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Highlights in this issue:

- Focus: The dynamics of international investment positions
 - Debt reduction and fiscal multipliers
 - Fiscal consolidation in reformed and unreformed labour markets
 - Assessing the economic impact of financial transaction taxes
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EDITORIAL

The relative calm on the markets during the month of August offered everyone a much-needed pause to recover and reflect. Instrumental in placating the situation – maybe not permanently, but in any case with some enduring effect – were in my view two important factors. These were, firstly, the achievements of the Euro Area Summit of 29 June that have provided a clearer sense of the direction Europe needs to take, and as a result of which we now have concrete proposals on a Banking Union on the table. Secondly, the ECB's decisive announcements over the course of the summer and its introduction of Outright Market Transactions (OMTs) have left no doubt concerning the integrity and viability of the euro area.

The June European Council called for a specific and time-bound roadmap towards a genuine Economic and Monetary Union. This is to include proposals on four essential types of union that Europe must move towards, consisting of integrated frameworks in the financial, budgetary, economic, and political sphere. The lack of cohesion along these four fronts in the EU, and especially in the euro area, is the main cause of the deep challenges we have been facing for the past three years, be they in terms of public finances, macroeconomic imbalances, or banking sector worries.

Monetary policy action by the ECB has complemented the overarching efforts to create a more robust Economic and Monetary Union. Through its OMT facility, the ECB has acted to quell the severe disruptions in some Member States' sovereign bond markets that have impaired monetary policy transmission in the euro area. The OMT facility will be implemented with strict and effective conditionality under an appropriate EFSF/ESM programme. It will counteract unwarranted rises in sovereign bond yields through targeted sovereign bond purchases in the secondary market. The programme was devised in recognition of the fragile balance between allowing justified market signals to the greatest possible extent, while avoiding disruptions stemming from irrational panic. Problems in maintaining this balance have dogged the resolution of the crisis from the outset. It has become overwhelmingly clear that swings in investor confidence and in wider economic sentiment can in themselves lead to profound

turmoil and to the existence of multiple equilibria for any given set of economic fundamentals. The role of modern economic policy must be to steer the economy towards benign equilibria.

At the June euro area summit it was decided that once an effective single supervisory mechanism involving the ECB was established, the ESM could, following a regular decision, have the possibility to recapitalize banks in the euro area directly. The Commission unveiled its proposals for a single supervisory mechanism for the banking sector on September 12. The proposals are for the ECB to begin overseeing euro area banks from 2013 onwards, first those that have received or requested bailouts, then extending supervision to all 6000 euro area banks. This addresses the long-standing vulnerability that banking supervision has remained national amidst rapid cross-border expansion of banking activities. A comprehensive and consistent system of supervision is essential for detecting and addressing vulnerabilities of individual banks, and also at a systemic level. It is a crucial and significant first step towards a banking union that also calls for a common system for deposit guarantees and an integrated crisis management framework. The pernicious negative feedback loops between banking sector health and sovereign risk must be broken, and a banking union is a critical step in doing so.

As important as banking sector concerns are to the crisis, President Barroso's reemphasised in his State of the Union address on 12 September that Europe must also pursue integration on the budgetary, economic and political front. Accordingly, the Commission services will be working hard over the coming weeks to follow up further on the President's call for a blueprint on a deep and genuine Economic and Monetary Union, including its political instruments.

The macroeconomic backdrop to the continued efforts to put EMU on a more stable footing is challenging. The global economy is going through a phase of weakness, with world GDP and trade growth having slowed in the first half of 2012 and set to soften further in the second half. After a slightly better-than-expected first quarter, euro area GDP contracted in the second quarter by 0.2%. Recent releases of hard and soft indicators suggest a further contraction in the third quarter may be on the cards. With growth

being held back by private sector deleveraging, fiscal consolidation and a weak labour market, consumption and investment remain subdued. What we are seeing is a reflection of the established finding that recoveries following financial crises tend to be relatively drawn out. Ensuring the necessary macroeconomic adjustments in the euro area in these times of low growth is more challenging than in good times, and also more pressing.

This edition of the Quarterly Report examines a number of facets of the euro area adjustment challenge. In its Focus section, it analyses external sustainability in euro-area countries, some of which have accumulated large net external liabilities. High external liabilities weigh on national income as they entail high income payments to the rest of the world. They can hamper growth and raise macroeconomic vulnerability to shocks and the risks of sudden stops in foreign capital inflows. A necessary current account rebalancing process has set in since the crisis that was initially driven by demand compression but has also been gradually supported by improvements in competitiveness and export market shares. As a result, the external positions of some Member States with large external liabilities have now moved in safer territory. In other Member States, however, further adjustment is still needed, the cost of which – particularly in terms of employment – will depend on each Member State's adjustment capacity. This again highlights the importance of appropriate structural reforms.

In few areas is the need for adjustment as apparent as in public finances. But questions concerning the ideal speed and timing of consolidation have been voiced increasingly over the past years, with some commentators claiming that austerity can be self-defeating. In other words, through the negative impact of a deficit reduction on growth, debt as a share of GDP may not be reduced, or may even rise. A special topic in this edition investigates this claim, showing that debt ratios may indeed initially increase in some Member States in response to fiscal consolidations. This would tend to be the case where fiscal multipliers are high and initial debt ratios are elevated.

However, such an effect is in most cases short-lived. Only under very unlikely configurations, including high and persistent fiscal multipliers and a strong degree of short-sightedness in financial markets, can consolidation become truly self-defeating. Consolidation thus remains necessary to reduce debt in the medium-term.

Although risks of truly self-defeating consolidation appear low, it is crucial to mitigate as much as possible the negative short-term impact of consolidation on growth. Structural reforms have an important role to play here. Another special topic in this report looks into the interaction between fiscal consolidation and labour market rigidities. It shows that labour market regulation does not reduce the harmful short-term effects of consolidation on employments but raises the risks of a rise in long term and therefore structural unemployment.

Eleven Member States have submitted a request to the Commission (or are about to so) for a proposal to introduce a financial transaction tax via enhanced cooperation. Against this background, a final special topic studies the effects of introducing a securities transaction tax (STT) on the economy. According to the model simulations presented here, such a tax tends to reduce financial trading and to dampen volatility, especially of financial sector variables. Introduction of the tax also brings some efficiency gain as the amount of resources devoted to speculative financial transactions in the economy declines. On the other hand, the simulations also show that the STT could have negative side-effects for financing costs, productive capital and output in the long run. This long-term impact makes the distortive effects of such a tax similar to those of corporate income taxation, which are above those of personal income and value-added taxes.

MARCO BUTI

DIRECTOR-GENERAL

Focus

I. The dynamics of international investment positions

Focusing on euro area countries with large net external liabilities, this chapter presents an overview of recent developments in external assets and liabilities and analyses their economic implications, their sustainability and related adjustment needs. It also provides a discussion of adjustment dynamics.

Over the last decade, differences in the external positions of euro area countries have increased substantially. Some Member States have accumulated large net external liabilities, raising concerns about their implications for growth and external sustainability. The same period has also witnessed a build-up in gross asset and liability holdings. In the countries concerned, rising external liabilities have led to deteriorating investment income balances, entailing a rising wedge between GDP and GNI. The deterioration of income balances due to higher liabilities has been partly contained by rapid economic growth (at least in pre-crisis years) and favourable yield developments, but these factors have now turned much less supportive. External positions can be subject to large valuation effects, which, however, seem to have a large temporary component.

Beyond the effect on GNI, available empirical evidence indicates that high net external liabilities can weigh on growth and increase the economy's vulnerability to shocks, raising the issue of the sustainability of external positions in some euro area countries.

In recent years, euro area Member States with large external liabilities have gone through a current account rebalancing process that was first driven by demand compression but has also been gradually supported by improvements in competitiveness and export market shares. As a result of this process, external imbalances have diminished. A quantitative assessment of external sustainability shows that, notwithstanding recent progress, in 2011 some Member States had not yet moved to a sustainable NIIP trajectory. In these countries, further adjustment was still needed, the short-term impact of which — particularly in terms of employment — will depend on economic policies, especially in terms of structural reforms.

1.1. Introduction

The first ten years of the euro have witnessed an increase in differences between the external positions of Member States, with net external liabilities reaching unprecedented levels in some. The financial and sovereign crises have brought about some rebalancing of current accounts within the euro area, but there are so far only limited signs of a deleveraging of foreign asset positions, raising the question of the sustainability of some Member States' external positions.

This focus section presents an assessment of the net international investment positions (net IIPs) of the euro area countries with large net external liabilities and their adjustment needs. Section 2 reviews recent developments in external assets and liabilities as well as related changes in investment income balances and valuation effects. Section 3 offers a quick survey of the available empirical literature on the economic implications of high levels of external liabilities. Section 4 provides an assessment of external sustainability and external adjustment needs, while section 5 discusses possible adjustment dynamics. Section 6 concludes.

1.2. Developments in external positions in the euro area

A substantial deterioration of net IIPs in a number of Member States

The years preceding the crisis were characterised by a moderate deterioration in the net international investment position of the euro area, which further accelerated during the crisis before reverting partially in 2011. ⁽¹⁾

While the euro area's overall net external liabilities remain relatively low (11.5% of GDP in 2011), there is considerable diversity across Member States (see Table I.1). During the pre-crisis period, net external positions across euro area Member States displayed a markedly diverging trend. In particular, Greece, Portugal, Spain, Estonia and, to a lesser extent, Slovakia saw a rapid deterioration in their net IIPs. The deterioration was underpinned by the accumulation of large current account deficits and partly reflected large foreign direct investment

⁽¹⁾ Throughout this chapter 'net international investment positions' and 'net external liabilities' are used interchangeably.

inflows in catching-up economies such as Estonia and Slovakia.⁽²⁾ In some Member States, the changes in external liabilities were accompanied by significant valuation effects.

Table I.1: Net international investment positions, euro area Member States (% of GDP)

	2003	2007	2011
PT	-58	-88	-103
IE	-20	-19	-98
ES	-45	-78	-92
CY	4	12	-81
EL	-59	-96	-79
SK	-24	-44	-64
EE	-66	-72	-58
SI	-6	-22	-42
IT	-14	-25	-21
FR	-4	-1	-16
AT	-14	-18	-3
MT	40	18	6
FI	-26	-28	16
DE	7	26	36
NL	-2	-6	41
BE	37	29	58
LU	140	96	85
EA	-6	-14	-12

Source: Eurostat BoP data, DG ECFIN calculations.

The crisis has so far led to only very limited signs of rebalancing in net IIPs. Estonia experienced a decline in its net foreign liabilities from 72% of GDP in 2007 to about 58% in 2011, partly owing to a strong improvement in its current account position. Net external liabilities also declined in Greece but mostly due to valuation effects (i.e. changes in the prices of assets and liabilities), mainly driven by a loss in the market value of Greek private- and public-sector securities, while the current account deficit, though improved, still stood at 9.8% of GDP in 2011. Meanwhile, the net positions of Portugal, Spain and Slovakia worsened further, as improvements in current account deficits were not large enough to counter the negative dynamics of external liabilities.⁽³⁾

The group of euro area Member States with large external liabilities has expanded as a result of the crisis, due to rapidly deteriorating net IIPs in Cyprus and Ireland. The deterioration reflected mostly large negative valuation effects, although current account deficits also played a role. The

⁽²⁾ The deterioration in net IIPs is a common trend in most central and eastern European EU countries, where the catching-up process has generally been accompanied by large foreign direct investment inflows.

⁽³⁾ In Portugal and Spain, the contraction in GDP also contributed to increase the negative external position to GDP ratio and there were less liability-reducing valuation effects than in Greece.

remainder of this chapter will therefore focus on an 'enlarged group' of 8 Member States with sizeable negative net IIPs in 2011 (PT, EL, IE, ES, EE, SK, CY and SI).

Over the past decade, the deterioration of net IIPs was accompanied by a rapid build-up of gross asset and liability positions, reflecting rapid cross-border financial integration (Table I.2). In relation to GDP, gross positions are particularly large in Ireland and Cyprus. They are instead well below the euro area average in Slovakia and Slovenia. As discussed later in this section, large gross positions increase the risk of so-called valuation effects (i.e. capital gains or losses caused by fluctuations in asset prices and exchange rates).

Table I.2: Gross external assets and liabilities, euro area MS with large negative NIIPs (% GDP)

	Assets			Liabilities		
	2003 (1)	2007	2011	2003 (1)	2007	2011
EE	56	97	107	122	169	165
IE	762	1180	1670	782	1200	1768
EL	52	85	102	111	182	181
ES	102	121	118	154	199	210
CY	199	394	458	199	382	539
PT	103	178	172	205	266	274
SI	49	99	91	69	121	132
SK	31	24	53	66	85	118
EA	105	157	169	116	170	181

(1) ES, SI: 2004 data.

Source: Eurostat BoP data, ECFIN calculations.

Rising net external liabilities have led to deteriorating investment income balances

Member States with high negative net IIPs all post negative investment income balances, which drive a significant wedge between GDP and GNI and represent a sizeable income outflow to the rest of the world. The magnitude of the deficits varies significantly across countries, ranging from around 2% of GDP in Slovenia and Spain to 20% in Ireland with other Member States clustered between 4 and 6% of GDP (Graph I.1).

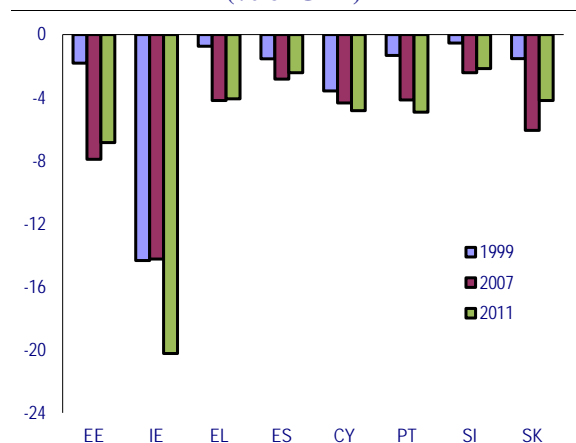
Differences in the size of the investment income balance are related to some extent to differences in net external liabilities, but also reflect large differences in implicit average yields on foreign assets and liabilities.⁽⁴⁾ For most of the 8 Member States analysed here, the implicit yields on external liabilities tend to be higher than the

⁽⁴⁾ Implicit yields are calculated as the ratio of investment income paid (received) to gross liabilities (assets).

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implicit yields on external assets (Graph I.2). This yield gap is strongly negative for catching-up economies such as Estonia and Slovakia and is only (modestly) positive in Spain, which explains the relatively low income balance deficit in that country. ⁽⁵⁾

Graph I.1: Investment income balance, euro area MS with large negative NIIPs (% of GDP)



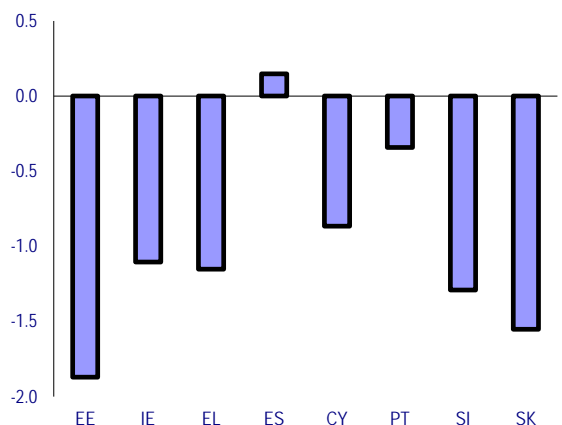
Source: Eurostat BoP data, ECFIN calculations.

