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Quarterly Report on the Euro Area

VOLUME 14 N° 1 (2015)

Highlights in this issue

- Recent developments in cross-border capital flows in the euro area
- Labour mobility as an adjustment mechanism
- Housing taxation: from micro design to macro impact
- Investment dynamics in the euro area since the crisis

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Marco Buti
Director-General

According to the European Commission's latest winter forecast published in February, the economies of *all* euro area Member States are expected to grow again for the first time since 2007. The aggregate real GDP growth rate of the euro area was revised upwards compared with the autumn forecast to 1.3 % in 2015 and 1.9 % in 2016.

The upward revision to the growth outlook is based on several factors. The substantial decline in oil prices is having a positive impact on real disposable income. The euro depreciation should support exporters' competitiveness. The gradual strengthening of foreign demand and the expanded asset purchase programme by the European Central Bank (ECB) are further drivers of the more positive prospects. Furthermore, following the large retrenchment of the last years, fiscal policy has turned neutral for the euro area as a whole. Finally, structural reforms especially in vulnerable countries seem to start to pay off.

Despite the positive news, growth prospects across the euro area remain fragile. In the short term, the economy still has to turn the tailwinds into a self-sustaining recovery. Furthermore, medium-term growth prospects are hindered by well-known challenges, *inter alia*, by an ageing population and structural rigidities.

As a consequence, it is crucial to use this window of opportunity to act. Policy action is needed to tackle short-, medium and long-term challenges.

In the short-term, investment needs to be increased and confidence further restored. A European Fund for Strategic Investments (EFSI) is being set up, which provides the additional financing for projects of strategic importance of the European Investment Plan (EIP). At the same time, progress is being made to improve the investment environment by

removing regulatory bottlenecks at the EU and national level. While the current neutral fiscal stance for the euro area strikes an appropriate balance between stabilisation and sustainability considerations, its distribution (between countries) and composition (between expenditure and revenue) need to be further improved.

In the medium-term, the euro area needs to reach a higher potential growth path. Member States should therefore stick to their promises and implement structural reforms, in particular to address the declining working-age population, the high structural unemployment and the reduced trends in total factor productivity. To encourage the effective implementation of structural reforms, the Commission decided to take into account major reforms with a verifiable long-term positive budgetary effect under the existing rules of the Stability and Growth Pact (SGP).

In the long-term, the euro area needs a better economic governance. The global economic and financial crisis endangered the integrity of the euro area as a whole. The EMU framework thus still needs to be made fully compatible with the requirements of sharing a common currency. For this reason, the President of the European Commission, in close cooperation with the Presidents of the Euro Summit, the Eurogroup and the ECB, is expected to prepare proposal for a better economic governance in the euro area by June 2015, based on the analytical contribution presented at the informal euro area summit in February.

In brief, the current economic situation offers a welcome opportunity to use the tailwinds to leave behind the low growth, low investment and low inflation path on which the euro area economy has been trapped in recent years. Let us use not waste this opportunity.

I. Recent developments in cross-border capital flows in the euro area⁽¹⁾

Between 2008 and 2012, a substantial proportion of cross border financial flows in the euro area was taken over by official financing provided by central banks, as shown by the emergence of the so-called TARGET2 balances, or by governments in the context of financial assistance programmes. They were an important avenue through which debtor countries with balance of payments in distress managed the 'sudden stop' in private capital inflows that they were experiencing at the time. This section uses balance of payment data to look in depth at developments in financial flows since the European Central Bank (ECB) announced its Outright Monetary Transactions (OMT) programme in the summer of 2012. The data show that, since then, net private financial flows have resumed while official flows have in general come down. Private capital outflows have once again been the main counterpart to the current account surplus in Germany. After having experienced massive private capital flights during the peak of the crisis, debtor countries have seen either a return of net private inflows (Spain) or at least, a marked slowdown in net private outflows (Greece, Portugal). To a lesser extent, private capital net inflows have also returned to Italy. Overall, the partial replacement of official funding by private capital can be interpreted as a sign of regained confidence in the euro area. When looking at gross inflows and outflows, however, the picture is less benign and there are still signs of financial fragmentation despite the overall narrowing of the sovereign bond spreads. The strong dynamics of cross-border financial asset acquisition observed in pre-crisis years has not returned yet and both debtor and creditor countries seem to remain in "deleveraging" mode. In Germany, private net outflows appear to mainly reflect a marked decrease in debt inflows rather than an actual accumulation of foreign assets. In Spain, Italy, Portugal and Greece, the strong decline in foreigners' purchases of their debt, which was a main feature of the crisis period, has mostly come to an end but the trend has not reversed. ⁽¹⁾

Introduction

Over the past few years, the current accounts of a number of countries including Greece, Spain and Portugal have reversed from very high deficits to balanced or even small surplus positions. By contrast, high surpluses in creditor countries such as Germany and the Netherlands have persisted and are forecast to remain high. As a result, the euro area as a whole is now posting a current account surplus. In a past issue of the *Quarterly Report on the Euro Area*, the nature of this rebalancing has been analysed through the lens of current account. ⁽²⁾ The aim of this section is to look more in depth at how this recent rebalancing has been reflected in the financial accounts of selected euro area economies.

The starting point is to update previous analyses which assessed how the rebalancing had taken place in the financial accounts up to 2012, taking into account the role played by TARGET2 balances. ⁽³⁾ It has been shown that the external adjustment during 2011 and 2012 coincided with lower net inflows of debt for the countries in distress. In addition, significant changes in the debt flows composition in both creditor and debtor countries took place due to an increased resort to official flows, in the form of either TARGET2 obligations boosted by refinancing operations carried out by the Eurosystem, or money directly coming from official financial assistance (EFSF, ESM, bilateral loans). These official flows, most of which peaked in 2012, compensated for the drying up of private in-(out) flows. By contrast, net equity flows did not experience significant changes.

The objective of this section is to revisit this work, focusing on developments that have taken place since the summer of 2012 when the ECB announced the introduction of a new conditional asset purchase programme for undertaking outright monetary transactions in secondary market for

⁽²⁾ Demertzis, M. and A. Hobza (2014), 'External rebalancing in the euro area: progress made and what remains to be', *Quarterly Report on the Euro Area*, Vol. 13 No 4.

⁽³⁾ Merler, S. and J. Pisani-Ferry (2012), 'Sudden stops in the euro area', *Bruegel Policy Contribution*, Issue 2012/06 and Jevcak, A. and R. Kuenzel (2013), 'Recent capital flow developments in the euro area', *Quarterly Report on the Euro Area*, Vol. 12 No 2.

⁽¹⁾ Section prepared by Alexis Loublrier.

sovereign bonds (OMT).⁽⁴⁾ This period is marked by the overall narrowing of the sovereign bond spreads and is widely seen as corresponding to a change in investors' appraisal of risks in the euro area. It is therefore important to see how this change has affected private capital flows in the euro area and if it has led to reduction in financial fragmentation. The analysis covers the period until Q1-2014.

The value added of the section is threefold. *First*, it examines not only net flows but also the gross components of the financial account (gross inflows and outflows). The distinction between net and gross flows is essential, as changes in net flows may be related to different underlying investor behaviours and the signals sent by financial markets (selloff of a certain type of assets, increased purchases of others), are not captured by net flows. For example, surpluses may result either from a reduction in liabilities towards the rest of the world, or from actual purchases of assets abroad. These two distinct features do not have the same implications in terms of rebalancing and risk exposure. A progressive reduction in liabilities may reflect the reduction of a country's dependence vis-à-vis foreign investors and this retrenchment may be a sign of persistent fragmentation forces which reduce the scope for cross-border risk sharing. A continuous accumulation of foreign assets may imply growing exposure to exchange rate risk and reduced room for national authorities to reduce risk (e.g., via prudential or regulatory measures), as the share of assets in domestic portfolios originating in foreign countries becomes larger. *Second*, this section provides a clear breakdown of the financial flows by instrument: a distinction is systematically made between TARGET2 balances and programme disbursements on the one hand, and private transactions involving debt instruments and equity flows, on the other. *Third*, a tentative interpretation of the factors underlying recent developments is provided, in particular as regards the evolution of TARGET2 balances.

The analysis is developed in three successive steps. *First*, a distinction between private and official flows is made. *Second*, net flows are looked at across instruments, in particular focusing on the trends in

debt and equity. *Third*, changes on the asset and liability sides are analysed.

Attention is paid to financial flows involving creditor countries with persistently high surpluses (Germany), debtor countries (Spain, Greece, Portugal and Italy) and intermediary countries (France). The choice of these countries is partly a reflection of data availability.

Methodology: assumptions and limitations

Following the approach used by Merler and Pisani-Ferry (2012) to illustrate the 'sudden stop' of private funds into distressed countries, this section investigates how much of the total flows for the selected countries are accounted for by the private sector and how much are in the form of official flows. Using the balance of payments classification, the distinction is obtained, by approximation, by subtracting the *other investment* balance of general government (essentially programme assistance) and central bank (essentially TARGET2 flows) from the total net inflows. Stock values are computed by cumulating flows of the financial accounts starting from 2002.⁽⁵⁾ Consequently, the slope of the curves shown in the various graphs provides information on the flows. A downward-sloping line indicates net outflows (e.g. in Germany) while an upward-sloping line indicates net inflows.

For consistency purposes, funds provided by the European Investment Bank (EIB) ought to be removed in the computation of private flows. However, due to data issues, this could not be done. Conversely, structural funds provided by the EU are not removed because they constitute official aid, not official financing. In the balance of payments decomposition, structural funds are classified either in the current account balance as income from the rest of the world, or in the capital account as transfers. Thus, they lower borrowing needs.

On the rise and fall of TARGET2 balances

It is essential to bear in mind that the TARGET2 system is firstly an interbank payment system and that it processes the majority of cross-border transactions between euro area countries. A

⁽⁴⁾ More precisely, the section focuses on the period following the so-called 'whatever it takes' speech: Speech by Mario Draghi, President of the European Central Bank, at the Global Investment Conference in London, 26 July 2012.

