Cointegrating equation residual (-1)	-0.2876***	-0.2889***	-0.2873***
Dlog_net foreign assets (-1)	0.0766***	0.0881***	0.0682***
Dlog_credit / house prices (-1)	0.1129***	0.0869**	0.1027****
Dlog_real house prices (-1)	0.1080***	0.0866***	0.0941***
Long-term interest rate (-1)	-0.0010***	-0.0008***	-0.0009***
Domestic confidence indicator (-1)		0.0024***	0.0018***
Foreign confidence indicator (-1)	0.0013**		-0,0002

*Note: ***, ** and * denote respectively statistical significance at 1, 5 and 10%.*

The results (table above) show that the foreign confidence indicator is statistically significant. The domestic confidence indicator is also strongly significant. The channel through which foreign confidence is expected to influence real consumption is domestic confidence, which is confirmed by the lack of significance of the foreign confidence indicator once the domestic confidence indicator is included. To test the extent to which domestic confidence is affected by foreign confidence, the next table shows results from the regression of the domestic confidence indicator on the same determinants as in the consumption equation, on the growth differential between the domestic economy and abroad (proxied by GDP for the same countries included in the construction of the foreign confidence indicator), to partly capture the impact of differences in business cycles, and by foreign confidence. The foreign confidence indicator is strongly significant.

(1) Similarly to Balta, Ruscher and Valdés Fernàndez, "Assessing the impact of uncertainty on consumption and investment", *Quarterly Report on the Euro Area* (2013) Vol. 12(2), where an analogous error correction model is used to assess the role of uncertainty on consumption.

(2) For the United States, the University of Michigan Consumer Sentiment Index is used.

(Continued on the next page)

Box (continued)

Determinants of domestic consumer confidence

Variable	Coefficient
Dlog_net foreign assets (-1)	9.8871***
Dlog_credit / house prices (-1)	4.1694*
Dlog_real house prices (-1)	6.4896***
Long-term interest rate (-1)	-0.0883***
Domestic and foreign growth differential (-1)	0.0641***
Foreign confidence indicator (-1)	0.7314***

*Note: ***, ** and * denote respectively statistical significance at 1, 5 and 10%.*

mixed, but many studies seem to point to a positive answer.

Several authors conclude that the inclusion of consumer confidence indicators can reduce forecast errors in predicting the dynamics of consumption, see, for example, Ludvigson (2004). ([33]) Others, however, find that the addition of measures of consumer sentiment leads to a small or no improvement in forecast accuracy. ([34]) Finally, some papers argue that confidence indicators have a particularly strong predictive power during periods of strong economic fluctuations. ([35])

Moreover, there is some (though limited) evidence that real consumption can also be affected by confidence abroad through its impact on domestic confidence. Dées and Soares Brinca (2011) find evidence of confidence spillovers from the US to the euro area on the basis of regression analysis and of a two-region vector autoregression (VAR) model (while shocks to euro area confidence do not appear to have an impact on confidence and consumption in the US). Fei (2011) uses data for G7 countries and Spain and finds evidence of a confidence transmission channel from large countries to smaller countries. ([36])

([33]) Ludvigson S. (2004), "Consumer confidence and consumer spending", *Journal of Economic Perspectives*, Vol. 18(2), pp. 29-50.

([34]) For example, Claveria, O., E. Pons and R. Ramos (2007), "Business and consumer expectations and macroeconomic forecasts", *International Journal of Forecasting*, Vol. 23, pp. 47-69.

([35]) For example, Howrey E. (2001), "The predictive power of the index of consumer sentiment", *Brookings Papers on Economic Activity*, Vol. 1, pp. 175-216.

([36]) Fei S. (2011), "The confidence channel for the transmission of shocks", *Banque de France Working Paper*, No. 314.

The role of confidence spillovers in the euro area

This sub-section discusses the role of confidence spillovers on the basis of a fully-specified consumption equation using an Error Correction Model (ECM) for a panel of euro area Member States over the period 1999-2012. The model includes a set of economic fundamentals as explanatory variables, in order to try to isolate the role of consumer confidence and reduce the bias due to omitted variables. Box II.2.1 describes the model in more detail.

Consumer confidence is measured by the BCS Consumer Confidence Indicator. The indicator is the arithmetic average of the balances of the answers to questions on the financial situation of households, the general economic situation, unemployment expectations and savings, all over the next 12 months. ([37]) It can therefore be considered a proxy for the consumers' expectations about their future economic situation. ([38]) In order to assess the role of cross-country confidence spillovers, the model also includes a foreign confidence indicator built using trade weights.

([37]) More specifically, the survey questions asked are the following: Q2 How do you expect the financial position of your household to change over the next 12 months? Q4 How do you expect the general economic situation in this country to develop over the next 12 months? Q7 How do you expect the number of people unemployed in this country to change over the next 12 months? Q11 Over the next 12 months, how likely is it that you save any money?