Turning to the dynamics of investment income balances, a rise in deficits was observed in pre-crisis years in all the Member States considered apart from Ireland and Greece. However, the rise appears relatively contained in the light of the large deterioration in external positions. Table I.3 provides a decomposition of changes in income balances, which shows that, although rising net liabilities indeed contributed to deteriorating investment income balances in pre-crisis years, the effect was partly offset by rapid nominal GDP growth and, in a majority of the Member States concerned, by improving yield conditions.

Turning to the post-crisis picture, investment income balances have somewhat improved since 2007 in most of the Member States with large external liabilities. While external liabilities have continued to increase, these negative pressures on balances have generally been more than offset by cuts in implicit yields (at least up to 2010), reflecting lower profits by corporations and lower interest rates on debt. The improvement in income balances since the crisis therefore appears to be largely of a temporary nature and should soon be followed by another period of deterioration as the

increasing risk premia on the external liabilities of Member States with large negative net IIPs brought about by the crisis progressively feed into implicit yields.

Graph I.2: Difference in implicit yields between external assets and liabilities, euro area MS with large negative NIIPs (in pp, 2004-11 averages) (1)



(1) Yields are calculated as the ratio of investment income received from / paid to the rest of the world to assets / liabilities. Period covered: 2004-11 except for SI (2007-11) and SK (2008-11).

Source: Eurostat BoP data, ECFIN calculations.

Table I.3: Decomposition of changes in investment income, euro area MS with large negative NIIPs (pp of GDP)

	Total change in income balance	due to changes in:		
		Assets and liabilities	Returns on assets and liabilities	GDP growth
2002-07				
EE	-3.8	-4.3	-1.7	2.2
IE	4.4	-16.9	15.7	5.5
EL (1)	1.3	1.5	0.2	-0.4
ES	-0.6	-2.2	1.0	0.6
CY	-1.9	-4.1	1.2	0.9
PT	-1.6	-1.5	-0.5	0.4
SI	-1.2	-1.7	0.1	0.4
SK	-4.2	-1.5	-3.5	0.8
2007-10				
EE	1.5	0.7	1.8	-1.0
IE	-4.1	-5.3	4.1	-3.0
EL	0.3	0.0	0.2	0.1
ES	0.8	-0.4	1.2	0.0
CY	3.0	-5.3	7.9	0.4
PT	-0.3	-0.9	0.5	0.1
SI	0.5	-0.7	1.1	0.1
SK	2.4	-1.7	3.7	0.4

(1) 2005-2007 for EL.

Source: Eurostat national accounts data, ECFIN calculations.

⁽⁵⁾ The yield gap is, in large part, accounted for by differences in the share of equity and FDI in total assets and total liabilities. Equity holdings tend on average to command higher (though more volatile) implicit yields than debt instruments.

Large but mostly temporary valuation effects

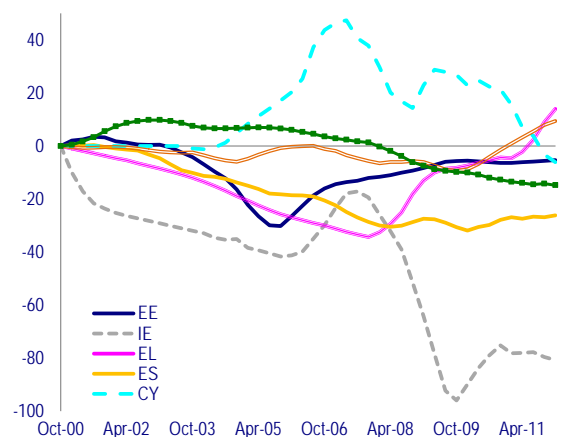
The economic and financial crisis of 2007-2009 and its aftermath has led to pronounced global asset price swings and contributed to sizeable valuation effects in the net foreign positions of euro area Member States.⁽⁶⁾ Valuation effects can occur when prices of foreign assets and liabilities fluctuate, resulting in changes in the market value of gross asset and liability positions and ultimately in the net IIP. In the presence of significant valuation effects, changes in the net IIP are no longer determined only by the current and capital account balance.

Valuation effects can be approximated by comparing changes in the net IIP with underlying cross-border financial transactions.⁽⁷⁾ Graph I.3 suggests that, in the majority of Member States with large external liabilities, the cumulative effect of valuation effects on a country's net IIP has generally been self-limiting, and in the majority of cases self-correcting. Over the period 2000Q1-2012Q1, the largest swings in valuation effects are observed for Ireland, Cyprus, Greece, and Spain. In Cyprus and Greece, there is strong evidence of self-correction, with turning points in both cases in the course of 2007. However, valuation effects appear to be more persistent in Ireland and, to a much lesser degree, in Spain.

The large negative valuation effects observed in the chart can mostly be traced back to the portfolio component of balance sheets.⁽⁸⁾ In Ireland, large valuation effects mostly reflected the country's very large gross asset and liability positions rather than large swings in prices of specific assets. Large gross positions mean that even small price changes can entail large valuation changes, as a given price change acts on a bigger stock of financial instruments. In Cyprus, valuation changes were dominated by price

changes although large gross asset and liability positions also played a role. By contrast, in Greece and Spain valuation effects were mostly attributable to price changes.

Graph I.3: Cumulative valuation effects, euro area MS with large negative NIIPs (Q4-2000- Q1-2012, pp of GDP) (1)



Source: Eurostat BoP data, DG ECFIN calculations.

Overall, the evidence provided in Graph I.3 suggests that the IIPs of euro area Member States can be subject to large valuation effects, which, however, appear to have a large temporary component. Further work would be needed to better understand the drivers of valuation effects, but the assessment of the net IIP dynamics presented in section 1.4 will assume the absence of systematic valuation effects over long periods of time (say two decades or more).

1.3. Economic implications of high external liabilities

High levels of external liabilities may affect growth...

In addition to its implications in terms of disposable income (via negative investment income balances), a high level of net external liabilities may also affect growth and the economy's vulnerability to shocks.

Moderate levels of external liabilities can have beneficial effects on welfare and growth. In theory, cross-country lending and borrowing allow consumption smoothing and a more efficient allocation of saving and investment. As long as the capital flows are allocated to productive uses, they sustain future growth and the capacity to reimburse the capital borrowed. In neoclassical growth models, capital mobility leads to higher transitional growth as it allows faster

⁽⁶⁾ Valuation effects are discussed in detail in N. Balta (2010): 'The importance of valuation effects for external asset positions in the euro area', *Quarterly report on the euro area*, Vol.9 No.1, March 2010. For an overview of valuation effects in the UK and the US, see R. Kuenzel (2011): 'The UK's external position', in: Giudice, G., R. Kuenzel and T. Springbett (eds.): *UK Economy – The Crisis in Perspective*, Routledge: London, 2011.

⁽⁷⁾ Valuation effects are regularly applied by national statisticians to IIP stock data, but these adjustments are typically not publicly available. Valuation effects (as well as other volume changes as well as errors and omissions) are therefore approximated as the difference between IIP stock changes and financial (or current) account flows.

⁽⁸⁾ Ireland's large valuation effects for portfolio liabilities may have been influenced by a large debt-equity swap conducted in Q4 2010 as part of the EU/IMF assistance programme (see QREA (2012), Vol.11 No.1, p.28 for further details).

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accumulation of capital in countries with comparatively high marginal factor productivity.

However, high external liabilities can also be associated with a number of economic distortions. For example, a public debt overhang can translate into higher distortionary taxation or a decline in public investment, thereby hampering growth. Similarly, high liabilities at the household level are likely to lead to a decline in aggregate demand.⁽⁹⁾ Moreover, the increase in uncertainty can lead investors to engage in short-term investment rather than in higher-risk long-term productive investment.

...and increase vulnerability to shocks

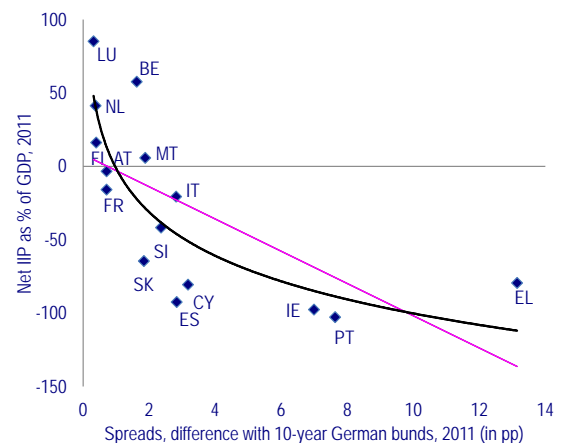
High external liabilities are also likely to amplify business cycles and heighten a country's credit risk and financial stability risks. A high level of net liabilities makes the economy more vulnerable to shocks that might affect the ability of the country to service or rollover external liabilities, such as a weakening of economic growth or sharp changes in asset prices. Graph I.4 provides an illustration of this vulnerability in the shape of a significant negative correlation between sovereign spreads and net foreign liabilities within the euro area. In the worst cases, and as shown by some euro area Member States in recent years, the vulnerability related to high external liabilities can materialise in the form of sudden stops of foreign capital inflows.⁽¹⁰⁾

Large capital inflows can translate into credit bubbles such as those experienced by a number of euro area Member States. The bursting of such bubbles involves long periods of slow growth as demand is depressed by balance sheet adjustment. While financial integration usually allows better cross-country allocation of capital, high levels of net foreign liabilities tend to increase the financial fragility of the economy and expose it to a heightened risk of asset-price and credit boom-and-bust cycles.

In addition to the level of net foreign liabilities, large gross positions also play a prominent role in determining financial risk. First of all, the existence of large stocks of assets and liabilities

implies that changes in asset prices can lead to wide variations in the international investment position. Second, the presence of balance sheet liquidity and maturity mismatches is an important indicator of financial instability and is a key determinant of the impact of a sudden stop scenario on the economy (see Obstfeld, 2012).⁽¹¹⁾

Graph I.4: Net IIPs and sovereign spreads



Source: DG ECFIN.

Empirical evidence provides support for the idea that foreign liabilities may overshoot

The empirical literature on the economic implications of external asset positions has followed two broad avenues exploring respectively their effect on crisis risks and growth.

The ratio of net foreign liabilities to GDP has long been regarded as an indicator of default risk. A number of empirical studies have tested the link between external debt and the likelihood of crisis episodes. For example, Catão and Milesi-Ferretti (2012) find that crises⁽¹²⁾ are typically characterised by a deterioration of the external position in the run-up to their outbreak and that, beyond a certain net IIP level, the risk of crisis grows with further net liability exposure. As a result of rises in trade openness and financial integration, this threshold may have shifted upward to about 50 to 60% of GDP in recent years.⁽¹³⁾

The composition of foreign assets and liabilities also plays a fundamental role in affecting the

⁽⁹⁾ For these arguments, see Reinhart C.M., V.R. Reinhart and K.S. Rogoff (2012), 'Debt Overhangs: Past and Present', NBER Working Paper 18015.

⁽¹⁰⁾ However, the correlation in the chart should not be interpreted as suggesting a stable relationship between net IIPs and sovereign spreads, but rather as reflecting conditions prevailing over the period taken into account.

⁽¹¹⁾ Obstfeld, M. (2012), 'Does the current account still matter?', NBER Working Paper 17877.

⁽¹²⁾ Defined as an outright external default or the disbursement of a large multilateral support package.

⁽¹³⁾ Catão A. and Milesi-Ferretti G. (2012), 'External liabilities and crisis risk', unpublished manuscript.

degree of external vulnerability of a country (see, for a discussion, Furceri, Guichard and Rusticelli, 2012).⁽¹⁴⁾ In particular, the presence in total liabilities of excessive levels of non-contingent liabilities, i.e. liabilities that require the repayment of the principal or interest, is likely to increase the risk of crises, while equity has a looser link with crisis events. This is supported by the empirical literature, for example the cited study by Catão and Milesi-Ferretti (2012), whose findings suggest that debt positions are more important than equity positions in explaining crises.

Turning to the link with growth, the existence of positive and negative effects of external liabilities would suggest some non-linear relationship with growth. This conjecture is, to some extent, confirmed by the available empirical evidence. In the case of emerging markets, a number of studies have documented a negative and non-linear relation between external liabilities and growth. For example, Pattillo, Poirson and Ricci (2011) use a large panel of developing countries and estimate that the average impact of gross external debt becomes negative at about 35-40% of GDP.⁽¹⁵⁾ Imbs and Ranciere (2005) report a similar finding with a threshold of about 60% of GDP.⁽¹⁶⁾

Available evidence is unfortunately much thinner for advanced economies, but the threshold is probably higher than in emerging markets. Reinhart and Rogoff (2010)⁽¹⁷⁾ find that growth in emerging markets deteriorates markedly above a ratio of gross external debt to GDP over 60%, while the threshold estimated for advanced countries in Reinhart, Reinhart and Rogoff (2012) is considerably higher (90%). The idea of possible threshold effects is also supported indirectly by a burgeoning literature on the links between the liabilities of specific institutional sectors and macroeconomic growth. For example,

Reinhart and Rogoff (2010) find that median average GDP growth rates fall rapidly when public sector debt-to-GDP ratios exceed 90%. Similarly, Cecchetti, Mohanty and Zampolli (2011)⁽¹⁸⁾ report a threshold of about 85% for public sector debt and 90% for corporate debt.

Overall, the available literature backs the idea that excessive external liabilities can have a negative effect on growth and macroeconomic stability. The conclusion suggests that the sustainability of external positions (together with current account imbalances) should be a key focus of macroeconomic surveillance. This is now the case in the euro area with the latest institutional enhancements of the economic governance. Both concepts have a particular relevance in the context of the macroeconomic imbalance procedure (MIP) which was set up in the context of the so-called 6-pack.⁽¹⁹⁾

1.4. Assessing the sustainability of international investment positions

Further current account rebalancing is needed in some Member States

A basic tool to assess the sustainability of external positions is to calculate the improvement in the primary current account⁽²⁰⁾ needed to stabilise the net IIP. Table I.4 (col. d) shows that, for a number of euro area Member States with large negative net IIPs, current account positions in 2011 were still below the level needed to stabilise the external position. The gap appears particularly large in Greece and significant although smaller in Portugal. The gap is also very large in Cyprus but the estimate should be taken with caution as there are indications that the 2011 level of the current account will soon be revised significantly upwards, thereby reducing the gap considerably. Estonia, Ireland and Slovakia show a significant positive gap. In these three countries, the current account position is already significantly above the level that stabilises the external position.

⁽¹⁴⁾ Furceri D, S. Guichard and E. Rusticelli (2012), 'Medium-term determinants of international investment positions: the role of structural policies', *Journal of International Commerce, Economics and Policy*, Vol. 3 No 2.

⁽¹⁵⁾ Pattillo C., H. Poirson and L. Ricci (2011), 'External debt and growth', *Review of Economics and Institutions*, Vol. 2 No 3.

⁽¹⁶⁾ Imbs J. and R. Ranciere (2005), 'The overhang hangover', CEPR Discussion Paper 5210. See, also, Checherita C. and P. Rother (2010), 'The impact of high and growing government debt on economic growth: an empirical investigation for the euro area', ECB Working Paper No 1237 (limited to government debt) and Cordella T., L. Ricci and M. Ruiz-Arranz (2005), 'Debt overhang or debt irrelevance? Revisiting the debt-growth link', IMF Working Paper No 05/223.