⁽⁵⁾ This section specifically focuses on the flows rather than the changes in the NIIP, taking away valuation effects and any other changes in the NIIP that do not come from flows.

transaction can be a real economy transaction, corresponding, for example, to an export/import of goods, which is recorded in the current account (CA). It can also be a purely financial transaction, like an interbank cross country loan, which is recorded in the financial account (FA). Whenever a transaction occurs, an opposite flow is recorded as a TARGET2 flow (T2), so that at any time the accounts of the balance of payments add up to zero, with the resulting TARGET2 net flow being recorded as a central bank inflow or outflow vis-à-vis the rest of the Eurosystem.⁽⁶⁾ If financial surpluses in some Member States were entirely used to finance external deficits in others through private capital flows intermediated in the interbank market, TARGET2 balances would be zero everywhere. This was roughly the pre-crisis mechanism.⁽⁷⁾ It then follows that non-zero TARGET2 balances may emerge for different reasons:

- The interbank market freezes, which means that banks need to refinance their liabilities to foreign banks with liabilities to the central bank. Given the financing needs and the liquidity provided by the Eurosystem, banks in distressed economies borrow directly from their national central banks instead of from foreign banks. As this constitutes a transaction between residents, it is not recorded as a balance of payments transaction. Therefore the change in the current account due to the real economy transaction is not offset by a change in the financial account and TARGET2 is the adjustment variable. This mechanism explains part of the increase in TARGET2 balances that was observed between 2008 and 2012.
- Purely financial operations, such as foreign investors buying German debt, but also sovereign debt repayment or deposit outflows, may have no connection to the current account balance. In that case, provided that foreign investors have the liquidity to invest in Germany, the increase in the German liabilities mechanically leads to an increase in the TARGET2 claims of the same amount, *ceteris paribus*, i.e. if these inflows have no counterpart in the current account. This could partly explain

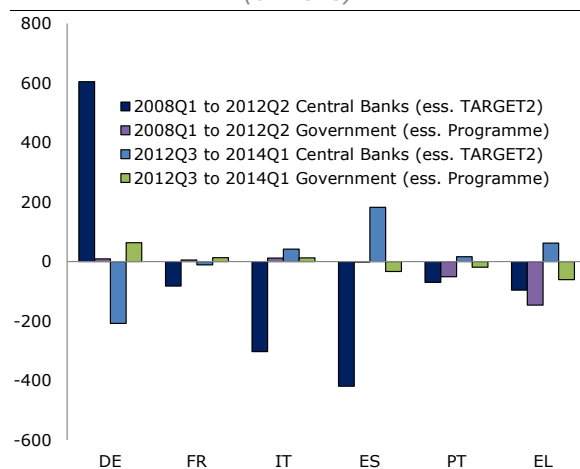
the rise in German TARGET2 claims in the first half of 2012 which was marked by capital flight from periphery to core countries.

- An analogy can be made with the role of the central bank reserves in a fixed exchange rate regime. If private capital flows have no counterpart in the current account i.e., if, in aggregate terms, private inflows are not used to finance imports, then the central bank has to adjust its reserves in order to maintain the exchange rate. A similar mechanism is at play for euro area transactions, with TARGET2 balances being the equivalent of foreign currency reserves. However, unlike reserves, and although TARGET2 flows are recorded as central bank transactions with the rest of the Eurosystem, they do not involve concrete transactions between the national central bank and a foreign central bank since the liquidity is provided at the national level.

Separating private and official flows

As is known, until 2008, net flows were almost entirely private in all countries. In particular, TARGET2 balances were roughly zero, as TARGET2 flows corresponding to current account transactions were offset by TARGET2 flows corresponding to private foreign financing (see previous section). From 2008 onwards, however, private net flows started to depart from total flows in all countries as official flows gradually replaced private ones (see Graph I.1). This

Graph I.1: **Cumulated official flows**
(bn EURs)

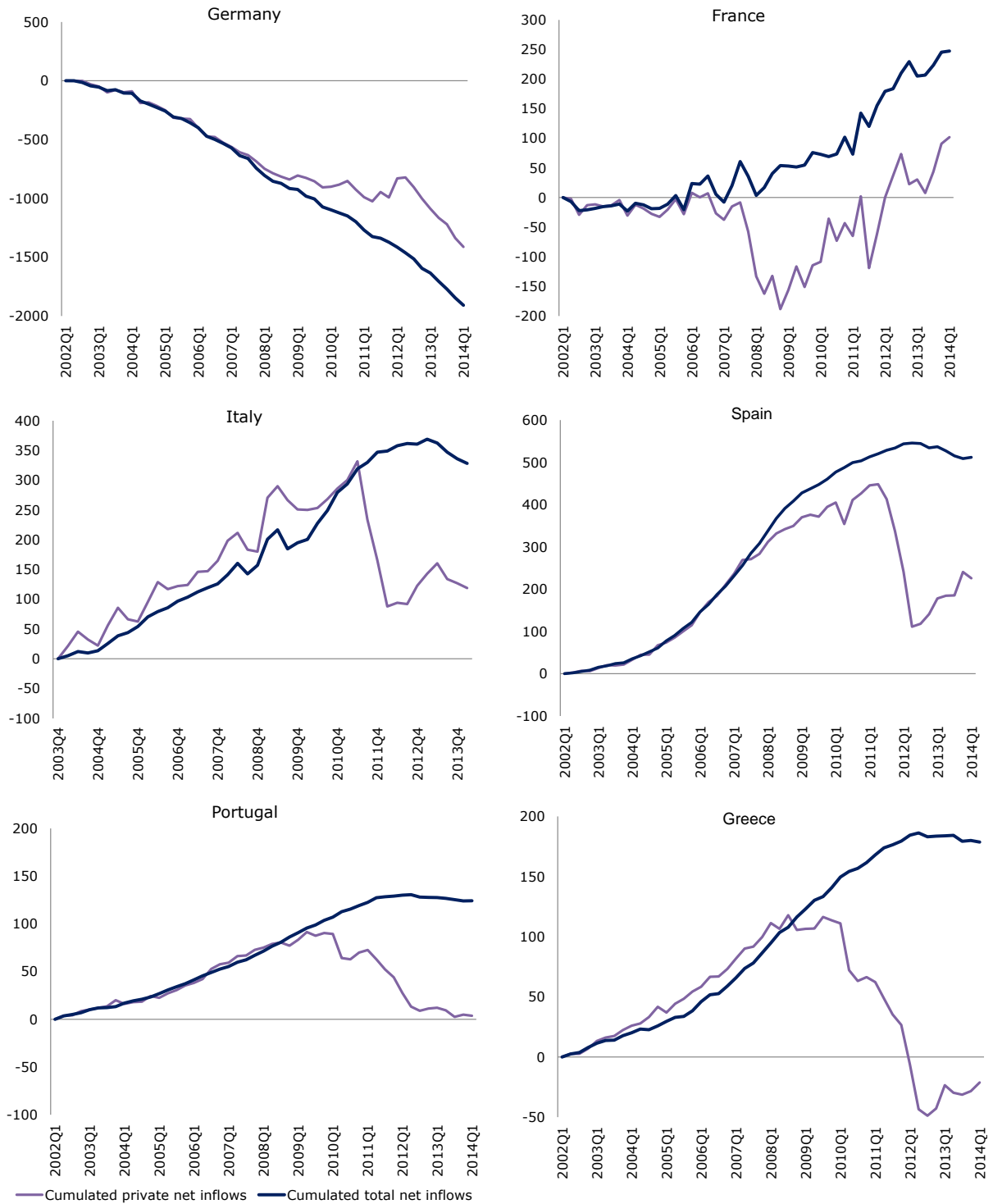


Source: Eurostat, BPM5: net other investment balance of central banks and general government.

⁽⁶⁾ Taking capital account and error and omissions out of the picture for the sake of simplicity, the following identity holds at all times: CA+FA+T2=0.

⁽⁷⁾ See Cecchetti, S., R. McCauley and P. McGuire (2012), 'Interpreting TARGET2 balances', *BIS Working Papers*, No 393.

Graph I.2: **Cumulated total and private net flows (1)**
(2012Q1-2014Q1, bn EURs)



(1) An upward-sloping line represents net inflows.

Source: Eurostat (BPM5), DG ECFIN calculations. Private net inflows are computed by subtracting the other investment balance of general government (essentially programme assistance) and central bank (essentially TARGET2 flows) from the total net inflows.

reflected a serious deterioration in confidence and an increased risk aversion in the private sector, especially among banks, which required the Eurosystem to step in and provide liquidity. In most cases, official flows rose in cumulated terms until the first half of 2012.

Since 2012, creditor countries have remained net exporters of financing/funding while debtor countries have started to post positive or near-balanced net outflows. This can be seen in Graph I.2.⁽⁸⁾ The dark blue line, which represents cumulated total inflows, has been decreasing for Germany, while in the case of Italy, Spain, Portugal, and Greece, it has been increasing then stabilising or even slightly decreasing. For France, total net inflows have been on an overall positive trend.

Since the summer of 2012, in Germany, private outflows, as defined in the section on methodology, have resumed in net terms, driving the dynamics of the financial account. This can be seen in Graph I.2, which shows that the gap between private and total net outflows has broadly stabilised, indicating that total net outflows are once again mainly explained by private flows.

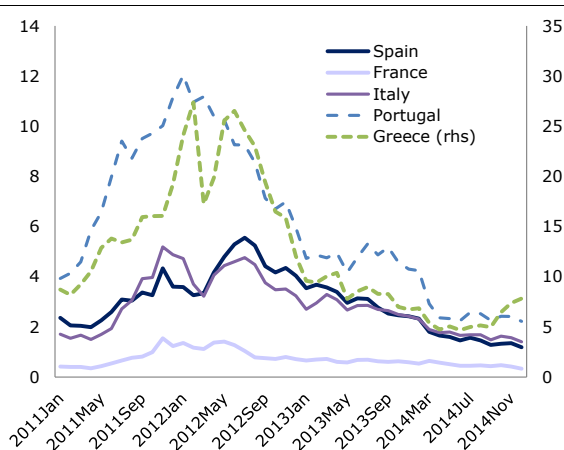
In debtor countries, private inflows, in net terms, have been either roughly negligible (Portugal, Greece) or have resumed (Spain). For the latter country, this shows that the recent adjustment of the financial accounts has taken place through a reduction in the reliance on official flows.

In the case of Italy, private flows started to flock again into Italy right after the announcement of the ECB's OMT programme in the summer of 2012. They then turned into net outflows in 2013 when, by coincidence, Italy's overall financial account turned into a net financial surplus.