([38]) It must be noted, however, that confidence indicators can suffer from measurement errors due to the qualitative nature of the survey questions asked. See, for example, Dominitz J. and C. Manski (2004), "How should we measure consumer confidence?", *The Journal of Economic Perspectives,* Vol. 18, pp. 51-66.

Regression results indicate that confidence abroad has a significant effect on real consumption which goes beyond economic fundamentals. However, once domestic confidence is included in the estimation, the foreign confidence indicator loses significance. This is consistent with the fact that domestic confidence constitutes the channel of transmission through which foreign confidence can affect domestic consumption.

To better assess the transmission mechanism between foreign and domestic confidence, the domestic confidence indicator is regressed on the same economic fundamentals which were found to affect real consumption, on a measure of the difference in the business cycle between the domestic economy and abroad and on the foreign confidence indicator. Two regression results are worth underlining. First, consumer confidence appears to be partly driven by the same determinants as private consumption. Secondly, foreign confidence is strongly significant and has a robust positive effect on domestic confidence.

Overall, the results from the econometric analysis discussed above provide evidence in support of cross-country confidence spillovers, as foreign confidence appears to play a significant role in affecting domestic confidence and private consumption in the euro area.

Conclusions

Real consumption and measures of consumer confidence appear to be strongly correlated in the euro area. Moreover, confidence indicators display a very close dynamics within core and periphery groups of Member States.

The econometric analysis discussed in this section lends support to the existence of confidence spillovers across euro area countries, suggesting that foreign confidence can positively affect domestic confidence and thereby consumption.

III. Recent DG ECFIN publications

1. Occasional Papers

European Economy. Occasional Papers. 161. September 2013
The Economic Adjustment Programme for Cyprus – First Review - Summer 2013
http://ec.europa.eu/economy_finance/publications/occasional_paper/2013/pdf/ocp161_en.pdf

European Economy. Occasional Papers. 160. August 2013
The EU's neighbouring economies: managing policies in a challenging global environment
http://ec.europa.eu/economy_finance/publications/occasional_paper/2013/pdf/ocp160_en.pdf

European Economy. Occasional Papers. 159. July 2013
The Second Economic Adjustment Programme for Greece – Third Review July 2013
http://ec.europa.eu/economy_finance/publications/occasional_paper/2013/pdf/ocp159_en.pdf

European Economy. Occasional Papers. 158. July 2013
2013 Economic and Fiscal Programmes of Albania and Bosnia and Herzegovina: EU Commission's overview and country assessments
http://ec.europa.eu/economy_finance/publications/occasional_paper/2013/pdf/ocp158_en.pdf

European Economy. Occasional Papers. 157. July 2013
2013 Pre-accession Economic Programmes of Iceland, the Former Yugoslav Republic of Macedonia, Montenegro, Serbia and Turkey: EU Commission's overview and assessments
http://ec.europa.eu/economy_finance/publications/occasional_paper/2013/pdf/ocp157_en.pdf

European Economy. Occasional Papers. 156. July 2013
Overall assessment of the two balance-of-payments assistance programmes for Romania, 2009-2013
http://ec.europa.eu/economy_finance/publications/occasional_paper/2013/pdf/ocp156_en.pdf

European Economy. Occasional Papers. 155. July 2013
Financial Assistance Programme for the Recapitalisation of Financial Institutions in Spain. Third Review of the Programme – Summer 2013
http://ec.europa.eu/economy_finance/publications/occasional_paper/2013/pdf/ocp155_en.pdf

European Economy. Occasional Papers. 154. July 2013
Economic Adjustment Programme for Ireland — Spring 2013 Review
http://ec.europa.eu/economy_finance/publications/occasional_paper/2013/pdf/ocp154_en.pdf

European Economy. Occasional Papers. 153. June 2013
The Economic Adjustment Programme for Portugal. Seventh Review – Winter 2012/2013
http://ec.europa.eu/economy_finance/publications/occasional_paper/2013/pdf/ocp153_en.pdf

2. Economic papers

European Economy. Economic Papers. 504. September 2013
Katia Berti, Francisco de Castro and Matteo Salto
Effects of fiscal consolidation envisaged in the 2013 Stability and Convergence Programmes on public debt dynamics in EU Member States
http://ec.europa.eu/economy_finance/publications/economic_paper/2013/pdf/ecp504_en.pdf

European Economy. Economic Papers. 502. August 2013
The role of tax policy in times of fiscal consolidation
http://ec.europa.eu/economy_finance/publications/economic_paper/2013/pdf/ecp502_en.pdf

European Economy. Economic Papers. 501. July 2013
Fiscal relations across government levels in times of crisis – making compatible fiscal decentralization and budgetary discipline
http://ec.europa.eu/economy_finance/publications/economic_paper/2013/pdf/ecp501_en.pdf

3. Other publications

Report on Public finances in EMU – July 2013
http://ec.europa.eu/economy_finance/publications/european_economy/2013/pdf/ee-2013-4.pdf

4. 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/db_indicators/surveys/documents/2013/bci_2013_03_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/index_en.htm

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

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