⁽¹⁷⁾ Reinhart C.M. and Rogoff K.S. (2010), 'Growth in a time of debt', *American Economic Review: Papers and Proceedings*, 100 pp. 573-578.

⁽¹⁸⁾ Cecchetti, S.G., M.S. Mohanty and F. Zampolli (2011), 'The Real Effects of Debt', BIS Working Paper No. 352.

⁽¹⁹⁾ For more information on the macroeconomic imbalance procedure, see Fischer, J., A. Hobza and A. Mordonu (2012) 'The surveillance of macroeconomic imbalances in the euro area', QREA I/2012, European Commission (2012), 'Scoreboard for the surveillance of macroeconomic imbalances', European Economy - Occasional Papers, 92, and European Commission (2012), 'Macroeconomic Imbalances', European Economy - Occasional Papers, 99 to 110.

⁽²⁰⁾ i.e. the current account excluding the investment income balance.

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Table I.4: Current account gaps, euro area MS with large negative NIIPs (2011, % of GDP)

	Actual current account	Primary current account (1)	IIP stabilising primary CA (2)	Gap with primary CA
	a	b	c	d=b-c
EE	2.9	9.7	-0.6	10.3
IE	0.7	20.9	18.5	2.4
EL	-9.8	-5.7	0.6	-6.4
ES	-3.5	-1.1	-1.2	0.1
CY	-10.4	-5.6	3.3	-8.9
PT	-6.4	-1.5	-0.1	-1.4
SI	0.0	2.2	1.6	0.6
SK	0.1	4.2	0.4	3.9

(1) Current account excluding the investment income balance

(2) Calculated assuming that the balance of the capital account stays constant at its 2011 level.

Source: DG ECFIN.

The estimates of current account gaps presented in Table I.4 should be nuanced in a number of ways. First, the gap is calculated relative to the actual current account in 2011. This may not capture properly the rebalancing effort needed because the current account may in part be driven by cyclical factors. There are good reasons to believe that the ongoing current account rebalancing process in the euro area is partly structural in nature.⁽²¹⁾ However, in some of the countries shown in Table I.4, the cyclical position is currently significantly weaker than in the rest of the euro area. In these countries, the current account is partly pushed up by cyclical (and therefore temporary) factors. Table I.5 (col. d) points to a comparatively weaker cyclical position in Greece and, to a lesser degree, Spain. In these two countries the estimate of the current account gap probably underestimates the required adjustment.

Second, the estimates are based on the strong assumption of the absence of valuation effects. As highlighted in the previous section, it is difficult to identify on the basis of the available data systematic trends in valuation effects that could be incorporated in the estimates. This does not mean, however, that substantial valuation effects could not materialise and either increase the required current account adjustment or reduce it. Risks of significant valuation effects appear larger for Member States with very large gross asset and liability positions (IE, CY).

Estimates of the net IIP-stabilising current account should be seen as a minimum adjustment requirement in terms of external sustainability. As discussed in the previous sections, there is evidence that large net external liabilities can have negative effects on growth and macroeconomic stability and net external liabilities have reached unprecedented levels in a number of euro area Member States. For a more cautious assessment of the rebalancing needed to ensure external sustainability, a more appropriate benchmark may be the level of the current account that is required to push up the net IIP to a specific target. Table I.5 (cols b and c) presents the current account necessary for the net IIP to reach 50% of GDP after 20 years. In the absence of consensual estimates as to what constitutes a ‘good’ level of external liabilities, the choice of any target is somewhat arbitrary. The 50% level appears broadly in line with the literature discussed earlier and would bring the net IIP back to levels seen in the early 2000s (EE, EL, PT) or mid-2000s (ES).

Table I.5: Current account gaps (cont.), euro area MS with large negative NIIP (2011, % of GDP)

	Primary current account (1)	Primary CA which reduces IIP to -50% (2)	Gap with primary CA	Relative cyclical position
	a	b	c=a-b	d
EE	9.7	-0.3	10.0	0.2
IE	20.9	21.4	-0.4	-1.0
EL	-5.7	2.1	-7.8	-6.7
ES	-1.1	1.0	-2.1	-2.0
CY	-5.6	5.2	-10.8	1.1
PT	-1.5	2.5	-4.0	-1.0
SI	2.2	1.1	1.1	-1.4
SK	4.2	1.1	3.2	1.2

(1) Current account excluding the investment income balance

(2) Calculated assuming that the balance of the capital account remains constant at its 2011 level.

Source: DG ECFIN.

Such a more ambitious target would leave Estonia, Slovenia and Slovakia with a positive gap. For the other countries, the negative gap would be higher (in absolute value) than for the IIP-stabilising estimates, with the differences in the range of 1.5-3% reflecting differences in the size of external liabilities. It is noteworthy that both Spain and, notably, Portugal would then face significant negative gaps. The Irish gap would fall slightly into negative territory.⁽²²⁾

⁽²¹⁾ European Commission (2012), ‘European economic forecast, spring 2012’, European Economy No. 1, pp 35-38.

⁽²²⁾ It is important to stress that the estimates of the current account gap are based on a simple ‘accumulation’ equation relating changes in the IIP to the primary current account and

Estimates of adjustment needs are sensitive to growth and interest rate assumptions

Estimates of the IIP-stabilising current account are based on a number of assumptions regarding growth and interest rates. Table I.6 shows the assumptions underlying the estimates presented in Tables I.4 and I.5. The yield assumptions are derived from medium-term averages of implicit yields calculated by relating balance of payment flow and stock data (see also footnote 2 in section 1.2.). For most countries, the averages are calculated for the period 2004-11, covering both 4 years before the crisis and 4 years after. GDP growth assumptions are taken from the projections presented in the latest European Commission's Fiscal Sustainability Report. ⁽²³⁾

Table I.6: Assumptions underlying the estimates of IIP-stabilising current account

	Yield on assets (% of assets)	Yields on liabilities (% of liabilities)	Yield gap c=a-b	Nominal GDP growth (aa in %)
	a	b	c=a-b	d
EE	4.3	6.1	-1.9	4.5
IE	2.8	3.9	-1.1	4.5
EL	2.0	3.1	-1.2	2.7
ES	3.4	3.3	0.1	4.0
CY	2.7	3.5	-0.9	3.8
PT	3.3	3.7	-0.3	3.3
SI	2.0	3.3	-1.3	3.5
SK	3.5	5.1	-1.6	4.3

Source: DG ECFIN.

To get a better sense of the sensitivity of the estimates to these assumptions, Table I.7 shows how the gap between the IIP-stabilising current account and the actual current account changes when growth and interest rate assumptions are modified. Two points are noteworthy.

- First, results show a comparatively higher sensitivity of the current account gap to the yield gap assumptions than to the growth or yield assumptions. The yield gap therefore

emerges as a major source of uncertainty or risk in the sustainability analysis.

- Second, the sensitivity of the current account gap estimates to changes in underlying assumptions varies across Member States. Sensitivity to growth and overall yields is mostly related to the net IIPs. On the other hand, the sensitivity to the yield gap mostly reflects the size of gross IIPs. Uncertainty in estimates of the current account adjustment required to stabilise the net IIP appears comparatively much higher for Ireland but also for Cyprus and, to a lesser degree, Portugal.

Overall, the sensitivity analysis further backs the idea that estimates of the required adjustment effort based on the IIP-stabilising assumption should be seen as a minimum benchmark. Putting Member States' net IIP trajectories on a sustainable path in a context of uncertain projections of growth and interest rates would justify more ambitious adjustment efforts involving some decrease in external liabilities rather than just stabilisation.

Table I.7: Sensitivity of the current account gap to growth and interest rate assumptions (pp of GDP) (1)

	1 % drop in GDP growth	1 % rise in yields (2)	0.5 pp rise in the yield gap (3)
	a	b	c
EE	0.6	0.6	0.8
IE	1.2	1.0	8.7
EL	0.8	0.8	0.9
ES	0.9	0.9	1.1
CY	0.8	0.8	2.6
PT	1.0	1.0	1.4
SI	0.4	0.4	0.6
SK	0.6	0.6	0.6

(1) Changes in the estimates of the primary current account gap when growth and yield assumptions are changed.

(2) 1 pp simultaneous rise in yields on assets and liabilities.

(3) 1 pp increase in yields on liabilities.

Source: DG ECFIN.

Sustainability also depends on the composition of balance sheets

While the assessment has so far focused on the total net and gross size of the asset and liability positions, their composition also has important potential implications for external sustainability.

A first important element is the mix of debt and equity in the external position. As discussed, differences in the mix can be associated with sizeable differentials in the yields on external

the gross asset and liability positions under certain yields and growth assumptions. As already stressed, the equation does not factor in valuation effects, nor does it take into account possible feedback effects from changes in the net IIP on yields or growth which are assumed to be constant. Such feedback effects could be significant. For instance, a lower net IIP is likely to be associated with lower yields on liabilities as financial markets' assessment of sustainability improves and risk premia decrease. Such complex interactions can only be captured in a general equilibrium model and require further research work.

⁽²³⁾ European Commission, 'Fiscal Sustainability Report 2012', European Economy (forthcoming).

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assets and liabilities. Also, a high share of debt in external liabilities can increase the vulnerability of the economy in the event of a negative growth shock, as debt repayments do not change with the economic situation of the country, while dividends on equity fall with earnings.

A second element to consider when assessing the sustainability of the external position is the residual maturity of debt. In fact, a maturity mismatch between short-term liabilities and long-term assets exposes the economy to an interest rate risk, as higher interest rates might have to be paid in order to increase liquidity, and to a rollover risk, as investors might decide not to roll over maturing debt. Besides, even in the absence of a maturity mismatch between assets and liabilities, a large share of liabilities with short residual maturity exposes the economy to such risks if the creditworthiness of the country is low.

Table I.8: Share of total and short-term debt in total liabilities, euro area countries with large negative NIIPs (2010, in %) (1)

	Debt	Short-term debt
EE	51	33
IE	51	23
EL	93	47
ES	74	27
CY	85	75
PT	74	37
SI	72	15
SK	47	28
EA-17	63	28

(1) Debt is defined as the sum of currency and deposits, securities other than shares and loans.

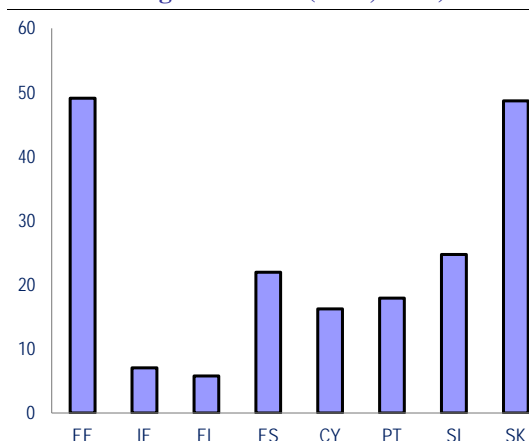
Source: Eurostat national account data, DG ECFIN calculations.

Table I.8 shows that in 2010 the share of debt in total liabilities was well above the euro area average in Cyprus and Greece, and, to a lesser extent, in Spain, Portugal and Slovenia. The table also gives the proportion of short-term debt in total liabilities, which is particularly high in Cyprus and Greece.⁽²⁴⁾

A third related element to consider is the relative importance of foreign direct investment (FDI) in total liabilities. A large share of FDI can potentially reduce the vulnerability of the economy, as FDI inflows allow risk-sharing with foreign investors, as their profitability is linked to

the performance of the investment, and there is some evidence that they are more stable than debt inflows.⁽²⁵⁾ On the downside, however, returns on FDI liabilities can be higher than returns on debt. Graph I.5 shows that the share of FDI in total liabilities is particularly large in catching-up economies such as Estonia and Slovakia, while is smaller in Slovenia, where reliance on debt-financing is higher (see Table I.8).

Graph I.5: Share of foreign direct investment in total liabilities, euro area countries with large negative NIIPs (2011, in %)



Source: Eurostat BoP data, DG ECFIN calculations.

Summing up ...

Overall, three points emerge from the analysis of the dynamics of net IIPs.

- First, in 2011 (last available historical data) the current account rebalancing process that had started with the global economic and financial crisis still had some way to go in the euro area. That year, Greece posted current account balances that were still far below the IIP-stabilising level. Setting net IIP on a clear downward trajectory would also have required further current account adjustment in Cyprus, Portugal and Spain.
- Second, estimates of the current account required to stabilise the IIP are sensitive to assumptions in terms of growth and yields. This is particularly true for countries with large gross asset and liability positions (IE, CY). The uncertainty surrounding these estimates calls for a cautious approach to the assessment of external sustainability, with

⁽²⁴⁾ The share of short-term debt in total liabilities is here used as a proxy for the proportion of debt with short (less than one year) residual maturity.

⁽²⁵⁾ See, for example, Kose M.A., Eswar P, Rogoff K. and S. Wei (2006), 'Financial Globalization: A Reappraisal', IMF Working Paper No 06/189.

estimates of the IIP-stabilising current account to be seen as a minimum benchmark.

- Third, balance sheet composition also matters for the assessment of external sustainability. In the absence of appropriate data, this section only offers a rudimentary analysis, which, however, points to the relative vulnerability of some countries due to a high share of debt (EL and CY) and/or short-term debt (EL) in total liabilities.

1.5. Rebalancing international investment positions

As the previous section has pointed to the unsustainable dynamics of net IIPs in some Member States, the present section discusses the possible drivers of an IIP adjustment process and its economic implications, together with some considerations on the on-going adjustment process across euro area Member States.

The mechanics of the adjustment

The net IIP is the sum of the net asset positions of domestic economic agents' (households, corporation and the public sector). Changes in the net IIP therefore necessarily mirror changes in the net assets of some or all of these agents. In other words, abstracting from valuation effects, an improvement in the net IIP requires an adjustment of the balance sheets of these agents with either cuts in investment and/or increases in savings. Balance sheet consolidation takes place when economic agents realise that their own balance sheet positions are no longer sustainable or when creditors force them to consolidate by demanding higher interest rates. A consolidation of private sector balance sheets triggered by changes in risk behaviour and lending practices has been at the root of the improvements in current accounts observed in the euro area countries with large external liabilities since the beginning of the crisis. Since 2010, the trend has been reinforced by budgetary consolidation.

Turning to the economic implications of an IIP adjustment, large negative net IIPs generally reflect a long period of accumulation of current account deficits signalling a persistent excess of domestic demand over production. ⁽²⁶⁾

⁽²⁶⁾ Exceptions are Member States such as Ireland or Cyprus where large negative valuation effects in the wake of the

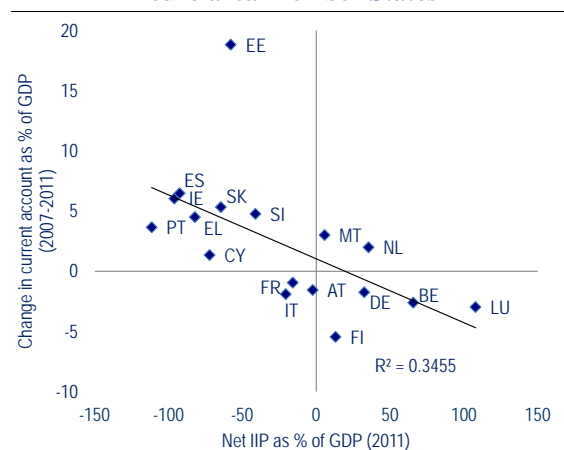
Improvement of the IIP requires a reduction in domestic demand, which affects both domestically produced and imported goods. It must therefore be accompanied by a decline in prices to curb the excess supply of domestic goods and boost competitiveness and exports. It is also likely to require a shift of resources from the non-tradable to the tradable sector. The accumulation of current account deficits can be associated with distortions in the sectoral composition of production with excessive growth in the non-tradable sector, notably housing. ⁽²⁷⁾

As the required price adjustment and sectoral reallocations of labour and capital take time, a rebalancing of the international investment position is likely to be associated with a period of excess supply with negative implications for growth and employment in the short term.