In the case of France, the decoupling between total net inflows and private net inflows seems to have started earlier than in the other countries analysed here. Since 2008, private net inflows and total net inflows have been on an overall positive trend but private flows have been quite volatile, marked by an alternation of net outflows (second half of 2011,

end-2012 and first half of 2013) and net inflows (first three quarters of 2012 and since the second half of 2013).

Graph I.3: **Sovereign bond spreads vis-à-vis the German bund**
(2011-2014, %)



Source: Eurostat (in %)

The overall conclusion one can draw from this first step is that, since end-2012, private net flows have been once again explaining most of the dynamics in the financial accounts of Germany, France, Italy, Greece and Portugal. By contrast, Spain has been registering net private inflows on average while overall positive net outflows have been observed, signalling that the reduction in official flows has played a predominant role.

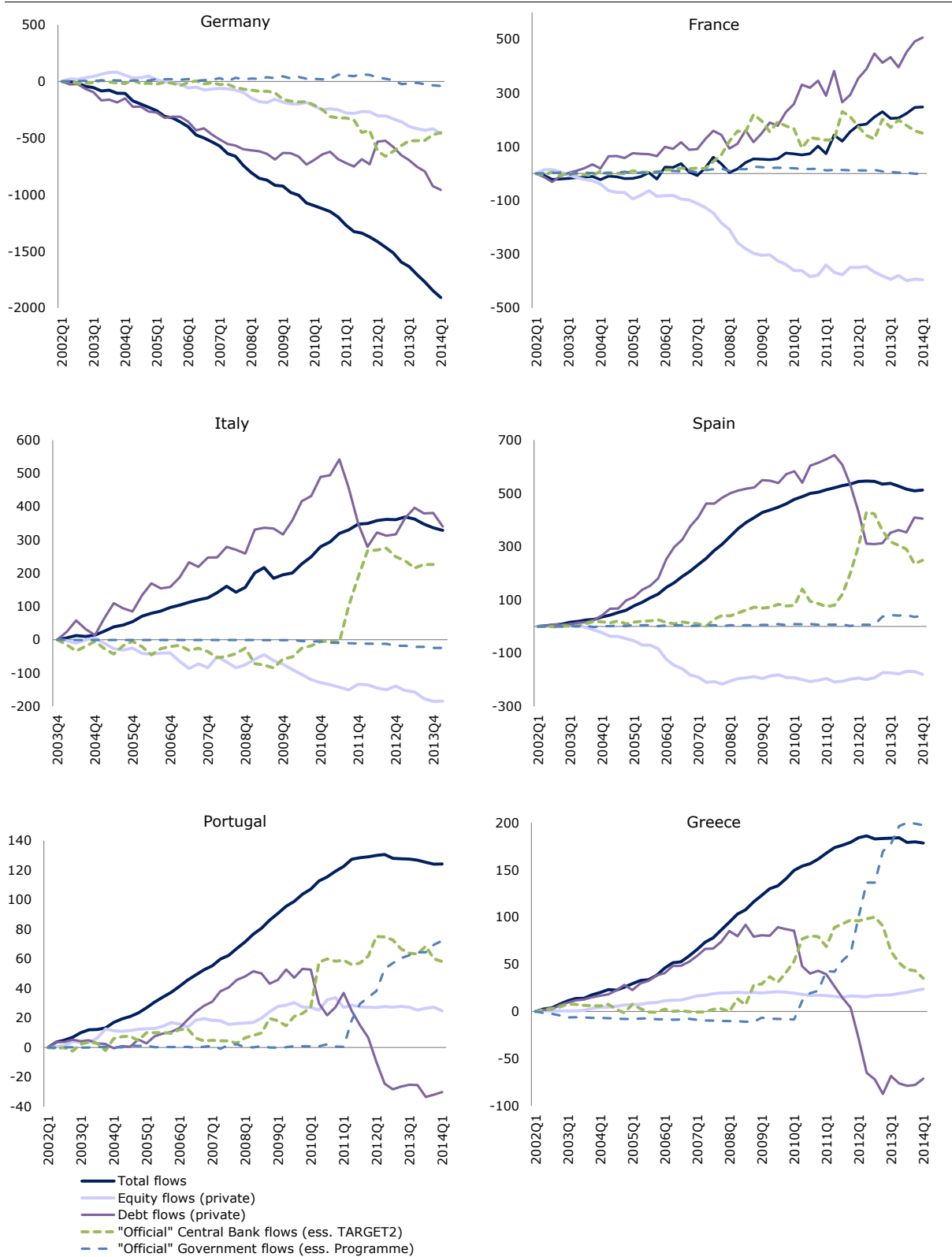
Decomposing the evolution of net financial flows by instruments

Net flows can be broken down further, focusing on whether they are of debt or equity type, as illustrated in Graph I.4. Using the same convention as in Graph I.2, Graph I.4 shows cumulated net inflows by distinguishing between the different components of the financial account.

It appears that the resurgence of private net outflows from Germany since 2012 (around 450bn EURs) mainly reflects net debt outflows (430bn EURs). At the same time, TARGET2 claims have started to decline, but the reduction has been of a lower magnitude (roughly -200bn EURs). Net equity outflows have also been registered at roughly the same pace as in the pre-2012 period: the slope of the equity flows line has not changed significantly since 2008.

⁽⁸⁾ Unless otherwise mentioned, the data presented in this section are data following the BPM5 manual. The last observation compiled by Eurostat in this statistical standard is 2014Q1. More recent observations in BPM6 will be used when the full set of components of the financial account is complete.

Graph I.4: **Cumulated private net flows by instruments**
(2002Q1-2014Q1, bn EURs)



(1) An upward-sloping line represents net inflows.

Source: Eurostat (BPM5), DG ECFIN calculations. The category 'debt' contains portfolio debt, other investment (apart from central bank's and general government's) and financial derivatives. The category 'equity' contains FDI and portfolio equity. The category 'official central bank' contains other investment of central bank and official reserves. The category 'official government' contains other investment of general government.

In the case of Spain, Portugal and Greece, a common feature is the reduction in their TARGET2 liabilities, which occurred in parallel with the financial assistance they received.⁽⁹⁾ For Spain, the resurgence of private inflows discussed earlier mainly comes from positive net debt inflows (+90bn EURs and around +20bn EURs respectively) while net debt flows have been almost negligible for Portugal and Greece. In the case of Spain, the reduction in TARGET2 liabilities seems to be driven, to some extent, by the resurgence of net debt inflows whereas in the other debtor countries the fall in TARGET2 liabilities mostly mirrors the fall in the current account deficit. The dynamics in net equity flows in all of these countries, by contrast, have been relatively stable.

As mentioned in the previous section, since 2012, Italy has been through two distinct periods. Right after the ECB announced its OMT programme, when confidence was quickly restored (as shown by the rapid narrowing of the sovereign spread), TARGET2 liabilities started to decline and private debt inflows resumed. However, this trend stopped in the first half of 2013 when the country's position turned into a financial surplus. Since then, the decrease in TARGET2 liabilities has slowed and debt flows have turned into net outflows, which may reflect a persistent reluctance of private investors to invest in Italian debt despite the narrowing of the spread. In parallel, Italy has been registering positive net equity outflows.

In the case of France, the dynamics of private flows since mid-2012 can be better understood by starting in the second half of 2011. Graph I.4 shows that the dynamics of private flows described in the previous section is mainly driven by capital flows involving debt assets. Tensions in the French banking sector started to rise in the second half of 2011 with the sovereign spread increasing by 1.2 pp between April and November 2011. This translated into an increase in TARGET2 liabilities with a concomitant reduction in the net debt inflows. The tensions in France then cooled off to some extent and the widening of the spread came to a halt. The first three quarters of 2012 were marked by positive net debt inflows and a decrease in TARGET2 liabilities. Following the announcement of the OMT programme, the spread narrowed quickly and debt flows turned

into net outflows until the first half of 2013. Since then, net debt inflows have been on a positive trend again, with a concomitant decrease in TARGET2 liabilities. By contrast, net equity flows have shown little volatility and have been almost negligible since mid-2012.

The overall conclusion from this second step is that the recent developments in private flows described in the previous section mainly reflect debt instruments rather equity and, in most cases, they have coincided with smaller reductions in TARGET2 claims or liabilities.

Distinguishing between gross outflows and gross inflows

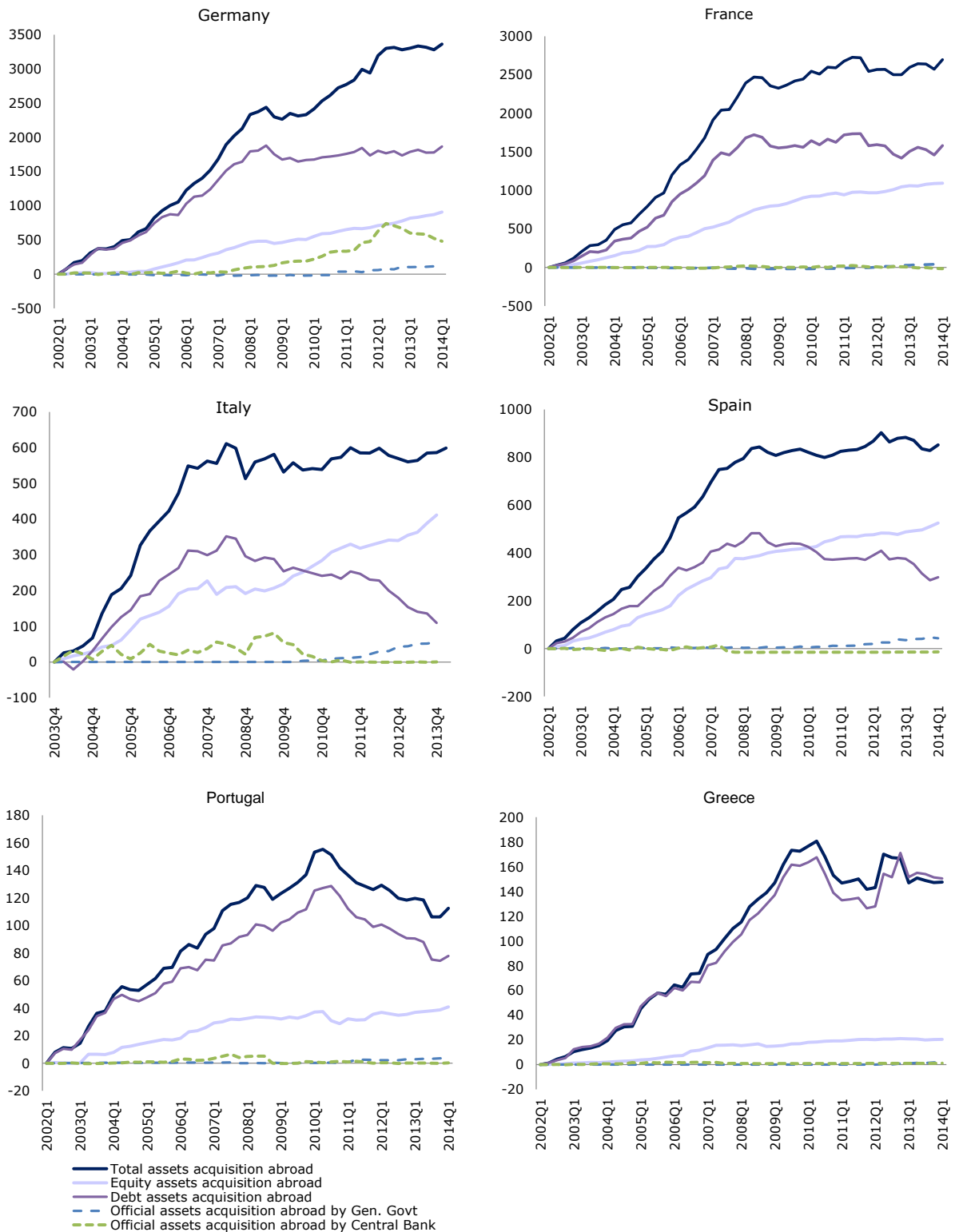
The analysis conducted in the previous sections describes developments of cross border financial flows in net terms i.e resulting from the combination of two distinct types of financial transactions: the acquisition or selloff of foreign assets by domestic investors minus the acquisition or selloff of domestic assets by foreign investors. This section examines the underlying gross inflows and outflows of the data commented on earlier. In particular, this allows to shed more light on the origins of TARGET2 flows.

Looking at Graph I.5 which shows cumulated assets acquisition abroad, it appears that since 2012, Germany has considerably reduced its pace of foreign asset accumulation (roughly 60bn EURs compared to 1tn EURs between Q4-2008 and Q2-2012). Looking more in depth into the type of instruments being acquired, it appears that German purchases of debt instruments have amounted to 100bn EURs since 2012, far lower than the net figures (400bn EURs) and equity holdings have increased by 180bn EURs. The increase in debt assets mainly reflects acquisition by the non-financial sector, while cross-border loans by German banks have decreased.⁽¹⁰⁾ These moves have been more than compensated for by the decrease in the TARGET2 claims. Looking at the liabilities components in Graph I.6, an important feature is the strong reduction in the total liabilities of 350bn EURs. This reduction has primarily been driven by Germans buying back their own debts or not refinancing them (-310bn EURs, mainly explained by interbank loans). Combining the

⁽⁹⁾ As data presented here are up to 2014Q1, they do not cover the period following the programme exit for Portugal and Spain.

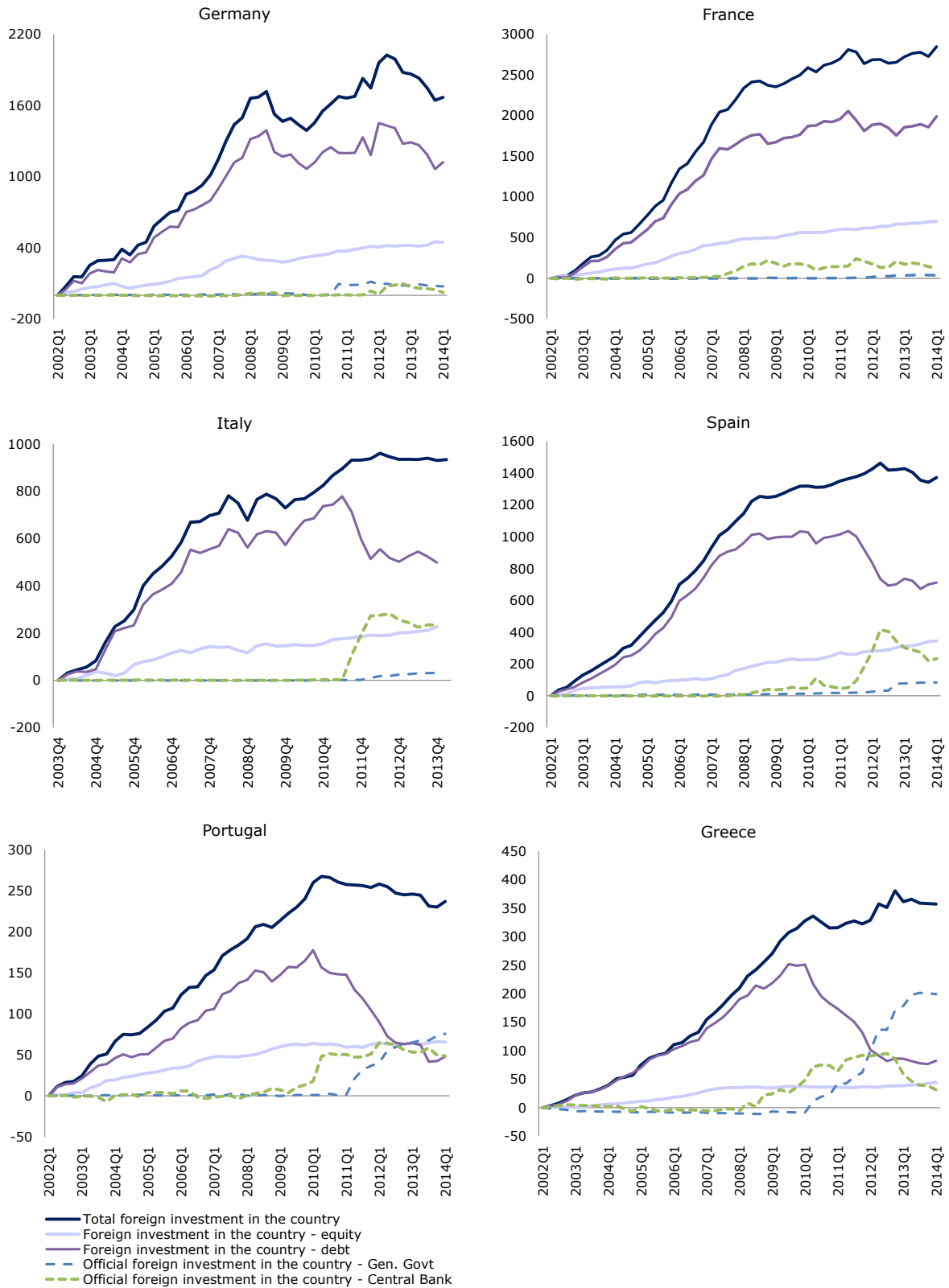
⁽¹⁰⁾ The analysis uses also the decomposition of the debt flows by sectors and by instruments provided by Eurostat.

Graph I.5: Cumulated assets acquisition by instruments, excluding financial derivatives
(2002Q1-2014Q1, bn EURs)



Source: Eurostat (BPM5), DG ECFIN calculations. The category 'debt' contains portfolio debt and other investment (apart from central bank's and general government's). The category 'equity' contains FDI and portfolio equity. The category 'official central bank' contains other investment of central bank. The category 'official government' contains other investment of general government.

Graph I.6: **Cumulated liabilities flows by instruments, excluding financial derivatives**
(2002Q1-2014Q1, bn EURs)



Source: Eurostat (BPM5), DG ECFIN calculations. The category 'debt' contains portfolio debt and other investment (apart from central bank's and general government's). The category 'equity' contains FDI and portfolio equity. The category 'official central bank' contains other investment of central bank. The category 'official government' contains other investment of general government.

developments in gross components, the picture that emerges for Germany is that, in aggregate terms, the recent positive net outflows are mostly due to a reduction in liabilities rather than an increase in foreign asset acquisitions. German banks' debt liabilities, which peaked in 2012 (a reflection of Germany being seen as a safe haven), have since then been on a decreasing path, which seems, to some extent, to mechanically explain the decrease in TARGET2 claims. The latter would thus not reflect a normalisation of the interbank market, with German banks willing to lend again, but would rather reflect a mechanical reshuffling of the financial accounts coming from the reduction in debt liabilities, with probably no direct connection to the overall surplus position. In other words, the reduction in debt liabilities does not seem to be matched by another flow in the current account or the financial account, and TARGET2 flows seem to be the adjustment variable.

For Spain, Italy, Portugal and Greece, a common feature emerges in relation to the dynamics of debt flows. Since 2012, each of these countries has been selling foreign debt assets, while on the liability side, debt inflows have stabilised or have been barely decreasing. A mechanical consequence is the decrease in their TARGET2 liabilities. It then appears that the recent decline in TARGET2 liabilities does not have the same origin as in the pre-2012 period when the surge in TARGET2 liabilities was mainly associated with a drop in debt liabilities. Overall, following the ECB's OMT announcement, the strong reduction in private debt inflows has come to a halt but the trend has not reversed.

In France, during the tensions in the second half of 2011, the reduction in net debt inflows came from a reduction in the gross inflows (mainly interbank loans) but also from a selloff of foreign portfolio debt. Until the third quarter of 2012, the net debt inflows mainly reflected a selloff of loans by banks while gross debt inflows were almost negligible. Since end-2012, the liability side of the French financial account has been characterised by a significant increase in debt instruments (+235bn EURs). However, this increase does not reflect an expansion of the bank liabilities as it mainly stems from debt issued by French companies, probably seeking an alternative to bank lending. In parallel, on average since end-2012, France has increased its foreign debt holdings by about 160bn EURs.

Financial flows involving equity have in general not shown significant changes, except in Italy which has seen a significant increase in equity outflows since mid-2013 is worth noting. Also, in Germany, the only type of assets that has been actually purchased in recent years is equity.