External adjustment is underway

Although further progress is needed in a number of Member States, available evidence shows that adjustment to external imbalances is underway for euro area countries with large external liabilities, with the steps of the "mechanics" described above now unfolding progressively. As shown in Graph I.6, euro area Member States with large negative net IIPs have all seen large current account improvements since the start of the crisis.

Graph I.6: NIIP position in 2011 and changes in current account (2007-2011), euro area Member States



Source: Eurostat BoP data, DG ECFIN calculations.

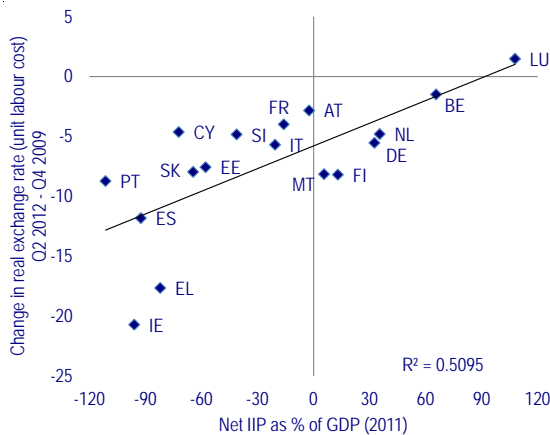
financial crisis also played a major role in the deterioration of the IIP.

⁽²⁷⁾ See European Commission (2011), 'Sectoral implications of external rebalancing', Quarterly Report on the Euro Area, Vol. 10 No 3.

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In its early stages, the current account rebalancing was mostly driven by demand compression as is usually the case in this sort of adjustment. ⁽²⁸⁾ The changes in the current account have, however, been followed – with a one or two year lag – by improvements in the real exchange rate. The latter partly reflect changes in the euro’s nominal effective exchange rate but also competitiveness rebalancing within the euro area. Graph I.7 shows a negative correlation between changes in real exchange rate and net IIPs in the euro area, with the Member States with large external liabilities posting larger gains in competitiveness than most of the others.

Graph I.7: NIIP in 2011 and change in exchange rates (2009Q4-2012Q2), euro area Member States

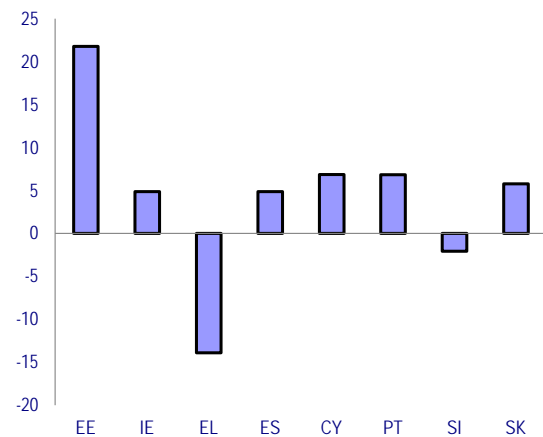


Source: DG ECFIN.

Changes in relative prices have generally gone hand in hand with gains in export market shares, suggesting early signs of a rebalancing towards the tradable sector. With the notable exception of Greece and, to a lesser extent, Slovenia, Member States with large external liabilities have experienced significant gains in export market shares (Graph I.8). Such export gains have also taken place in a few countries with positive net external assets (e.g. DE, NL).

⁽²⁸⁾ Evidence that current account adjustment in deficit countries since the crisis has largely relied on expenditure reduction is not restricted to the euro area. See Lane P.R. and G.M. Milesi-Ferretti (2011), ‘External adjustment and the global crisis’, IMF Working Paper WP/11/197.

Graph I.8: Change in export market shares (2007-2011), euro area countries with large negative NIIPs



Source: DG ECFIN.

Good policies can make a difference

The economic impact of a rebalancing of external positions – notably the short-term loss in growth – depends on a broad range of country-specific structural characteristics such as the degree of price and wage rigidity, rigidities in labour and capital allocation processes and trend growth. This suggests room for policies to alleviate the burden of the adjustment.

A full quantitative understanding of external adjustment processes requires a full-fledged structural macroeconomic model. Box I.1 presents an estimated model for Spain that is used to illustrate possible rebalancing scenarios. Three scenarios are considered: a baseline scenario reflecting the conditions prevailing during the period of estimation of the model; a scenario where net foreign liabilities move on a downward trajectory and stabilise at 35 % of GDP in the long run; and a scenario where the reduction in net external liabilities to GDP is accompanied by wage moderation.

In the baseline scenario, net foreign liabilities stabilise gradually to a level above 100 % of GDP (blue solid line in Graph I.9). The stabilisation, although at a high level, requires a trade balance surplus and an expenditure reduction, in particular in consumption, that falls to a level closer to the euro area average. The process is accompanied by a period of deflation and a decline in employment.

The baseline scenario rests on the assumption that investors’ risk behaviour remains mostly in pre-crisis mode. As the crisis is likely to have deeply and durably affected risk behaviours, a second

Box I.1: The QUEST simulation model for Spain

QUEST III is the global macroeconomic model used for macroeconomic policy analysis and research in the European Commission. ⁽¹⁾ The model version used here is estimated for Spain as an open economy in a monetary union. The economy produces goods that are imperfect substitutes to goods produced in the rest of the world. Households engage in international financial markets and there is near-perfect international capital mobility. There are three production sectors: a final goods production sector, an investment goods producing sector and a construction sector. The model distinguishes between Ricardian households that have full access to financial markets and credit-constrained households facing collateral constraints on their borrowing. The economy is part of a monetary union and faces an exogenous interest rate. There is a fiscal authority, which follows rule-based stabilisation policies. Behavioural and technological relationships are subject to autocorrelated shocks. The model is estimated on Spanish data over the period 1995Q1-2011Q4 ⁽²⁾.

Spain has had a persistent trade balance deficit since 1998, and its net foreign liabilities rose from 20% of GDP in 1995 to 90% of GDP in 2011. The decomposition of net external debt into the relative contributions of different estimated shocks in the model suggests that one of the main factors behind the build-up of imbalances was low real interest rates and easier access to credit, linked to the inflow of cheap capital due to the disappearance of the risk premium and monetary policy being set at euro area level. Upon joining EMU, Spain saw a sharp reduction in real interest rates, even reaching negative territory between 2001 and 2006. According to model estimates, up to ¾ of the build-up in foreign debt can be attributed to the elimination of the interest rate risk premium in EMU. Looser monetary policy added further to the build-up, and additional smaller contributing factors were shocks to the stock market and to housing and the loosening of lending conditions.

The model can also be used to project forward the correction that is required to reduce foreign indebtedness in the future to a more sustainable level. The model contains an (external) debt-contingent interest rate premium, which over the estimation period is very small, reflecting the continuous build-up in external debt without a strong equilibrating mechanism. As a result, in the baseline projection external liabilities continue to climb. As risk assessments have changed fundamentally since the financial crisis, an alternative scenario illustrates what happens in a more risk-averse environment where financial markets are concerned by Spain's external indebtedness and the risk premium increases. By way of illustration, the risk premium is increased to a level that implies a 4.8 basis point increase in interest rates for a 1 pp increase in external liabilities. In the long run, this stabilises the net foreign liabilities to GDP ratio at 35%. To test the possible impact of structural reforms on labour markets, a second alternative scenario combines the same increase in risk premium with a wage moderation shock that reduces real wage growth by 6 pp annualised.

⁽¹⁾ For references on the QUEST model, see: http://ec.europa.eu/economy_finance/research/macroecomic_models_en.htm.

⁽²⁾ In 't Veld, J., A. Pagano, R. Raciborski, M. Ratto and W. Roeger (2012), 'Imbalances and rebalancing scenarios in an estimated structural model for Spain', European Economy Economic Papers No 458.

scenario (pink solid line in Graph I.9) illustrates what would happen in a more risk-averse scenario leading to a large improvement in net foreign liabilities. The trade balance adjustment is more sizeable than in the baseline and is accompanied by a much sharper contraction in domestic demand and a more prolonged period of deflation. The consumption share in GDP and the employment rate fall further and GDP declines temporarily more than during the 2009 recession.

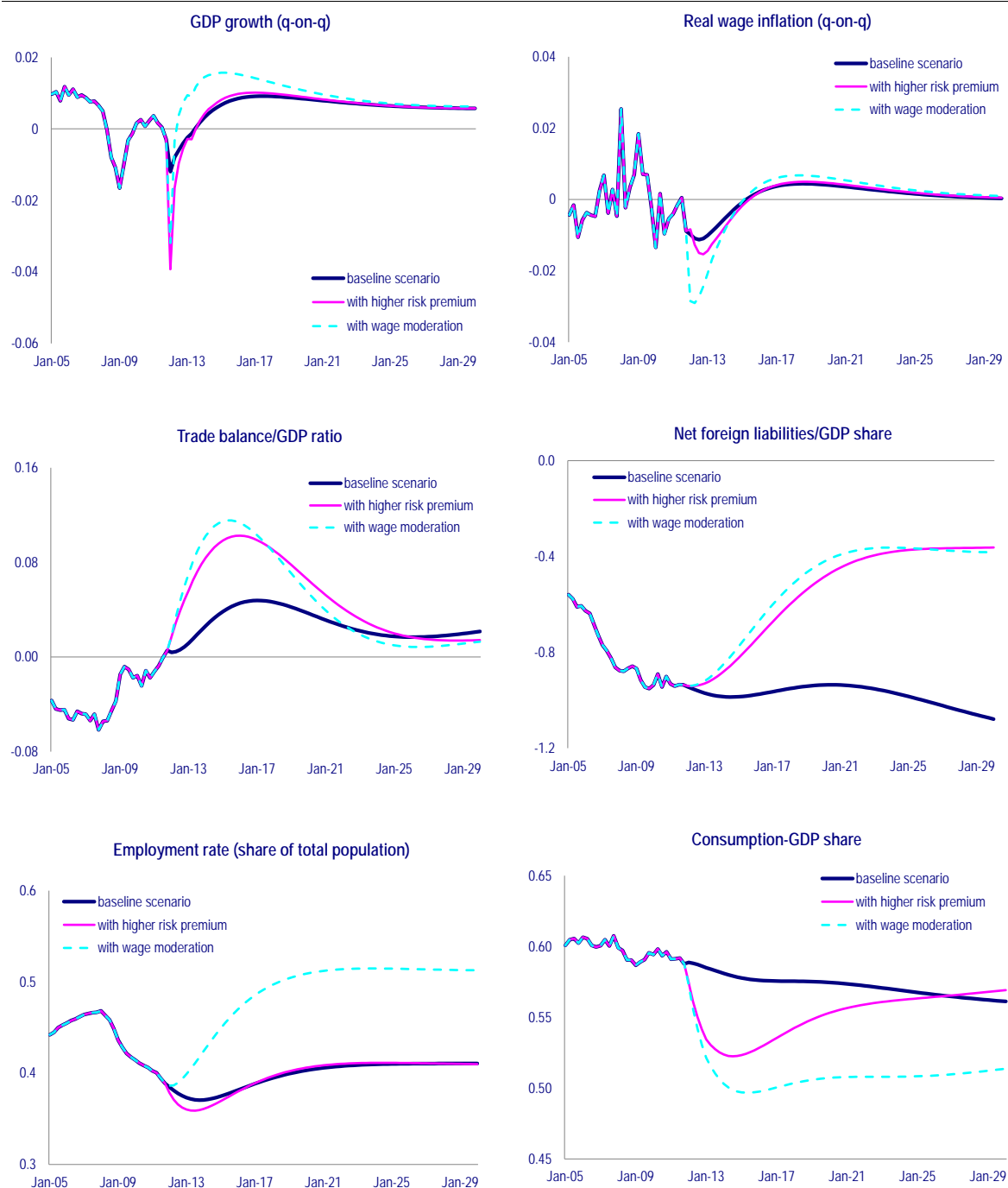
The high costs of the adjustment raise the issue of whether policies alleviating the adverse effects of the rebalancing process, in particular on employment, can be identified. The third scenario (light blue dashed line in Graph I.9) assesses whether a reduction in real wage growth (e.g. due to labour market reforms) accompanying the rebalancing of the external position can ease the adjustment. In this scenario, lower wage growth reduces consumption further and initially leads to

a sharper contraction of demand than in the first two scenarios. However, lower unit labour costs and a larger drop in the real interest rate boost exports and help improve the trade balance. Employment recovers considerably faster and reaches a higher level than in the absence of wage moderation, supporting a quicker recovery of GDP growth. These results suggest that structural reforms of the labour market can help soften the negative short-term impact of the rebalancing process on growth and employment.

1.6. Conclusions

This focus section has looked into the build-up of large negative international investment positions in a range of euro area Member States. Large negative net IIPs entail significant deficits in terms of investment income balances that weigh on national income. In pre-crisis years, the build-up led to a deterioration in the income balances of

Graph I.9: Simulation results (1) (2) (3)



(1) Baseline scenario: estimated model.
 (2) With higher risk premium: stabilising NFL to 35% of GDP.
 (3) With wage moderation: as scenario (2) plus reduction in real wage growth by 6 pp annualised.
Source: DG ECFIN, QUEST simulation.

the countries concerned, which was, however, contained by favourable developments in growth and implicit yields. Since the crisis, balances have generally improved somewhat but the effect should be only temporary. The accumulation of large external liabilities have also been associated with large valuation effects, especially in the case

of Member States with very high gross asset and liability positions such as Ireland and Cyprus. With the major exception of Ireland, and to a smaller degree Spain, valuation effects appear, however, to have a large temporary component.

In addition to their negative effect on disposable income, there is empirical evidence that excessively high external liabilities increase the economy's vulnerability to shocks and hinder its growth prospects. It is therefore important to assess the sustainability of the euro area Member States' external positions.

In recent years, euro area Member States with large external liabilities have gone through a clear current account rebalancing process. The rebalancing was first driven by demand compression, but has also been gradually supported by improvements in competitiveness and gains in export market shares. Notwithstanding these progresses, an assessment

based on various estimates of IIP-stabilising or IIP-reducing current account positions and on the composition of balance sheets shows that some euro area countries with large external liabilities have not yet moved to a sustainable IIP trajectory.

Given the magnitude of the adjustment needed to reduce external liabilities to a sustainable level in some Member States, a better understanding of adjustment processes is key. While further work is needed on the issue, this chapter has discussed the 'mechanics' of the adjustment and proposed some illustrative model simulations. The analysis suggests that structural reforms can help to soften the negative short-term impact of the rebalancing process on growth and employment.