A step further: geographical breakdown of German assets acquisitions

In this final section, data provided by the Deutsche Bundesbank are used in order to get a sense of the geographical destination of German investments. The section focuses on the asset side of the German financial accounts since, in general, statistics related to bilateral financial flows provided by national institutions tend to be more reliable for asset holdings than for liabilities. One reason explaining the difficulty to obtain directly reliable statistics for the liabilities side can be linked to the presence of major clearing houses in Belgium and Luxembourg which makes it less straightforward to track the ultimate holder of liabilities. ⁽¹⁾

Graph I.7 presents the cumulated assets acquired by Germany, distinguishing between the euro area and the rest of the world. The lower part of the graph focuses on several countries of the euro area and TARGET2 claims. It appears that, since 2012, the slowdown in the German assets acquisitions presented in the previous section has mainly concerned the euro area.

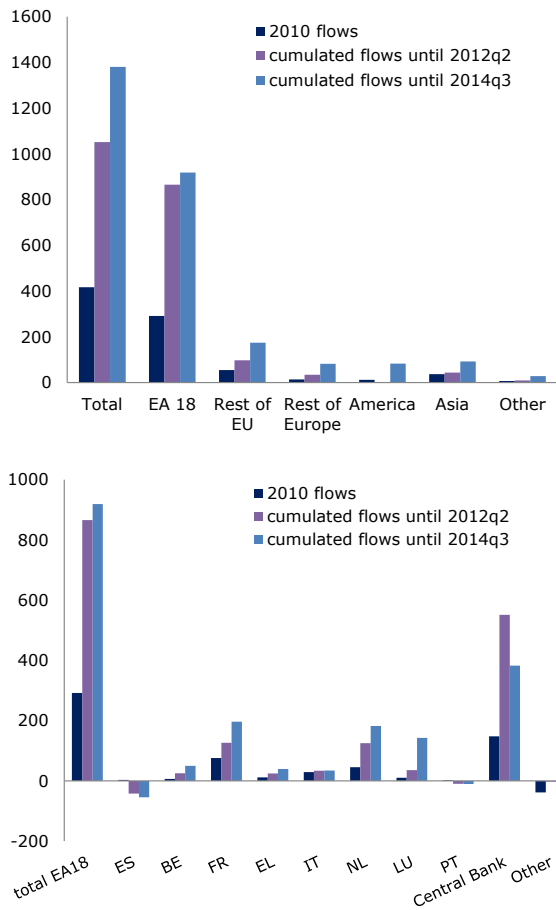
Looking more in-depth, it appears that the slower accumulation has been mainly driven by the decline in TARGET2 claims and that it also concerns vulnerable countries such as Spain, Portugal, or Italy. Conversely, Germany has actually kept on investing in core countries such as France, the Netherlands, Luxembourg and Belgium.

In terms of rebalancing, this analysis is a first step of an attempt to complement the diagnosis that is made when looking at bilateral trade linkages, where Germany appears to have reduced its current account surplus vis-à-vis the euro area and increased its current account surplus vis-à-vis the rest of the world. Although the analysis remains somewhat partial here and needs further

⁽¹⁾ For an in-depth discussion of bilateral financial flows, see Hobza, A. and S. Zeugner (2014), 'Current Accounts and Financial Flows in the Euro Area', *Journal of International Money and Finance* Vol. 48, Part B, pp. 291-313.

investigation, since only the asset side is considered with no breakdown by instruments, a qualitatively similar pattern seems to emerge from a financial account perspective.

Graph I.7: Geographical breakdown of foreign assets acquisitions by Germany
(bn EURs)



Source: Bundesbank

Conclusion and way forward

The main conclusions that emerge from the three-step analysis presented in this section are the following:

Since the summer of 2012, private capital flows have resumed in net terms, partly replacing official funding which has in general come down, mainly as the result of the overall reduction in TARGET2 balances. This can be interpreted as a sign of regained confidence in the euro area, as also suggested by the progressive narrowing of the sovereign bond spreads.

The re-emergence of private flows concerns both creditor and debtor countries but the situation in

the latter group varies depending on the countries: Spain, and to a lesser extent Italy, have been once again experiencing net private inflows, while in the case of Portugal and Greece, the data suggest that net private outflows which had peaked in 2012, have only roughly stabilised.

When looking at gross outflows and inflows, however, the picture is less benign. The strong dynamics of cross-border asset acquisition of pre-crisis years has clearly not returned. Both debtor and creditor countries seem to remain in a "deleveraging" mode: debtor countries have been selling their foreign assets (mainly debt instruments) rather than accumulating new liabilities while creditor countries have been reducing their liabilities rather than acquiring new foreign assets.

All in all, the analysis suggests that, although the private sector has largely regained importance as a driver of net financial flows in a context of accommodative monetary policy and narrowed sovereign bond spreads, there are still signs of fragmentation in the euro area and the interbank market has yet to fully return to normal:

- Compared with the pre-2012 period, Germany has considerably reduced the pace at which it accumulates foreign assets, particularly those from Spain, Portugal and Italy. At the same time, it has been reducing its liabilities towards the rest of the world. The reduction in Germany's TARGET2 claims seems to some extent the mechanical result of foreign investors reducing their exposure to Germany, reversing the flight-to-safety flows seen before mid-2012.
- In Spain, Italy, Greece and Portugal, the ECB's OMT announcement and the reappraisal of risks that followed, have led to the stabilisation of the debt inflows in these countries, although the trend has not been reversed. At the same time, these countries have been selling some of their foreign debt assets. The combination of these moves, along with other financial flows like official assistance or equity flows, is reflected in the decline in their TARGET2 liabilities.
- Since end-2012, unlike other countries analysed here, France has actually been purchasing foreign debt while French debt has also attracted debt inflows.

The analysis in this section only covers the period between mid-2012 until the first quarter of 2014. Although the data since then is still incomplete, it seems likely that some of the trends described here may have come to an end over the summer of 2014. According to more recent data, the overall reduction in TARGET2 balances seems to have come to halt or even started to reverse since summer 2014, particularly for Germany, Italy and Greece.⁽¹²⁾ This re-widening of TARGET2 balances could be a reflection of renewed tensions in financial markets stemming from a re-appraisal of sovereign risk and the reorientation of portfolios towards safer assets. However, a complete set of balance of payments data covering the most recent period would be needed to better understand these more recent TARGET2 movements.

Finally, the analysis presented in this section is a first attempt to design a framework in which financial accounts could be examined in a systematic manner. It calls for regular updates and further investigation, with a view to providing a proper assessment of external imbalances and their implications for the euro area's rebalancing from a financial flows perspective. In particular, the framework presented here could be enriched to address questions to be explored in a future work: what can explain the move by German investors away from the euro area and the only limited return of inflows into debtor countries? Is this a sign of persistent financial fragmentation forces? What can explain the persistence of fragmentation despite very low interest rates? How solid is the return of confidence and how vulnerable are capital flows to sentiment reversals?

⁽¹²⁾ See monthly statistics of national central banks' balance-sheets.

II. Labour mobility as an adjustment mechanism⁽¹³⁾

The movement of workers from one EU country to another has become an increasingly important adjustment mechanism for the European economy, particularly since the introduction of the euro. This section assesses the economic adjustment role played by labour mobility (i.e. intra-EU labour migration). It first looks at stylised facts on mobility in the EU before going on to analyse the reasons why workers move between countries. The analysis shows that labour mobility increases significantly when a country joins the EU. While euro area membership seems not to be associated with an overall rise in the magnitude of mobility flows, workers do appear more ready to move from countries where unemployment is high, to those where it is lower. The final part of the section shows that workers have become more likely to move to another EU country in response to economic shocks affecting only some countries. Movements in response to shocks have increased significantly since the introduction of the euro. The analysis demonstrates that real wages also became more responsive to asymmetric shocks during the same period.

Introduction

This section assesses the role of labour mobility in macroeconomic adjustment in the euro area and in the EU.⁽¹⁴⁾ The subject of labour mobility was examined in the early stages of the debate on economic and monetary union (EMU). At that time, it was stressed that because monetary union allowed less room for absorbing asymmetric shocks via macroeconomic policy tools, a sufficient degree of labour mobility was needed as an alternative adjustment channel. Empirical analysis showed that the degree of mobility in EU countries participating in EMU was not comparable with that in other monetary unions, particularly the US, and that mobility played a minor role in the adjustment process. Several years have passed since the start of

the financial crisis, and more and more attention is being given to how labour mobility could counteract the divergence in growth and unemployment among EU countries, particularly within the euro area.

This section will start by presenting a series of stylised facts and trends regarding mobility in EU countries. It will then present two analytical approaches to assessing the role of mobility in macroeconomic adjustment in the EU and the euro area. In the first approach, the determinants of mobility flows are analysed by means of ‘gravity equations’, which link gross mobility flows to the characteristics and economic situations of the origin and destination countries. The second approach consists of assessing the dynamic response of labour mobility to asymmetric labour demand shocks, i.e. shocks that affect some EU countries but not others.

Labour mobility in the euro area: stylised facts

Mobility across the EU has been increasing over the past two decades. This is demonstrated by the data on the proportion of the EU population born in a different EU country (Graph II.1). This increase is particularly evident when looking at data for the post-enlargement EU (available for recent years only). However, growing mobility is not only from east to west. Mobility among countries that were Member States before the 2004 enlargement also shows a moderately positive trend over the past two decades.

Despite this rising trend, mobility across EU Member States remains low compared with other world regions, most notably the US.⁽¹⁵⁾ In 2013, about 4 % of working-age EU citizens lived in an EU country other than that in which they were born. In the US, by comparison, nearly 30 % of the working-age population lives in a state other than their state of birth.

EU labour mobility appears somewhat higher cross-border workers are taken into account: about 1.1 million EU citizens work in another EU country but do not reside there. In addition, there are about 1.2 million posted workers, working for

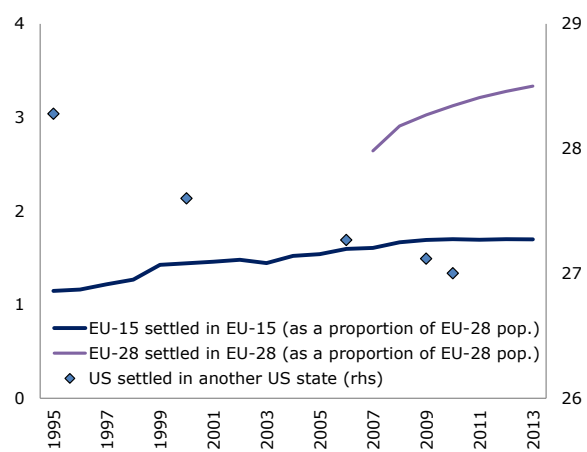
⁽¹³⁾ Section prepared by Alfonso Arpaia, Aron Kiss, Balazs Palvolgyi and Alessandro Turrini.