II. Special topics on the euro area economy

Debt reduction and fiscal multipliers

One of the main consequences of the economic and financial crisis has been sharp increases in government debt. As a result, euro area Member States have engaged in sizeable fiscal consolidation programmes. In the face of growing signs of a weakening economy, a public debate is taking place on the effectiveness of consolidation, with some commentators claiming that "austerity can be self-defeating". The analysis shows that debt to GDP ratios may indeed initially increase in some Member States in response to fiscal consolidations. This would be mainly the case where fiscal multipliers are high and initial debt ratios are elevated. However, such an effect is in most cases short-lived. Only under very unlikely configuration can consolidation become truly self-defeating in the sense of a steady increase in the debt ratio. This unlikely configuration includes high and persistent fiscal multipliers, an abnormal impact of consolidation on government interest rate (i.e. interest rates rise permanently with consolidation) and a strong degree of short-sightedness in financial markets. Consolidation remains necessary to make debt decrease in the medium-term. In order to assure its success, the credibility of the adjustment is crucial in providing financial markets with a long-term view.

Fiscal consolidation in reformed and unreformed labour markets

A number of euro area Member States have recently put in place ambitious fiscal consolidation plans while at the same time carrying out major labour market reforms with a view, in particular, to reform employment protection legislation (EPL). Such a strategy raises the question of the potential effects of fiscal consolidation on employment and interactions between consolidation and labour market structure. The negative effects of fiscal retrenchment on jobs could a priori be expected to be mitigated in countries offering a high level of employment protection but the empirical analysis presented in this section does not support this claim. It provides evidence that fiscal consolidation is not less costly in terms of employment in countries with a high level of EPL because the impact of fiscal policy on job in- and outflows is different. In high-EPL countries, fiscal retrenchment destroys less jobs but also leads to a stronger reduction in the rate at which new jobs are created. A reduced job finding rate corresponds to a longer average duration of unemployment spells so that consolidation also tends to raise the share of long-term unemployment in high-EPL countries.

Assessing the economic impact of financial transaction taxes

The financial crisis has revived the debate about the role that financial transaction taxes can play in ensuring a contribution of the financial sector to the costs of the crisis and related rescue measures, in diminishing financial volatility and its economic costs and in reducing socially unproductive transactions. An increase in the cost of capital and the resulting negative effects on investment and economic activity are generally considered to be the main drawbacks of such a tax. Against this background, the last section in the chapter analyses the impact of a tax on secondary-market securities' transactions on financial volatility, the volatility of real variables and long-term levels of economic activity. The analysis uses a general equilibrium model with a financial sector where shifts in trader sentiment introduce non-fundamental volatility. In this setting, transaction taxes reduce the volatility in financial markets and, to some extent, in the real sector. The tax reduces the amount of resources consumed in non-fundamental trading. However, the negative impact of the tax on share prices also increases the costs of capital in the real sector and reduces output in the long term. For a given tax revenue, the output effect of the transaction tax is broadly similar to the one of corporate income taxation and higher those of personal income and value-added taxes.

II.1. Debt reduction and fiscal multipliers

The deterioration of public finances in the first years of the crisis has led most Member States to adopt sizeable consolidation packages. However, in view of the persistence of the crisis and the signs of weakening economic activity a vast public debate has arisen on the effectiveness of fiscal consolidation in the current situation, centred on the question of whether "austerity can be self-defeating". In this context, "self-defeating" would mean that "a reduction in government expenditure leads to such a strong fall in activity that fiscal performance indicators actually get worse" (Gros (2011)).⁽²⁹⁾

Fiscal multipliers are key to assess the response of the public debt ratio to a fiscal consolidation. This section analyses the effects of fiscal consolidations on the public debt ratio in alternative scenarios for the key parameters affecting debt dynamics. The main factors affecting the debt response are the fiscal multipliers and the financial markets' horizon. The work presented here summarizes the more detailed analysis presented in Part III of the European Commission 2012 Public Finance Report.⁽³⁰⁾

The section begins with a presentation of the analytical framework that formalizes the debt dynamics following a consolidation shock and its relationship with fiscal multipliers. It proceeds with an analysis of the conditions influencing the number of years that, in case of a short-term consolidation-induced debt-increase, are needed for a consolidation to show its effects on the debt ratio. It concludes with a discussion of some policy implications.

Debt dynamics and effects from consolidations

In the absence of any stock-flow adjustments, the government debt to GDP ratio (b) evolves according to the following formula:

$$b_t = b_{t-1}(1 - g_t) - bal_t = b_{t-1}(1 + r_t - g_t) - bal_t$$

where *bal* represents the budget balance to GDP ratio, *pbal* the primary budget balance, *r* the average effective interest rate on government debt and *g* nominal GDP growth. The evolution of the debt ratio can therefore be understood as being driven by the primary balance and the snowball effect, which is the difference between the average effective interest rate and the growth rate of the economy. Over the medium-term, the snowball effect is of particular importance as it determines the magnitude of primary balances that are necessary in order to ensure that government debt remains sustainable.

Short-run effects of fiscal consolidations

The effect of a consolidation ("a" in the following) is measured by its induced change on debt. A positive consolidation effect is found if the debt ratio under consolidation is smaller than the debt ratio in the baseline. Arithmetically, the change induced on debt by consolidation is:

$$\frac{db_t}{da} = \frac{db_t}{dpbal_t} \cdot \frac{dpbal_t}{da} + \frac{db_t}{dg_t} \cdot \frac{dg_t}{da}$$

In the short-term, a consolidation affects the debt ratio both via its effect on the primary balance and via its effect on the rate of growth of GDP. In turn, the first of these two effects is the sum of two components reflecting the direct increase in the primary balance due to the consolidation measures adopted, and the indirect impact on growth of the primary balance via the automatic stabilizers (which leads to a partly offsetting decrease of the primary balance).⁽³¹⁾ The second effect reflects the so-called "denominator effect", i.e. the fact that a lower level of GDP entails a higher debt ratio for a given level of debt.

Overall, the short-term effect of consolidations on the debt level is a function of the existing debt level, the output multiplier of fiscal policy measures (i.e. the overall GDP response to the fiscal shock) and the cyclical budget semi-elasticity, ε , which measures the response of the

⁽²⁹⁾ See also Buti, M. and L. Pench, (2012) 'Fiscal austerity and policy credibility', VoxEU.org, 20 April; Cafiso, G. and R. Cellini (2011), 'Fiscal consolidations for debt-to-GDP ratio containment? Maybe... but with much care', VoxEU.org, 20 March; Gros, D. (2011), 'Can austerity be self-defeating?', VoxEU.org, 29 November; Corsetti, G. and G. Müller, (2012), 'Has austerity gone too far?', VoxEU.org, 20 February; Cottarelli, C. (2012), 'Fiscal Adjustment: too much of a good thing?' VoxEU.org, 8 February; Krugman, P. (2012), 'Europe's Economic Suicide', New York Times, April 15.

⁽³⁰⁾ European Economy. 4 July 2012.

⁽³¹⁾ If m_t is the one-year output multiplier and ε is the semi-elasticity of budget balance to growth, the precise formula, where m_t and ε are positive parameters, is

$$\frac{dpbal_t}{da} = \frac{\partial pbal_t}{\partial g_t} \cdot \frac{\partial g_t}{\partial a} + \frac{\partial pbal_t}{\partial a} = -\varepsilon \cdot m_t + 1$$

general government balance-to-GDP ratio to the GDP growth rate: ⁽³²⁾

$$\frac{db_t}{da} = (b_{t-1} + \varepsilon) \cdot m_1 - 1$$

This equation leads to the conclusions that i) a high starting level of debt tends to dampen the debt-reducing impact of consolidation all else equal, which operates through the denominator effect. If the initial debt ratio is large enough, consolidations can even bring about increases in the short term. The same holds for the elasticity of the government balance to the cycle; and ii) the larger the short-term multiplier, the smaller the debt-reducing impact of consolidations. This effect is actually independent of the economic growth rate and of the interest rate prior to the fiscal consolidation.

It is therefore possible to compute a critical value for the multiplier beyond which a consolidation leads to a negative rather than positive impact. This critical value is computed as:

$$m_1^c = \frac{1}{b_{t-1} + \varepsilon}$$

It diminishes with the level of debt – the higher the debt the larger the growth impact on the debt to GDP dynamic – and with the response of the government balance-to-GDP ratio to GDP growth – the effect of consolidation measures on deficit are smaller the more the automatic stabilizers react to diminished growth. For a debt ratio equal to 100% of GDP, a typical order of magnitude on the value of the critical multipliers can be computed to be 2/3 if it is assumed that the semi-elasticity of the budget balance to growth is 1/2.

Table II.1.1 shows the estimated critical multipliers for the euro-area Member States, for the 2011 levels of Maastricht debt and the semi-elasticities currently employed to gauge the cyclical component of the budget balance. A review of the empirical literature indicates that in many cases the empirical multipliers are close to or even higher than the critical values presented in the table. In particular, for European countries cumulative multipliers of public expenditure after

four quarters (one year) are usually found to be above unity. Tax-based consolidations are usually found to entail somewhat lower multipliers than expenditure-based consolidations, although there is much variation across the different studies depending on the methodology to identify tax shocks and the country concerned. Multipliers derived from the European Commission's QUEST model amount to around 0.4 to 0.7 for the euro area for a balanced consolidation relying equally on expenditures and revenues in normal economic times, depending on credibility and to 0.7 to around 1.2 in crisis situations.

Table II.1.1: Critical first year multipliers in the euro area at constant interest rates (2011)

	Semi-elasticities	Debt 2011 (% of GDP)	Critical Multiplier
BE	0.54	98.0	0.7
DE	0.51	81.2	0.7
EE	0.30	6.0	2.8
IE	0.40	108.2	0.7
EL	0.43	165.3	0.5
ES	0.43	68.5	0.9
FR	0.49	85.8	0.7
IT	0.50	120.1	0.6
CY	0.42	71.6	0.9
LU	0.49	18.2	1.6
MT	0.36	72.0	0.9
NL	0.55	65.2	0.8
AT	0.47	72.2	0.8
PT	0.45	107.8	0.7
SI	0.47	47.6	1.1
SK	0.29	43.3	1.3
FI	0.50	48.6	0.9

Source: Commission services' calculation

The comparison between the critical multipliers in Table II.1.1 and the estimates found in the literature would suggest that Greece is the only country where short-run debt increases could be observed even in normal times and if consolidation is balanced. However, in the current situation more than one third of the euro area countries are likely to see their debt ratio increasing compared to the baseline in the first year when a consolidation process is implemented. This is due to several factors. First, the public debt has increased further relative to the 2011 level shown in the table. Second, fiscal multipliers are likely to be high at the current juncture for a number of reasons: consolidation is partly spending-based and some households and firms are credit constraints and the transmission of monetary policy is partly broken. In addition, in case of doubts about the credibility of the consolidation strategy fiscal multipliers could even be higher.

⁽³²⁾ All the previous computations are done with respect of a baseline, i.e. they show the comparison between the debt ratio at time t after the consolidation and the debt ratio that would have prevailed at time t in the absence of consolidation.

Medium-run effects of fiscal consolidations

The medium-term evolution of the debt ratio, in the absence of any effect on government yields, is the sum of the same three effects indicated in the previous subsection: i) the cumulative effect of growth on debt, which is larger the larger the initial debt stock and the larger the medium-term multipliers; ii) The cumulative effect of growth on government balance via the operation of the automatic stabilisers on the budget balance, which is greater the larger the size of the multipliers and the size of automatic stabilisers and; iii) the cumulative effect from the adjustment of government balance, which increases with the number of years and with the size of the consolidation implemented. The first two effects increase the debt ratio, while the third lowers it.

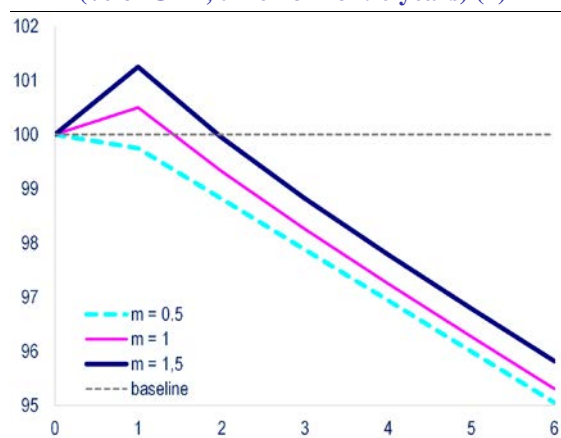
One way to look at the medium-term effects of a consolidation is to consider the number of years n^* (hereafter "the critical year") necessary for the consolidation to lead to a decrease in debt with respect to a baseline scenario that keeps the primary balance-to-GDP ratio constant (i.e. non-consolidation scenario). The critical period n^* is different from the number of years required for the debt to go below its level before starting to consolidate unless the baseline corresponds to a scenario with a constant debt ratio. However, when the baseline scenario is characterized by an increasing debt-to-GDP ratio, the number of years needed to bring the ratio below the pre-consolidation level exceeds n^* . In this connection, it is worthwhile noticing that the size of the consolidation does not affect n^* , whereas it is key to determine the number of years needed to reduce the debt ratio below the existing level before the adoption of the consolidation measures.

The higher the multipliers in the first year and the larger the change in GDP induced by the consolidation, the larger the value of n^* and the longer it will take for a consolidation to be effective in reducing the public debt ratio. The response of output to the fiscal consolidation, i.e. the fiscal multiplier, can be very persistent or can decay rapidly in the first years.⁽³³⁾ Graph II.1.1 shows the debt-to-GDP ratio dynamics for the

⁽³³⁾ Medium term multipliers are obtained by applying a decay function with powers of 0.5 for the low persistence case and of 0.8 for the high persistence case. In the low persistence case around 47% of the initial effect on output vanishes at the 2nd year and around 90% thereof at the 6th year. In the high persistence case only around 18% of the initial effect on output disappears the following year after the shock and at the 6th year around 3.7% of the initial effect still remains.

low-persistence multipliers path under different assumptions about the impact multiplier. The baseline scenario is one of a constant debt ratio of 100% of GDP and a cyclical budgetary semi-elasticity of $\epsilon=0.55$. When the first-year multiplier lies below 0.7 –corresponding to the value of the critical multiplier–, the consolidation lowers the debt ratio from the first year. It should be noted that a first year multiplier of 1.5 is on the high side of existing estimates as it is the estimate of a temporary consolidation based on government spending.

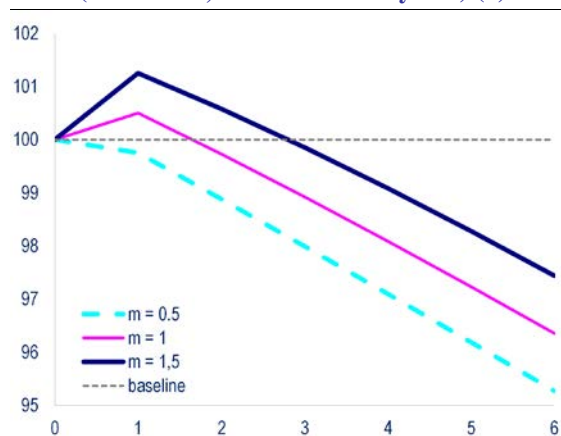
Graph II.1.1: Debt dynamics with no effect on interest rates, low persistence (% of GDP, time horizon: 6 years) (1)



(1) baseline steady state, $b_0 = 100\%$

Source: Commission services.

Graph II.1.2: Debt dynamics with no effect on interest rates, high persistence (% of GDP, time horizon: 6 years) (1)

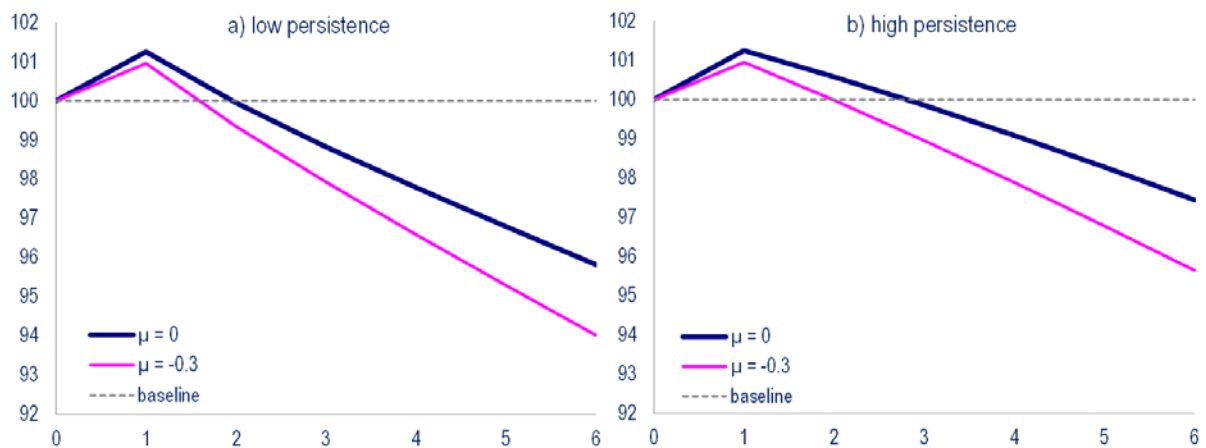


(1) baseline steady state, $b_0 = 100\%$

Source: Commission services.

Graph II.1.2 shows the corresponding case for a high persistence of the multiplier. The higher persistence generates longer-lasting negative effects from fiscal consolidation. If the first-year

Graph II.1.3: Confidence effects on debt dynamics, first-year $m=1.5$
(in % of GDP, time horizon: 6 years)



Source: Commission services.

multiplier is 1.5 the consolidation-based debt increase lasts for one more year so that three years are needed before debt goes below baseline.

Introducing changes of government yields

The analysis has so far been based on the assumption of constant interest rate. This is obviously a very strong assumption as consolidation affects solvability and thereby interest rates which in turn affect fiscal balances and the dynamics of consolidation. Over the medium-term, changes to the average effective interest rate are as important a factor for the debt to GDP dynamics as the growth rate of GDP. The impact of consolidation on average effective interest rates is more visible in the medium-term than in the short-term, with limited first-year impact on the debt level.

The sign of this effect however is not clear cut as it depends crucially on the way market expectations are generated. In the simulations presented hereafter it is assumed that the change on average effective interest rates is driven by the risk premium so that the change of the average effective interest rate r_i due to a consolidation a is expressed as:

$$\frac{dr_i}{da} = \mu + \gamma \frac{db_{i+h}}{da} \Big|_{dr=0}$$

where μ can be interpreted as the effect on the interest rate (via the risk premium) linked to the credibility of the consolidation measures adopted

(³⁴), while γ represents the yield sensitivity to the debt level and h refers to the horizon considered by the financial markets.

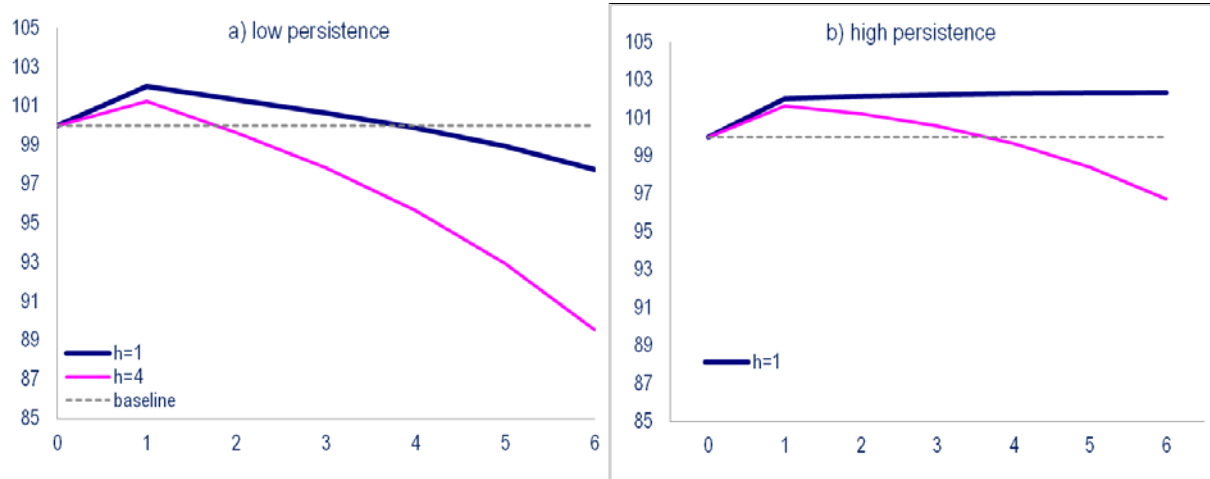
The normal case would be that consolidation improves market confidence and reduces yields, leading to a lower average effective interest rate r . In this case, the effect of consolidation on debt is reinforced and debt-to-GDP ratios are likely to decrease at a higher speed (or increase less) than with constant yields. This is the case illustrated by Graph II.1.3 under the condition that the first-year multiplier is 1.5 and no reaction of interest rates to public debt increases ($\gamma=0$) takes place. It can be seen that the critical number of years before the debt is reduced to below its starting level declines somewhat with respect to the simulation where these confidence affects are not accounted for.

Myopic behaviour and debt ratio

However, under certain conditions markets might react to consolidations by increasing yields, especially when starting levels of debt are very high, the consolidation strategy lacks credibility, the expectations about future GDP growth are subdued or when the time horizon considered by financial markets is very short. In such a case, the increase in interest rates would entail a rise in the debt ratio, which would involve an increase in the number of years needed to resume to the starting

(³⁴) A constant coefficient associated to the credibility of the adjustment is arguably a strong assumption, although helpful to illustrate its implications for debt dynamics. Another inconvenient of this linear specification is that it does not take into account thresholds effects, which can be potentially relevant in crisis periods.

Graph II.1.4: Debt evolution as a function of market horizon, first year $m=1.5$
(in % of GDP, time horizon: 6 years)



Source: Commission services.

level. Such an effect would be rather unusual, however. In particular, where $h=1$ indicates that markets look at the debt in the year of the consolidation, thereby indicating a high degree of myopia of financial markets. In this case, if a consolidation increases the debt ratio due to the denominator effect, a high sensitivity of interest rates to the debt ratio could make consolidations self-defeating and act as a driver for a divergent debt ratio.

The presence of myopia in financial markets can play a role in increasing the number of years after which the debt ratio remains above baseline. However, as simulations in Graph II.1.4 shows, only in very extreme cases characterized by high and persistent multipliers and elevated debt ratios, financial markets myopia would lead to a debt increase in the medium run. In these simulations a positive reaction of interest rates to debt increases ($\gamma=0.3$) has been assumed.

Conclusions

The reaction of debt ratios to fiscal consolidations is largely driven by the size of the GDP multiplier. In this regard, it is likely that one-year multipliers are larger in the current crisis period than in normal times. Accordingly, the currently high debt levels and the presumably sizeable fiscal multipliers due to the crisis, jointly with normal values for cyclical elasticities, are likely to lead to debt rises in response to consolidations in the short run in several Member States.

However, for high but plausible values of the multipliers, such counter-intuitive effects are short-lived. Over the medium-term,

consolidations are generally successful in reducing the debt-to-GDP-ratio as long as they are based on measures with permanent effects on the budget. However, debt increases following fiscal consolidations can be more protracted if multipliers are high and very persistent or if interest rates rise abnormally in response to a fiscal tightening accompanied by a short-term rise in debt. A credible consolidation strategy would significantly reduce such risks. A fully self-defeating dynamics would only be generated under very unlikely configurations for which, in addition to very large multipliers and brisk increases in sovereign interest rates in response to the consolidation, a high degree of financial market myopia is required.

The analysis presented in this section implies that, for a number of euro-area Member States, it will take some time before consolidation brings debt ratios back to current levels. In the current setting, involving high fiscal multipliers, it is likely that some consolidation packages will lead to temporary short-term debt increases that will lengthen the horizon over which public debt will start to decrease. To speed up the process of debt reduction in the sense of bringing debt below its pre-consolidation level, sizeable consolidations are warranted. Moreover, given the currently high debt levels in many of these countries, consolidating is of primary importance, as delaying the adjustment implies rising debt ratios, which increases significantly the likelihood of fully self-defeating dynamics in the future.

II.2. Fiscal consolidation in reformed and unreformed labour markets

Introduction

Since the onset of the of the 2008 financial crisis, Europe has been witnessing a worrying upsurge in unemployment and an unprecedented dispersion of unemployment rates. The implementation of major and protracted fiscal consolidation strategies in such a context, and without prospects of a stable worldwide recovery, has stimulated a policy debate on the growth and employment impact of consolidation measures. ⁽³⁵⁾

Despite these concerns, a number of euro area countries have recently put in place ambitious fiscal consolidation plans while at the same time carrying out major labour market reforms. In particular, the rigid and hard-to-reform employment protection legislation (EPL) systems in southern European countries have been profoundly shaken up with a view to stimulating job creation and tackling the problem of labour market segmentation. At the same time, severe budgetary cuts have been implemented in order to put public finances on a sustainable footing and reassure markets.

Empirical analyses of the impact of fiscal policy focus mostly on output, ⁽³⁶⁾ while only a few papers look at the unemployment and labour market impact. An example of the latter is Monacelli et al. (2010) ⁽³⁷⁾, who develop a structural VAR for the US and find a negative and significant impact of government spending on unemployment and job destruction, while job creation increases.

Against this background, the present section aims to address the following questions:

- How do employment protection reforms interact with fiscal consolidation in determining unemployment and labour market flows?

⁽³⁵⁾ See for instance Corsetti, G. (2012), 'Has austerity gone too far?', VoxEU.org, 2 April.

⁽³⁶⁾ Blanchard, O. and R. Perotti (2002), 'An empirical characterization of the dynamic effects of changes in government spending and taxes on output', *Quarterly Journal of Economics*, Vol. 117, NR. 1329-68; and Perotti, R. (2005), 'Estimating the effects of fiscal policy in OECD countries', Proceedings, Federal Reserve Bank of San Francisco.

⁽³⁷⁾ Monacelli, T, R. Perotti, and A. Trigari (2010), 'Unemployment fiscal multipliers', *Journal of Monetary Economics*, 97(5), 531-553

- What is the impact of fiscal consolidation on job market flows, and does it matter if dismissals are less costly?

The section looks at the impact of fiscal policy on cyclical unemployment, job market flows and the share of long-term unemployment. Cyclical unemployment is defined as the difference between the actual unemployment rate and the non-accelerating-wage rate of unemployment (NAWRU). The analysis is based on a recent panel regression presented in more detail in Turrini (2012). ⁽³⁸⁾

Measuring fiscal consolidation and assessing the link between consolidation and unemployment

While much of the available empirical research on the impact of fiscal consolidation uses estimates of the cyclically adjusted primary balance (CAPB) as a measure of discretionary changes in fiscal policy, the present work rests on an 'action-based' database recently developed at the IMF. ⁽³⁹⁾ Using an 'action-based' measure of fiscal adjustment (i.e. as announced by fiscal authorities) removes some of the estimation biases traditionally associated with the CAPB. These include difficulties in measuring the cycle in real time and endogeneity issues due to the fact that the discretionary component of fiscal policy may respond to changes in cyclical conditions. With an action-based measure of consolidation, causality is measured one way – from fiscal policy to unemployment.

Graph II.3.1 displays prima-facie evidence of the link between cyclical unemployment and fiscal consolidation. The scatterplot exhibits a positive, though weak, relation between consolidation and cyclical unemployment across the panel. Of course, this prima-facie evidence does not imply causation but is suggestive of a possible link running from fiscal policy to unemployment outcomes.

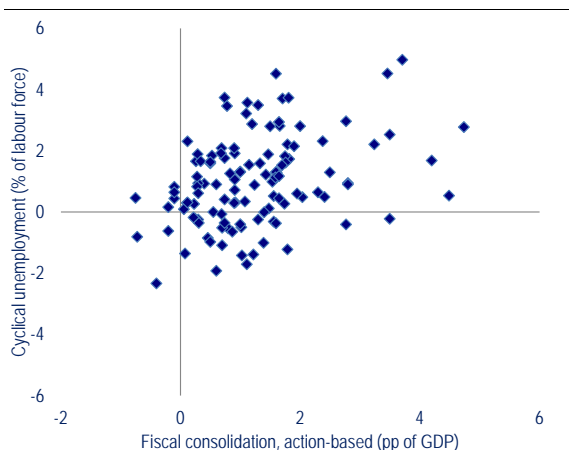
The link can be further investigated by means of a set of panel regressions that relate labour market conditions to fiscal consolidation. In the baseline regression specification, cyclical unemployment

⁽³⁸⁾ Turrini, A. (2012), 'Fiscal consolidation in reformed and unreformed labour markets: A close look at EU countries', *European Economy, Economic Papers*, European Economic Paper no. 462.

⁽³⁹⁾ Devries, P., Guajardo J., Leigh D., and A. Pescatori (2011), 'A new action-based dataset of fiscal consolidation', IMF Working Paper WP/11/128.

in thirteen EU Member States (ten of which are euro-area countries) between 1980 and 2010 is regressed on the measure of fiscal consolidation (see Box II.2.1 for more details on the data and the methodology as well as a table of results). The underlying assumption is that fiscal consolidation mostly impacts cyclical unemployment.

Graph II.2.1: Cyclical unemployment and fiscal consolidations, action-based (1980-2009), 13 EU countries



Source: Commission services

Regression results show that there is a high degree of persistence in cyclical unemployment. The short-term unemployment impact multiplier of the overall budgetary consolidation variable is positive but not large, amounting to less than 1/10 of a percentage point of unemployment for each GDP point of consolidation. The result seems to be mostly attributable to consolidation efforts on the spending side. A breakdown of the consolidations into revenue and spending shows that, while the impact of government revenue is not statistically significant, that of government expenditure is negative and higher in absolute value and of a higher order of significance than that for the overall budget balance. The result is in line with the empirical literature, which generally points to higher short-term multipliers for spending-based consolidation than for tax-based consolidation.

The estimated unemployment impact multipliers are broadly in line with existing estimates of GDP fiscal multipliers. For instance, the estimated coefficient for government expenditure (0.16) would imply a GDP fiscal multiplier of about

0.50, assuming a standard Okun coefficient of 0.3.⁽⁴⁰⁾

Separate regression results for high and low EPL countries can contribute to the assessment of the interplay between the unemployment effects of fiscal policy and the role of labour market regulation. Focusing on the expenditure side of consolidation, fiscal consolidations are found to have a somewhat larger effect on unemployment in regulated labour markets. High EPL countries show an unemployment impact that is around ten basis points higher for each GDP point of expenditure-based consolidation than the low protection countries. Probably due to the reduction in sample size, all other estimated fiscal policy effects in an EPL-based split of the sample countries are not statistically significant.