⁽¹⁴⁾ The results presented in this section are based on Arpaia A., A. Kiss, B. Palvolgyi and A. Turrini (2014), ‘Labour mobility and labour market adjustment in the EU’, *European Economy, Economic Papers*, No 539. See this paper for further references and details on the methodologies applied. For a previous discussion of the topic, see European Commission (2011), ‘Adjustment via migration’, *Quarterly Report on the Euro Area*, Vol. 10, No 3, Section II.2, pp. 32-33.

⁽¹⁵⁾ OECD (2012), OECD Economic Surveys: European Union 2012, OECD Publishing.

their home companies for a limited period of time in another Member State.

Graph II.1: Proportion of EU working-age population born in other EU countries, and proportion of US population born in a different US state (1)
(1999-2013, %)



(1) Data for the EU excludes Germany, since no breakdown over time was available for foreigners living in Germany by origin country.

Source: Eurostat population statistics and Eurostat special extraction from the Eurostat Labour Force Survey; US Census Bureau, Census and American Community Survey.

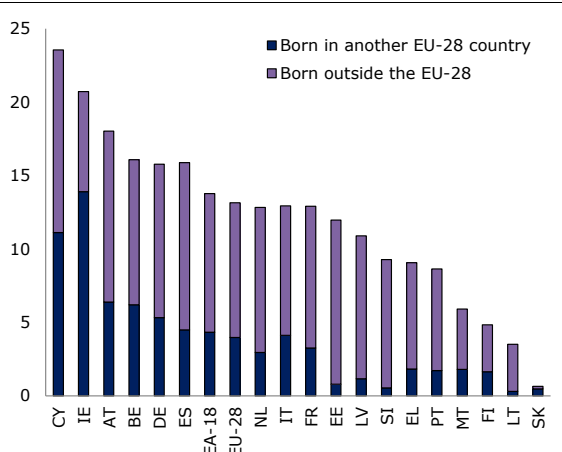
There are considerable differences in the size and composition of the foreign-born population across EU Member States (Graph II.2). The proportion of the foreign-born population is in general lower in the new Member States. Also, in most countries, the proportion of those born outside the EU is higher than the proportion of those born in other EU countries. Overall in the EU, the proportion of intra-EU migrants in the working-age population (4%) is less than half of the proportion of migrants born outside the EU (9.2 %).

Recent changes in the foreign-born proportion of the population also show substantial differences across countries (Graph II.3). It appears that in general the proportion of intra-EU mobility is higher in recent migration flows than before the crisis and the same is true for migration stocks (compare Graph II.3 with Graph II.2).

Inward migration flows are generally stronger in old Member States but some changes have taken place as a result of the crisis. The countries where the proportion of migrants grew most before the crisis included those on the euro area periphery, such as Ireland and Spain. In the wake of the crisis,

inflows into those countries fell sharply, while the size of the foreign-born population in the Baltic countries fell substantially.

Graph II.2: Proportion of working-age population born in other countries, euro area (1)
(2013, %)



(1) Luxembourg was omitted in order to make the graph clearer. In Luxembourg, 38 % of the population was born in another EU country and 9 % was born outside the EU.

Source: Eurostat for DE, EU-28 and EA-18; for other countries, the calculations are based on a Eurostat special extraction from the European Labour Force Survey.

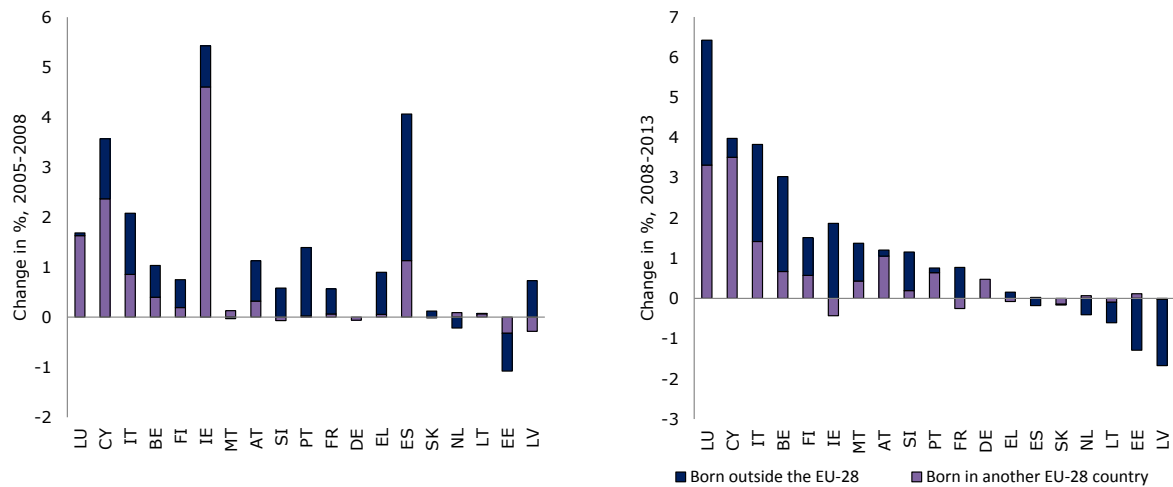
Recent overall changes in migration patterns suggest that mobility may be playing a role in the post-crisis adjustment of the euro area. The rest of this section presents two analytical approaches that look more systematically at the role of mobility as an adjustment channel in the EU and the euro area.

Explaining mobility flows

This section investigates determinants of bilateral migration flows between countries. Besides estimating the main drivers of migration flows globally, the section also seeks to answer the following questions: Do migration flows between countries increase when they are members of the EU or the euro area? How do cyclical economic conditions affect bilateral migration? Does economic and monetary union affect migration patterns in Europe?

Determinants of bilateral gross migration flows are estimated globally in what is known as the 'gravity model' of migration flows from 163 origin countries to 38 destination countries, including most EU Member States. The details of the

Graph II.3: **Change in the proportion of working-age population born abroad, before and during the crisis, euro area**



(1) For DE and IE, 2006 instead of 2005. For DE, the value is for all foreigners (no breakdown available). Countries are ordered according to the change that occurred in 2008-13.

Source: DG ECFIN calculations based on a Eurostat special extraction from LFS.

methodology, data and regression results are presented in Box II.1.

A number of conclusions can be drawn from the regression analysis in Box II.1 on global mobility flows. Migration flows are larger between more populous countries and towards higher-income countries (see column 1 in the table). The estimates suggest that if either the origin or destination country's population increases by 1 %, gross bilateral migration increases by about 0.5 %. In a similar vein, if per-capita GDP in the destination country increases by 10 % relative to the origin country, this increases the gross bilateral migration flow by about 0.6 %. Origin and destination country effects, which are included in columns 2 and 3 of the table, take up the explanatory power of population and relative GDP, probably because per-capita GDP and the population of countries change relatively slowly over time. Other traditional control variables (distance, common language, past colonial relationship, past migration) have very significant effects on bilateral migration, in the expected direction. These effects are robust to the inclusion of country effects.

The relative unemployment rate is estimated to affect migration significantly. If the unemployment rate of the destination country increases by 1 % relative to that in the origin country, the bilateral migration flow to this country is estimated to decrease by about 0.14 % in the specifications

which include country effects (see columns 2 and 3 in the table).

EU membership on both sides is estimated to increase bilateral migration flows by about 25 % in the specification with country effects, everything else being equal (columns 2 and 3 in the table). Euro area membership on both sides does not appear to affect migration by itself, but the estimated interaction terms indicate that it does influence migration flows (column 3 in the table). Euro area membership on both sides intensifies migration toward countries with a relatively low unemployment rate, as suggested by the negative and significant estimated coefficient of the interaction term between the EMU dummy variable and the relative unemployment rate. This effect appears to have strengthened further during the crisis, although the corresponding coefficient does not reach statistical significance. This supports the view that migration flows serve the adjustment to asymmetric shocks in the euro area more than between other countries.

Cross-country labour mobility and adjustment: a general framework

In a monetary union, asymmetric economic shocks, i.e. shocks that affect economic activity in some regions but not in others, are expected initially to

Box II.1: Explaining mobility flows with gravity equations

Determinants of mobility flows between pairs of countries are estimated in ‘gravity equations’. The dependent variable is the gross annual migration flow from a given origin country to a given destination country.

Explanatory variables include the geographical distance between the countries and the product of their populations. Some variables, such as the ratio of per-capita incomes and unemployment rates of both countries, control for factors affecting the gain from migration. Other variables, such as the existence of a common language, historical links and past migration between the countries, control for the costs of migration.

In addition, a series of variables aims to capture the interplay between the process of European integration and the economic context. First, dummy variables control for both countries’ membership of the EU and the euro area. Secondly, appropriate interaction terms make it possible to test whether the importance of relative unemployment rates increased since the inception of the EMU or during the crisis.

The equations presented in the following table are estimated in a logarithmic form, which means that estimated coefficients can be interpreted as elasticities. Origin and destination country dummy variables are included in order to control for time-invariant factors that affect the propensity of the population of some countries to choose emigration and the relative attractiveness of destination countries. Year dummy variables control for global trends and cycles.

Table: **Determinants of gross bilateral migration flows: gravity equations**

Dependent variable: Log gross migration flow	(1) No country effects	(2) Country effects	(3) Full specification
Log product of populations	0.491*** (0.005)	0.274* (0.164)	0.244 (0.163)
Log weighted distance	-0.514*** (0.010)	-0.669*** (0.014)	-0.668*** (0.014)
Log relative GDP per capita in the destination country	0.061*** (0.006)	-0.002 (0.068)	-0.003 (0.069)
Log relative unemployment rate in the destination country (lag)	-0.099*** (0.011)	-0.137*** (0.022)	-0.138*** (0.022)
Log bilateral migrant stock in the destination country, 1990	0.358*** (0.004)	0.301*** (0.005)	0.302*** (0.005)
Common language	0.779*** (0.024)	1.028*** (0.026)	1.027*** (0.026)
Past colonial relationship	0.556*** (0.041)	0.615*** (0.041)	0.613*** (0.041)
Both countries are EU members in given year	0.179*** (0.035)	0.248*** (0.034)	0.249*** (0.034)
Both countries are EA members in given year	0.160*** (0.041)	0.020 (0.039)	-0.024 (0.040)
Interaction term: Relative Unemp. * Post-2008 crisis			0.040* (0.024)
Interaction term: EA * Post-2008 crisis			0.081 (0.061)
Interaction term: EA * Relative Unemp.			-0.179*** (0.039)
Double interaction: EA * Relative Unemp. * Crisis			-0.115 (0.080)
Constant	-15.950*** (0.173)	-9.472** (4.492)	-8.673* (4.480)
Source country effects	no	yes	yes
Destination country effects	no	yes	yes
Year effects	yes	yes	yes
Observations	27 924	27 924	27 924
R-squared	0.721	0.823	0.823

(1) All equations estimated with ordinary least squares (OLS).