The result that fiscal consolidation is not less harmful in more regulated labour markets runs counter to intuition, as a high level of employment protection could be expected to cushion the short-term impact of consolidation on employment. The explanation could lie in the different behaviour of job creation and job destruction. It is well-known from existing theory and empirical evidence that strict EPL is associated with lower exit rates to unemployment but also with a lower probability for the unemployed to find new jobs and therefore higher risks of long-term unemployment.⁽⁴¹⁾ It could be the case that in high-EPL countries fiscal policy shocks destroy fewer jobs but also lead to a stronger reduction in the rate at which new jobs are created, with a possibly overall stronger effect on cyclical unemployment.

The estimation of the impact of fiscal consolidation on job market flows separately for high- and low-EPL countries supports the above hypothesis. Job separation rates are found to rise significantly with fiscal retrenchments only in low-EPL countries. Conversely, job finding rates appear to react mostly in high-EPL countries.⁽⁴²⁾

⁽⁴⁰⁾ The Okun law relates changes in unemployment to changes in GDP.

⁽⁴¹⁾ Mortensen D. and C. Pissarides (1994), 'Job Creation and job destruction in the theory of unemployment', *The Review of Economic Studies*, vol. 61(3), pp. 397-415 and Gomez-Salvador R., J. Messina and G. Vallanti (2004), 'Gross job flows and institutions in Europe', *Labour Economics*, vol. 11, pp. 469-485.

⁽⁴²⁾ Data on job separation and job finding rates are hazard rates (i.e. individual probabilities of changing labour market status). See Box II.2.1 for further details.

*Box II.2.1: Data and methodology***Data**

The empirical analysis is based on a sample of 13 EU countries, including 10 euro-area Member States (Austria, Belgium, Finland, France, Germany, Ireland, Italy, the Netherlands, Portugal and Spain) and 3 non-euro EU members (Denmark, Sweden and the UK). Lack of data for some countries and variables restricts the sample.

The baseline measure of fiscal consolidation is the ‘action-based’ variable constructed by Devries et al. (2011). Data on this variable have been collected over the period 1978-2009 and are available for seventeen OECD Member States, including the 13 EU countries mentioned above. This action-based consolidation variable contains bottom-up estimates of the amounts of measures taken by the government during years when the overall objective of fiscal policy, as reported in official statements and documents, was to reduce the deficit and improve the state of public finances. If, in a given year and in a given country, fiscal policy resulted in a deliberate reduction in the budget deficit, the variable reports the estimated amount of discretionary measures, otherwise the variable is set to zero. These ‘action-based’ measures have a double advantage: they are not affected by the economic cycle because their construction follows a bottom-up approach and they are unlikely to suffer from reverse causation since fiscal adjustment episodes driven by the objective of stabilising output are excluded.

The baseline dependent variable is cyclical unemployment. It is obtained from the difference between the overall unemployment rate and the non-accelerating-wage rate of unemployment (NAWRU). NAWRU is the level of unemployment below which the wage rate would rise. The data on NAWRU come from the European Commission’s AMECO database. Cyclical rather than ordinary unemployment is used as a dependent variable in order to reduce the risk of non-stationarity in the panel. The complicated estimation of a cointegrated panel regression is thus avoided.

Other regressions model the dependent variable as the job separation rate or the job finding rate. Data on job separation and job finding rates (hazard rates) are constructed as described in Arpaia and Curci (2010), following the methodology proposed by Shimer (2007). Data on job flows are available for all EU countries but for shorter time series compared to cyclical unemployment (going back to 1997 at the earliest). Data on the share of long-term unemployment in overall unemployment are taken from Eurostat and are available for all EU countries starting from 1992 at the earliest.

Empirical strategy

The baseline regression framework used in the analysis of cyclical unemployment is:

$$u_{i,t} = \alpha u_{i,t-1} + \beta u_{i,t-2} + \gamma FC_{i,t} + \theta_i + \eta_t + \varepsilon_{i,t} \quad (1)$$

where i, t denote country and year, respectively, u is cyclical unemployment, FC is a consolidation variable, θ and η are country and year fixed effects, respectively, and ε is a standard white-noise error. This specification amounts to an augmented AR2 model, which is motivated by the broadly regular oscillations of cyclical unemployment around the mean (zero) over large samples.

The modelling of the impact of fiscal policy on other labour market variables is analogous to (1) except that, for job market flows (hazard rates) and the share of long-term unemployment, the second autoregressive term is dropped (being largely insignificant). Equation (1) is estimated by means of panel-fixed effect estimation (least square dummy variables) with robust standard errors for the case of action-based consolidation measures. With a view to shedding light on the interaction between fiscal policy and labour market regulation, regressions are run separately for high and low EPL countries. The breakdown of countries follows a straightforward criterion: countries with high (low) EPL are assumed to be those with an average value over the sample period of the OECD’s overall EPL indicator above (below) the median of such averages for all EU countries.

References:

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- Devries, P., Guajardo J., Leigh D., and A. Pescatori (2011), ‘A new action-based dataset of fiscal consolidation’, IMF Working Paper WP/11/128
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(Continued on the next page)

Box (continued)

Main results

Dependent variable:	Cyclical unemployment						Job separation rate					
	Budget balance, action based	Revenue, action based	Expenditure, action based	Expenditure, action based		Budget balance, action based	Revenue, action based		Expenditure, action based			
				Low EPL	High EPL		Low EPL	High EPL	Low EPL	High EPL		
Explanatory variables:												
Cyclical unemployment (1 lag)	1.206 [17.87]**	1.22 [18.09]**	1.194 [17.57]**	1.19 [19.39]**	1.198 [14.27]**							
Cyclical unemployment (2 lags)	-0.609 [7.50]**	-0.611 [7.46]**	-0.607 [7.56]**	-0.619 [10.37]**	-0.603 [7.24]**							
Job separation rate (1 lag)						0.233 [1.07]	0.825 [6.65]**	0.268 [1.28]	0.827 [6.66]**	0.262 [1.20]	0.825 [6.81]**	
Fiscal policy variable	0.08 [1.65]+	0.018 [0.20]	-0.16 [2.35]*	-0.148 [2.34]*	-0.273 [2.31]*	0.065 [3.75]**	-0.027 [0.48]	0.12 [3.82]**	-0.023 [0.27]	-0.105 [3.17]**	0.088 [0.80]	
Constant	0.307 [1.58]	-0.236 [2.30]*	0.303 [1.58]	0.427 [2.17]*	-0.276 [1.08]	0.641 [3.97]**	0.058 [0.65]	0.62 [3.96]**	0.059 [0.64]	0.618 [3.78]**	0.057 [0.65]	
Observations	353	353	353	196	157	63	52	63	52	63	52	
Number of countries	13	13	13	7	6	7	6	7	6	7	6	
R squared	0.86	0.86	0.87	0.87	0.89	0.61	0.83	0.6	0.83	0.59	0.83	

Dependent variable:	Job finding rate						Long-term unemployment share					
	Budget balance, action based	Revenue, action based		Expenditure, action based		Budget balance, action based	Revenue, action based		Expenditure, action based			
		Low EPL	High EPL	Low EPL	High EPL		Low EPL	High EPL	Low EPL	High EPL		
Explanatory variables:												
Job finding rate (1 lag)	0.837 [4.61]**	0.659 [4.34]**	0.841 [4.69]**	0.671 [4.36]**	0.835 [4.61]**	0.655 [4.40]**						
Long-term unemployment share (1 lag)							0.758 [12.08]**	0.789 [13.94]**	0.779 [13.28]**	0.811 [14.56]**	0.746 [11.47]**	0.78 [13.46]**
Fiscal policy variable	-0.146 [0.67]	-1.663 [1.96]+	-0.173 [0.44]	-1.761 [1.52]	0.338 [0.82]	4.292 [2.26]*	-0.512 [1.14]	1.422 [1.80]+	-0.528 [0.69]	1.249 [1.01]	1.098 [1.35]	-2.262 [1.81]+
Constant	0.189 [0.07]	3.315 [2.45]*	0.088 [0.03]	3.285 [2.36]*	0.231 [0.09]	3.73 [1.35]	8.839 [4.23]**	6.978 [2.28]*	3.59 [1.78]+	12.345 [4.30]**	9.189 [4.29]**	7.451 [2.38]*
Observations	63	52	63	52	63	52	110	96	110	96	110	96
Number of countries	7	6	7	6	7	6	7	6	7	6	7	6
R squared	0.58	0.68	0.58	0.67	0.58	0.68	0.89	0.86	0.89	0.85	0.89	0.86

+, *, ** denote statistical significance at the 10, 5, 1 per cent level, respectively. T-tests are reported in square brackets.

Specification: all regressions include country and year fixed effects.

Estimation method: fixed-effect panel OLS, standard errors robust with respect to heteroscedasticity and non-independence within country clusters.

Legend:

Budget balance, action-based: year-on-year change in government budget balance associated with fiscal consolidation measures (source: Devries et al., 2011).

Revenue, action-based: year-on-year change in government revenues associated with fiscal consolidation measures on the revenue side (source: Devries et al., 2011).

Expenditure, action-based: year-on-year change in government expenditure associated with fiscal consolidation measures on the expenditure side (source: Devries et al., 2011).

The grouping of countries with respect to the OECD's overall EPL indicator is based on the median country-specific average value of the indicator over the sample period.

The fact that job market flows react differently to fiscal consolidation according to the EPL regime helps in assessing the impact of fiscal retrenchment on the share of long-term unemployment. Since a reduced job finding rate corresponds to a longer average duration of unemployment spells, one would expect that fiscal policy shocks also tend to raise the share of long-term unemployment in high-EPL countries. The regression results support this expectation.

Concluding remarks

This section has shown that fiscal consolidation is not necessarily less harmful in terms of unemployment in regulated labour markets. It also shows that there are well-grounded reasons to expect it to be more worrying in terms of unemployment composition, as high EPL is associated with a stronger reduction in job creation and a higher incidence of long-term unemployment.

II.3. Assessing the economic impact of financial transaction taxes

The banking and financial crisis of recent years has led to a broad debate on financial regulation to improve the resilience of the financial sector and reduce the likelihood of further crises. Given the costs that rescuing financial institutions has inflicted on taxpayers, the call for a contribution from the financial sector to the financing of crisis-intervention costs has also gained political voice and support.

The European Commission issued in September 2011 a proposal for an EU-wide financial transaction tax. The aim of the proposal is to ensure that financial institutions make a fair contribution to the costs of the recent crisis, to create disincentives for socially unproductive transactions, and to avoid fragmentation of the internal market by uncoordinated measures at national level.⁽⁴³⁾

A number of Member States have expressed their interest for such a tax. Eleven of them have submitted a request to the Commission (or are about to so) for a proposal to introduce a financial transaction tax via enhanced cooperation.

The Commission proposes levying the tax on a broad set of secondary-market transactions (shares, bonds, derivatives), but excludes refinancing operations with central banks, most day-to-day transactions of private households and businesses (insurance contracts, mortgage lending, consumer credit, payment services) and currency transactions. The purpose of a broad tax base is to prevent potential tax evasion via the creation of alternative instruments as well as to contain negative liquidity effects in certain parts of the market. A broad tax base also allows raising substantial revenue at low tax rates.

There is little public finance literature on the regulatory merits and the revenue potential of financial sector taxation to date,⁽⁴⁴⁾ but the policy debate has also renewed academic interest in this

⁽⁴³⁾ European Commission (2011), 'Proposal for a Council Directive on a common system of financial transaction tax and amending Directive 2008/7/EC', COM(2011) 594. Several Member States (e.g. Belgium, Italy, UK) already have transaction taxes on certain types of financial operations. See Brondolo, J. (2011), 'Taxing financial transactions: an assessment of administrative feasibility', *IMF Working Paper*, No 11/185 and Matheson (2011), op. cit..

⁽⁴⁴⁾ Keen, M. (2011), 'Rethinking the taxation of the financial sector', *CESifo Economic Studies*, Vol. 57, No 1, pp. 1-24.

field. Like the Commission proposal, empirical and theoretical research frames the debate along two main dimensions, namely the regulatory merits of transaction taxes and potential side-effects on capital costs, investment and output.

Transaction taxes and market volatility

The transaction tax would be beneficial from the *regulatory* perspective if it reduced volatility in the financial and real sector of the economy, to the extent that such volatility reflects non-fundamental ("noise") trading rather than an efficient adjustment to changes in economic fundamentals.⁽⁴⁵⁾

By lowering market liquidity, the tax may however also amplify the impact of individual (fundamental and non-fundamental) transactions on market prices. Whether a transaction tax reduces volatility in financial markets is ultimately an empirical question. The existing empirical studies on transaction taxes and market volatility are unfortunately non-conclusive, with several studies (but not all of them) concluding that transaction taxes may increase asset price volatility by reducing trading volume in financial markets.⁽⁴⁶⁾ Furthermore, reducing transaction volumes in financial markets does not necessarily reduce efficiency from the perspective of market volatility if only "excess liquidity" is reduced and transaction volumes do not go below the level where individual transactions can impact on asset prices.⁽⁴⁷⁾

Reducing the number and volume of financial market transactions can, however, also improve economic efficiency by lowering the amount of resources devoted to socially non-productive, zero-sum transactions.⁽⁴⁸⁾ To the extent that

⁽⁴⁵⁾ On the concept of noise trading see e.g. Shleifer, A. and L. Summers (1990), 'The noise trader approach to finance', *Journal of Economic Perspectives*, Vol. 4, No 2, pp. 19-33.

⁽⁴⁶⁾ Baltagi, B., D. Li and Q. Li (2006), 'Transaction tax and stock market behaviour: evidence from an emerging market', *Empirical Economics*, Vol. 31, No 2, pp. 393-408; Hau, H. (2006), 'The role of transaction costs for financial volatility: evidence from the Paris bourse', *Journal of the European Economic Association*, Vol. 4, No 4, pp. 862-890; Jones, C. and P. Seguin (1997), 'Transaction costs and price volatility: evidence from commission deregulation', *American Economic Review*, Vol. 87, No 4, pp. 728-737.

⁽⁴⁷⁾ The existing empirical studies focus on transaction costs or taxes that apply to sub-segments of the financial markets. Broad application of a transaction tax narrows the scope for tax avoidance and may consequently reduce the negative impact of the tax on market liquidity and the related increase in asset price volatility.

⁽⁴⁸⁾ Stiglitz, J. (1989): 'Using tax policy to curb speculative short-term trading', *Journal of Financial Services Research*, Vol.

reducing socially wasteful financial transactions frees resources for more productive use in other sectors, it improves average welfare.

Potential side-effects of transaction taxes

The second fundamental issue in the policy and academic debate is the tax incidence (i.e. where will the tax burden finally be shifted) and its potential implications for capital costs, real investment, employment and output in the long term.

A transaction tax that reduces the after-tax return on investment tends to reduce the amount of profitable physical investment. More directly, falling asset prices through primary-market taxation increase the cost of capital to be raised by new issuance of debt and equity. However, even if the tax excludes primary markets, secondary-market taxation may still significantly increase the costs of capital. Investors in debt or equity may e.g. require a higher risk premium on new issuance if lower liquidity in the secondary market makes liquidating asset positions in the future and insuring against investment risks more difficult or expensive. A tax on the secondary market may also reduce real investment if firms are credit-constrained, so that the decline in asset prices reduces the available collateral for investment loans.