(2) The sample period is 1992-2011. The sample includes 163 origin countries and 38 destination countries.

(3) Asterisks indicate estimated coefficients that are statistically significant at the 1% (***) , 5% (**) or 10% (*) level.

Source: DG ECFIN calculations.

(Continued on the next page)

Box (continued)

Data on migration flows are taken from the OECD's International Migration Database for 1992-2011. Control variables were collected from the World Bank's World Development Indicators and from bilateral databases of the *Centre d'Etudes Prospectives et d'Informations Internationales* (CEPII) and the World Bank.

The table shows estimation results, proceeding from a 'bare-bones' specification in column (1), through one including origin and destination country effects in column (2), to the full specification in column (3).

cause differences in the unemployment and activity rates. These are absorbed over time by the adjustment of real wages and by geographical mobility. In a country affected by a positive, transitory, labour demand shock, caused perhaps by products in that region becoming more sought after on world markets, workers are initially drawn from the unemployment pool and more inactive workers start entering the labour force. As time goes by, real wages grow compared with other regions. If the shock persists, the labour force starts growing also as a result of the inflow of workers from other locations. Similar dynamics play out in the opposite direction in the case of a negative shock.

With limited data on labour mobility, it has become standard in the literature on the subject to follow the approach applied by Blanchard and Katz (1992) to studying the labour market adjustment in the US.⁽¹⁶⁾ Blanchard and Katz (1992) observed that shocks to relative employment levels across US states tended to persist over time, while relative unemployment and activity rates tended to return to their initial levels after deviations. If asymmetric shocks have a permanent effect on employment but not on the unemployment and activity rates, the change in employment levels must be absorbed by changes in the working-age population. Assuming that labour demand shocks do not influence demographic trends, the response of relative population must reflect the response of labour mobility. Following Blanchard and Katz, a panel vector auto regression (a PVAR with two lags) has been estimated for the EU-15 countries and the following variables: the change in the logarithm of national employment, the logarithm of the activity rate and the logarithm of the employment rate (defined here as 1 minus the unemployment rate). The contribution of mobility is calculated as a residual, i.e. the change in employment not explained by changes in the

activity and unemployment rates. This implies that, unlike 'gravity equations', which focus on bilateral mobility flows, this approach includes migration to and from third countries in its definition of adjustment through mobility.

Over the whole period studied (1970-2013), the average size of labour demand shocks is estimated to be about 1.1 % of employment. Shocks to the level of employment are persistent and reach maximum effect after about four years, before converging to a level permanently higher than the initial one. Within one year, the unemployment rate falls and the activity rate rises by about 0.5 and 0.3 percentage points respectively. The effect of the shock on the unemployment and activity rates is also persistent and lasts for longer than five years.

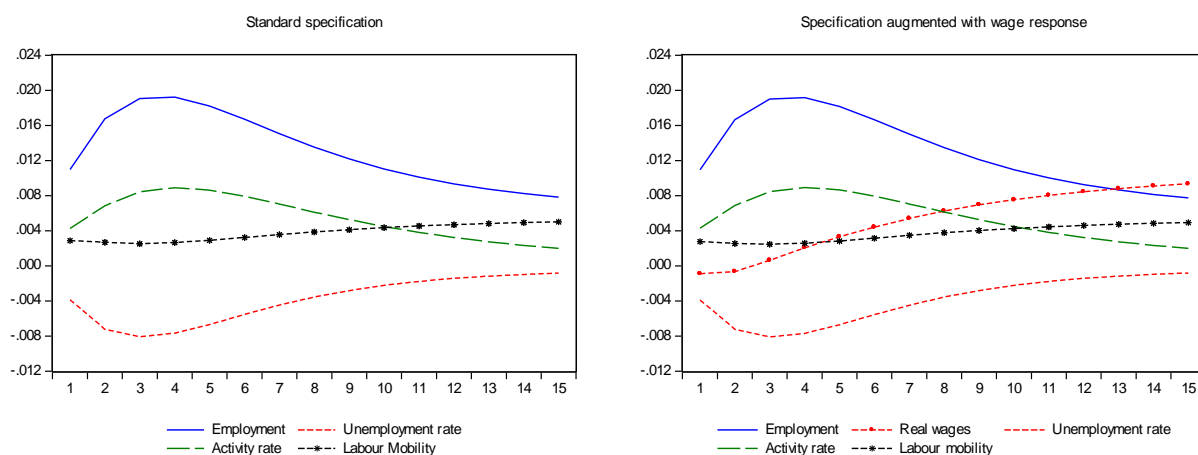
Labour mobility, meanwhile, increases by 0.3 % in the first year and peaks after about 10 years. Thus, in the first year, the unemployment rate, the activity rate and labour mobility absorb 43 %, 32 % and 25 % respectively of the initial labour demand shock. Results are robust to the exclusion from the sample of countries that are not members of the euro area. The results do not change much if the analysis includes real wages. Relative real wages gradually increase in response to labour demand shocks and stabilise after about 10 years, broadly in line with the stabilisation of the unemployment rate.

The responses to an asymmetric labour demand shock have also been estimated separately before and after economic and monetary union. Graph II.4 shows the responses of employment and the unemployment and activity rates to a one-standard-deviation positive labour demand shock for the period before and after the EMU creation. The results are shown separately in a model specification with no real wages (left panels) and one including a wage equation (right panels).

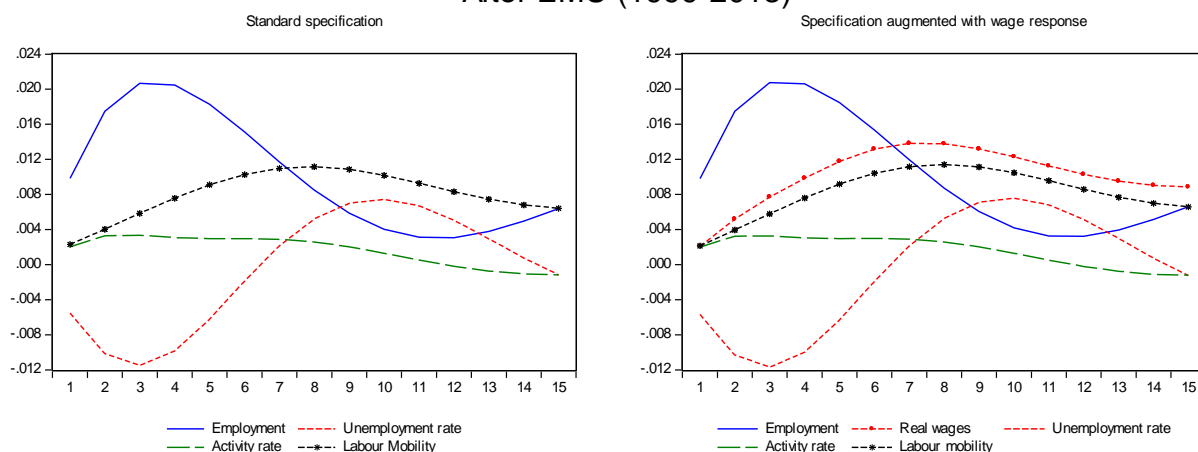
⁽¹⁶⁾ Blanchard, O. and L.F. Katz (1992), 'Regional evolutions', *Brookings Papers on Economic Activity* No 1, pp. 1-75.

Graph II.4: Responses to a country-specific positive labour demand shock

Before EMU (1970-1998)



After EMU (1999-2013)



(1) The horizontal axis represents years after a labour demand shock affecting a Member State. All variables are in logs; mobility is defined as the change in employment not explained by changes in the employment rate (defined as 1 minus unemployment rate) or the activity rate.

Source: DG ECFIN calculations.

The graph shows that labour market adjustment has become more responsive in a number of respects after the EMU inception.

- First, despite the fact that the average labour demand shocks are roughly equal in the two periods (1.1 % before the EMU and 0.98 % since EMU introduction), the response of unemployment is quicker and less persistent after the start of the EMU.
- Secondly, the activity rate exhibits a more muted and short-lived reaction to the shock.
- Thirdly, labour mobility appears to respond more quickly and strongly after the EMU was set up, absorbing a bigger fraction of the shock than the activity rate at any lag.

- Finally, since the start of the EMU, real wages seem to have become more reactive to country-specific labour demand shocks. Before EMU, the response of real wages to the shock is initially muted, becoming statistically significant only after five years. Since the EMU inception, wages have become significantly different from the pre-shock level already after the second year.

Conclusions

Cross-country mobility flows in the EU are still much lower than those recorded in other highly integrated areas, particularly the US. The stock of migrants from within the EU is also generally much lower than from outside the EU. Nevertheless, an upward trend is visible, which is

not only the result of the enlargement of the EU to Eastern European countries characterised by high outward migration, but also of movements among old member states.

The findings of the two analytical approaches presented in this section show that monetary unification was followed by increased responsiveness of labour mobility to unemployment differences and to asymmetric demand shocks. The response of real wages to demand shocks also appears to have strengthened.

Further analysis should investigate the reasons underlying this increased responsiveness of

mobility flows in the euro area, particularly the relative roles of the EU integration of Eastern European countries and the loss of the exchange rate and monetary policy as shock absorbers for members of the euro area.

The analysis also suggests that, in the coming years, the persistence of the large differences in unemployment from country to country observed after the crisis could generate significant cross-border labour mobility flows, which, in some cases, could require supportive policy frameworks to ensure the successful integration of mobile workers.