Empirical studies on the impact of financial transaction costs or taxes on share prices support the negative link between taxation and equity prices that the various theoretical arguments suggest.⁽⁴⁹⁾ These studies do not, however, assess the propagation to investment and economic activity in the long term. Addressing these long-term effects is the specific advantage of a general-equilibrium perspective.

3, No 2-3, pp.101-115; Summers, L. and V. Summers (1989), 'When financial markets work too well: a cautious case for a securities transaction tax', *Journal of Financial Services Research*, Vol. 3, No 2-3, pp. 261-286.

⁽⁴⁹⁾ Bond, S., M. Hawkins and A. Klemm (2005), 'Stamp duty on shares and its effect on share prices', *FinanzArchiv*, Vol. 61, No 3, pp. 275-297; Hu, S.-Y. (1998), 'The effects of the stock transaction tax on the stock market — Experiences from Asian markets', *Pacific-Basin Finance Journal*, Vol. 6, No 3-4, pp. 347-364; Jackson, P. and A. O'Donnell (1985), 'The effects of stamp duty on equity transactions and prices in the UK stock exchange', *Bank of England Discussion Paper*, No 25; Umlauf, S. (1993), 'Transaction taxes and the behaviour of the Swedish stock market', *Journal of Financial Economics*, Vol. 33, No 2, pp. 227-240; Westerholm, J. (2003), 'The impact of transaction costs on turnover and asset prices: the case of Sweden's and Finland's security transaction tax reduction', *Finnish Journal of Business Economics*, Vol. 2, No 3, pp. 213-241.

Depending on how distortive the transaction tax is relative to other taxes, such as capital or labour income taxes, the assessment of long-term effects might turn more favourable in relative terms to the extent that raising transaction taxes would allow other distortionary taxes to be reduced at the same time. A broad tax base seems warranted in order to reduce the scope for tax avoidance, although levying a small tax on a broad base (especially if going beyond secondary spot markets) rather than a higher tax on a smaller base to generate a certain flow of tax revenue does not necessarily minimise the economic distortions involved.⁽⁵⁰⁾

Transaction taxes in a general-equilibrium model

While empirical research and partial-equilibrium models have so far analysed the impact of transaction taxes on (a) financial market volatility and (b) long-term financing costs separately, the general-equilibrium approach can address the two dimensions within a single framework and links financial market dynamics to real sector volatility as well as long-term levels of investment and output.

The assessment of the potential macroeconomic impact of introducing a transaction tax on secondary market trade in securities (STT) presented hereafter is based on a dynamic stochastic general equilibrium (DSGE) model.⁽⁵¹⁾ In contrast with standard DSGE models that assume perfect financial markets, the model used incorporates an explicit specification of a financial intermediary sector characterised by market imperfections. The financial frictions considered allow for the discussion of linkages

⁽⁵⁰⁾ An illustration of the fact that a low tax rate on a broad tax base is not necessarily less distortive than a higher tax rate on a narrower base is the cascading effect of transaction taxes in business-to-business transactions. If the tax was also levied on financial transactions between firms, e.g. payment flows, the tax burden on the final product would increase with the number of intermediate transactions. This cascading effect would provide an incentive for vertical integration in product markets, with a tendency to reduce competition at the level of intermediate suppliers and final goods producers and increase production costs and final goods prices. Against this background of cascading effects the Commission proposal for the financial transaction tax excludes business-to-business transactions from taxation, i.e. it does not penalise transaction between independent entities (e.g. between external suppliers and producers) in the production process compared to transactions within integrated corporations.

⁽⁵¹⁾ For a detailed description of the overall model see Lendvai J., R. Raciborski and L. Vogel (2012), 'Securities transaction taxes: Macroeconomic implications in a general-equilibrium Model', *European Economy, Economic Paper*, No 450.

between trade in secondary financial markets and economic activity in the non-financial sector. Non-fundamentals-driven financial trade is also discussed: it may lead to inefficient use of resources and excess volatility in the non-financial sector. ⁽⁵²⁾

In the model, the introduction of the STT affects volatility in both the financial and non-financial sectors. The tax increases the cost of trading activities, which reduces expected returns and therefore crowds out some trade in financial markets. To the extent that it reduces non-fundamentals-driven trade, the STT reduces economic inefficiencies associated with excess volatility in the non-financial sector and resource use in non-fundamental financial transactions.

Beyond the impact on financial and real economic volatility, the STT is likely to affect the corporate sector, and hence the whole economy, in the longer term by increasing the cost of raising new capital for investment. This effect is present in spite of the fact that the tax is imposed only on secondary market transactions. Prices of newly issued shares are reduced by lower demand for shares due to the higher overall cost of transactions for the trading parties. This limits the amount of new capital firms are able to tap on the market and, in the long run, leads to a fall in corporate investment and a lower level of GDP.

Main simulation results

The model is calibrated to approximately match the empirical shares of demand components in GDP as well as certain characteristics of euro-area financial markets.

The results discussed show the impact of an STT rate that would raise additional revenue of 0.16% of GDP. The figure corresponds to the midrange of historical tax revenues raised with transaction taxes in G-20 economies. ⁽⁵³⁾

Introducing the STT reduces volatility in the financial and non-financial sectors (Table II.3.1, first column) in line with the argument that transaction taxes would decrease the excess

volatility caused by high-frequency non-fundamental trading. The decline in volatility is especially marked for financial variables, namely trading volumes and asset returns. The volatility of real variables is much less affected. ⁽⁵⁴⁾

The STT also affects the long-run levels of financial variables (see Table II.3.1). Trading volumes and share prices fall by 13% each in response to an STT rate raising revenues by 0.16% of GDP. Pre-tax returns on shares have to increase by 2 pp to compensate financial investors for the tax payment. As the decline in financial activity reduces the average use of resources in non-fundamental transactions by 0.1 percentage point of GDP, the tax also has a positive efficiency effect.

Table II.3.1: Impact of an STT to raise 0.16 % of GDP (1)

	std/mean (pp)	mean level (%)
output	0.0	-0.3
capital	0.0	-0.7
investment	-0.1	-0.6
consumption	-0.1	-0.1
employment	-0.2	-0.1
wage	0.0	-0.2
trade	-32.6	-12.8
share price	-0.1	-12.8
	std/mean (pp)	mean level (pp)
return on share	-13.1	2.0
risk-free return	-42.5	0.0
return on capital	-0.1	0.1
transactions costs/GDP	-0.1	-0.1

(1) The table reports the impact of a securities transaction tax raising revenues by 0.16% of GDP. The first column reports the percentage-point (pp) change in the standard deviation of each variable normalised by its mean. The second column gives the percentage (%) change in the long-run mean level of aggregates and prices and percentage-point (pp) changes in the long-run mean of (annualised) returns, and the resource costs of trading to GDP.

Source: Commission services

Everything else being equal, the impact on asset prices and capital costs does, however, also affect real variables in an economy with financial constraints, with negative side-effects for real activity. In the example in Table II.3.1, the tax decreases the output level by about 0.3% in the long run. Long-term levels of capital and corporate investment decline by about 0.6%, while employment and wages are less strongly

⁽⁵²⁾ Non-fundamental transactions in the model are based on the noise trader approach, where some of the traders are subject to changing sentiments about future asset returns. Noise trading leads to non-fundamental volatility in asset demand and asset prices. On noise trading see e.g. Shleifer, A., and L. Summers (1990), 'The noise trader approach to finance', *Journal of Economic Perspectives*, Vol. 4, No 2, pp. 19-33.

⁽⁵³⁾ See Matheson, T. (2011), op. cit.

⁽⁵⁴⁾ The smaller impact on the volatility of real variables is partly due to the fact that fluctuations in real variables are also driven by productivity shocks in the model. The STT on secondary market transactions as implemented in the model has no impact on such fundamental-driven volatility.

affected. Finally, the introduction of the STT appears to have little impact on consumption. ⁽⁵⁵⁾

Table II.3.2 compares the effects of different sources of government revenue by comparing the output losses from increasing the Value-Added Tax (VAT), Personal Income Tax (PIT) and Corporate Income Tax (CIT) rates to raise the same additional tax revenue of 0.16 pp of GDP. The result of this exercise illustrates the standard ranking of different taxes according to the distortions they create. VAT is not very distortive; additional VAT revenue of 0.16 pp of GDP would reduce long-run output by only 0.02%. An increase in PIT has a similar, albeit somewhat larger, negative effect (a 0.1% GDP drop). Among the ‘traditional’ taxes, CIT is the most distortive, with a long-run fall in the output level of circa 0.3%. The simulations suggest distortive effects of the STT on real variables similar to those of corporate income taxation, with a similar long-run GDP effect of around -0.3%. This implies that using STT revenues to reduce VAT or PIT would have a negative impact on economic activity while using it to reduce CIT would be more or less neutral.

Table II.3.2: Comparison of different fiscal measures (1)(2)

tax/measure	effect on GDP level (%)
VAT	-0.02
Personal Income Tax	-0.1
Corporate Income Tax	-0.3
STT	-0.3
Government Investment (increase)	
output elasticity ⁽²⁾ = 0.09	0.4
output elasticity ⁽²⁾ = 0.05	0.2

(1) Impact of fiscal measures increasing government revenue by 0.16 pp of GDP.

(2) Output elasticity with respect to government investment.

Source: Commission services

Instead of a comparison with other taxes that might be reduced to offset the revenue effect of introducing an STT, one can also consider the aggregate effect if the STT revenue were devoted to increasing government investment expenditures (results in the second part of Table II.3.2). As can be seen, the output effect of higher government investment depends on the assumed degree to which government investment improves private productivity: specifically, the elasticity of output

⁽⁵⁵⁾ This last result seems, however, to depend quite strongly on the modelling assumptions. In other versions of the model it has been found that consumption could fall by up to 0.3% in the long run.

with respect to government investment. ⁽⁵⁶⁾ Assuming an optimistic value (0.09) of this elasticity, the GDP effect of higher government investment is 0.4% of GDP. When the elasticity is reduced to half (0.05), the impact is reduced to 0.2% of GDP. The findings suggest that using STT revenues to increase productive government spending, the policy could result in a net GDP increase only under fairly optimistic assumptions about the productivity of government investment. However, even in this case, raising revenues for public investment with the consumption or income taxes considered would lead to larger gains.

Conclusions

The simulation results with the general-equilibrium model developed to study the effects of introducing an STT point to non-negligible effects of a securities transaction tax on the economy.

The securities transaction tax reduces financial trading and dampens volatility, especially of financial sector variables. Volatility in the real sector is less affected by the transaction tax, partly due to the fact that real volatility is also driven by fundamental shocks that are not dampened by the tax on secondary market transactions. Introduction of the tax also brings some efficiency gain as the amount of resources devoted to non-fundamental financial transactions in the economy declines. However, the size of the efficiency gain in the STT is rather limited for the low tax rates envisaged.

In an economy with financing constraints for real investors, the STT does, on the other hand, also have negative side-effects for financing costs, productive capital and output in the long run. In the example of the tax on secondary spot market securities transactions that would generate around 0.16% of GDP in revenue, long-term GDP could decline by about 0.3%. This long-term impact

⁽⁵⁶⁾ There is a wide range of uncertainty around these parameter estimates. Acknowledging the lack of consensus on the productivity of government investment, Leeper, E., T. Walker and S.-Ch. Yang (2010), ‘Government investment and fiscal stimulus’, *Journal of Monetary Economics*, Vol. 57, No 8, pp. 1000-1012, take 0.05 as a benchmark value. The table also reports the effects with the elasticity estimate of 0.09 reported by De la Fuente, A. (2010), ‘Testing, not modelling, the impact of cohesion support: a theoretical framework and some preliminary results for the Spanish regions’, *CESifo Working Paper*, No 2918. This should be considered the upper bound.

makes the distortive effects of the tax similar to those of corporate income taxation, which are above those of personal income and value-added taxes.

Overall, these results suggest that the Commission proposal may succeed in making the financial sector contribute to the costs of the recent crisis as well as to create disincentives for socially unproductive transactions. Also, these results are likely to be achieved more effectively if the introduction of the financial transaction tax is co-ordinated among EU Member States. At the same time, the results indicate that achieving these objectives comes at the cost of a negative impact on economic activity. Recent IMF studies reach similar conclusions while also mentioning that alternative taxes, such as a financial activity tax or a bank levy e.g., might be more effective tools to achieve the stated goals. ⁽⁵⁷⁾

When using the results of the model to inform the policy debate, the limitations of the model structure should be kept in mind. The tax that is considered in the model does not apply to trade in

derivatives, which accounts for a large share of overall financial trade in securities and, hence, even if taxed at a very low rate, could generate a higher amount of tax revenues. Moreover, the model looks at a closed economy with a simple financial structure, which excludes a discussion of relocation effects (when entities are moved abroad to avoid the application of the tax) and substitution effects (when entities change their portfolio structure to minimise the burden of the tax). In practice, broad application of the tax with respect to the geographical scope and the segments of the financial market covered would help to minimise such relocation and substitution effects. Finally, the effects of an STT on public finances critically hinge on the technical design of the tax, e.g. the application of the source or the residence principle for taxation. Some of these issues could in principle be addressed in a more complex multi-country general-equilibrium framework. The results that have been presented in this section are from a tractable model that avoids such complexity in favour of a better understanding of main transmission channels.

⁽⁵⁷⁾ IMF (2010), 'A fair and substantial contribution by the financial sector: final report for the G-20', IMF, Washington, D.C.; Matheson, T. (2011), 'Taxing financial transactions: issues and evidence', *IMF Working Paper*, No 11/54.

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Household savings and mortgage decisions: the role of the "down-payment channel" in the euro area
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Labour market developments in Europe, 2012 – September 2012

http://ec.europa.eu/economy_finance/publications/european_economy/2012/pdf/ee-2012-5_en.pdf

The 2012 Report on Public Finances in EMU – July 2012

http://ec.europa.eu/economy_finance/publications/european_economy/2012/pdf/ee-2012-4.pdf

Convergence report 2012 – May 2012

http://ec.europa.eu/economy_finance/publications/european_economy/2012/pdf/ee-2012-3_en.pdf

The 2012 Ageing Report: Economic and budgetary projections for the 27 EU Member States (2010-2060)

http://ec.europa.eu/economy_finance/publications/european_economy/2012/pdf/ee-2012-2_en.pdf

European economic forecast – spring 2012

http://ec.europa.eu/economy_finance/publications/european_economy/2012/pdf/ee-2012-1_en.pdf

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http://ec.europa.eu/economy_finance/publications/european_economy/2012/pdf/2012-05-11-stat-annex_en.pdf

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Public finances in EMU – 2011

http://ec.europa.eu/economy_finance/publications/european_economy/2011/pdf/ee-2011-3_en.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/publications/cycle_indicators/2011/pdf/4_en.pdf

Key indicators for the euro area (presents the most relevant economic statistics concerning the euro area)

http://ec.europa.eu/economy_finance/db_indicators/key_indicators/documents/key_indicators_en.pdf

Monthly and quarterly notes on the euro-denominated bond markets (looks at the volumes of debt issued, the maturity structures, and the conditions in the market)

http://ec.europa.eu/economy_finance/publications/bond_market/index_en.htm

Price and Cost Competitiveness

http://ec.europa.eu/economy_finance/db_indicators/competitiveness/index_en.htm

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