III. Housing taxation: from micro design to macro impact⁽¹⁷⁾

This section discusses housing taxation from an efficiency and equity standpoint, highlighting the fiscal and macroeconomic consequences of the current tax rules. On the fiscal side, the relatively low contribution of property taxes to government budgets means that the favourable treatment of owner-occupied housing, through exemptions and relief measures, entails a revenue cost. These tax expenditures can lead to distortions in tenure choices and the allocation of capital and moreover, may ultimately contribute towards higher house prices, thus working against their intended aim of fostering home ownership. The tax break granted to mortgage interest payments also encourages highly leveraged housing investment and the accumulation of high household debts. Distributional issues, particularly when it comes to indebted households, should be taken into account when considering tax reforms aimed at enhancing the efficiency of housing taxation.

Introduction

In the context of institutions and the regulation of housing and mortgage markets, it is useful to note that a previous issue of this report highlighted the important effect taxation has on incentives on the demand side. ⁽¹⁸⁾ In this section we focus on housing tax arrangements, highlighting their impact on fiscal outcomes in the broader context of taxation of immovable property. We also consider efficiency and equity aspects linked to tax design issues, which can have important macroeconomic implications. The analysis complements previous contributions on housing taxation ⁽¹⁹⁾ by offering quantitative evidence on the overall tax pressure on housing and on its distribution across households.

Property tax systems vary widely across the euro area, affecting several aspects of tax design. These include the definition of taxed items (transactions, capital gains, housing wealth or its consumption value) and, for a given tax instrument, the precise

definition of the tax base, the structure of tax rates, and the presence of exemptions and relief.

The preferential tax treatment of owner-occupied housing

A house constitutes a capital asset for homeowners and provides a housing service for the occupant. Both aspects are relevant to taxation and could warrant specific tax treatment. The distinction between these two investment aspects and consumption goods is explicit in the case of privately rented property but not in the case of owner-occupied housing. In practice owner occupiers benefit from favourable tax treatment in many countries.

To assess whether tax systems favour owner-occupied housing, it is natural to use tax neutrality with respect to savings and investments as a benchmark. Thus, treating residential property in the same way as other types of investment, including buy-to-let property, would entail taxing the rental income generated while allowing costs to be deducted. Such costs may include maintenance costs and interest payments in the case of debt-financed housing investment. This would mean that only the net return on investment would be taxed. Capital gains on housing transactions would also be taxed to achieve neutrality in relation to the taxation of other assets.

In practice, the current treatment of housing in the personal income taxation structure leaves the implicit rental income of homeowners (i.e. the imputed rent) largely untaxed. ⁽²⁰⁾ In the limited number of cases in which imputed rent is taxed (for instance in Luxembourg and the Netherlands), the value taken as the tax base is well below the corresponding market rental value. In principle, recurrent property taxes applied to the stock value of a dwelling could be used to partly compensate

⁽¹⁷⁾ Section prepared by Serena Fatica.

⁽¹⁸⁾ European Commission (2014), 'Institutional features and regulation of housing and mortgage markets', *Quarterly Report on the Euro Area*, Vol. 13, No 2, pp. 27-33.

⁽¹⁹⁾ European Commission (2012), 'Taxation of housing', *Quarterly Report on the Euro Area*, Vol. 11, No 4, pp 25-30.

⁽²⁰⁾ An appropriate income tax base should reflect both monetary and non-monetary consumption opportunities. Imputed rents expand homeowners' consumption possibilities because they generate savings in terms of housing services which would otherwise be paid for. On the other hand, homeowners incur costs such as interest and maintenance costs (which, in the case of landlords, can normally be covered by the rent paid by renters). In this respect, imputed rent, accounting for the income value of home ownership, net of costs, can be regarded as a form of income and thus has to be included in the taxable base.

for the absence of imputed rent taxation. Recurrent taxes can indeed be considered an efficient way of taxing the flow of services from housing on an annual basis. However, it is crucial that the tax base on which the recurrent tax is levied adequately reflects the value of the property, which may not be the case when cadastral values are not updated regularly. In practice, however, recurrent taxes generate relatively low revenues, mainly because the taxable base frequently falls short of market values.⁽²¹⁾ At the same time, several euro area countries still offer some form of tax relief on interest payments, and in some cases also on capital repayments. The relief on the financial costs of investment in owner-occupied housing is not counterbalanced by appropriate taxation of home ownership, since imputed rent is tax-exempt and recurrent taxes are relatively low. This means that the return on housing investment is under-taxed. All in all, national tax codes tend to be biased in favour of owner-occupied housing, in a way which is hard to justify from a purely economic point of view.

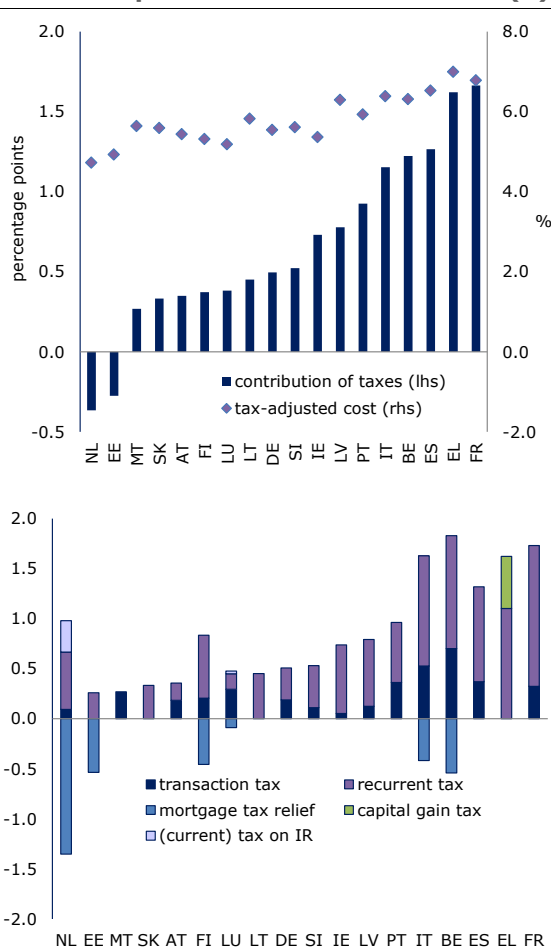
Measuring the tax contribution to the cost of owner-occupied housing

The overall tax contribution to the cost of owner-occupied housing varies significantly across countries. The impact of taxes and exemptions can be gauged using an indicator for the user cost of investing one additional euro in owner-occupied housing, based on the established literature which treats home ownership as an investment decision in the neoclassical framework. The cost, which depends on the economic variables associated with home ownership, such as the mortgage interest rate, maintenance costs, economic depreciation and expected increase in value of the asset, can be adjusted so as to reflect the current tax treatment of owner-occupied housing.⁽²²⁾

The upper panel of Graph depicts the tax-adjusted cost associated with the investment of an additional euro in housing capital, alongside the

overall tax contribution.⁽²³⁾ The Netherlands, Estonia, Luxembourg, Finland and Ireland are euro area countries where the user cost of housing investment is relatively low (in the bottom quartile of the distribution). By contrast, the upper quartile comprises Belgium, Italy, Spain, France and Greece.

Graph III.1: **Marginal cost of home ownership and contribution of taxes (1)**



(1) Tax-adjusted user cost expressed as a percentage of the investment of an additional euro in owner-occupied housing (upper panel). The bars show the tax contribution in percentage points. Countries are shown in the ascending order of the contribution of taxes. The applicable tax rules are those in place in January 2014. No data for CY are available.

Source: DG ECFIN.

The lower panel shows the contribution of the different tax instruments. Recurrent property taxes, levied in all euro area countries except Malta, increase the cost of home ownership. Transaction

⁽²³⁾ The contribution is the difference between the tax-adjusted cost and the cost calculated when all the relevant tax rates are set to zero. For details on the indicator and the methodology see Chapter 3 in European Commission (2014), *op.cit.*

⁽²¹⁾ See, European Commission (2014), 'Tax reforms in EU Member States', *European Economy*, 6/2014.

⁽²²⁾ The user cost indicator has been used in several studies to assess the size of housing tax expenditure in the US. See, for instance, Poterba, J.M. (1992), 'Taxation and housing: old questions, new answers', *American Economic Review*, Vol. 82 No 2, pp. 237-242. Poterba, J.M. and T.M. Sinai (2008), 'Tax expenditures for owner-occupied housing: deduction for property taxes and mortgage interest and the exclusion of imputed rental income', *American Economic Review* P&P, Vol. 98 No 2, pp. 84-89.

taxes are also widely used in the euro area, sometimes at relatively high statutory rates, which suggests that there is some scope for an internal rebalancing of the structure of property taxation towards recurrent tax instruments. Transaction taxes hamper the efficient allocation of residential property, thereby reducing labour mobility, by discouraging property purchases. By contrast, capital gains on a main residence are usually untaxed, or taxed in limited cases, e.g. depending on the duration of occupancy and the value of the house. Naturally, relief on mortgage debt payments has a negative effect on the cost of housing investments. The most generous tax subsidy for new mortgage debt is in the Netherlands, followed by Belgium, Estonia, Finland, Italy and Luxembourg.

The debt bias in housing taxation

The amount of mortgage interest tax relief varies across national tax codes. Relief can be granted as a tax credit (i.e. as a reduction in the tax liability that is proportional to the loan payments) or as a deduction against income (i.e. as a reduction in the tax base). Caps on the deductions or other forms of limitations (such as restricting entitlement to first-time buyers or to young families only) are also in place in the euro area. By lowering the cost of debt, this tax subsidy incentivises borrowing for the purpose of financing housing investments. ⁽²⁴⁾

This could ultimately result in excessive levels of household debt, which has been identified as an important source of macroeconomic vulnerability and an amplifier of macroeconomic shocks. Coupled with the deductibility of debt finance usually granted under the corporate income tax system, tax subsidies on mortgage interest may contribute significantly to increased debt levels in the private sector as a whole, presenting a significant risk to financial and macroeconomic stability.

⁽²⁴⁾ Results from the recent ECB Household Finance and Consumption Survey (HFCS) show that mortgage loans are by far the most sizable liability in household portfolios. Although less prevalent than unsecured debt (23.1 % compared with 29.3 % of households), mortgage debt is considerably more sizeable when it is held: the median value of mortgage debt for euro area households is €68 400, while for non-mortgage debt it is €5 000. See, ECB (2013), 'The Eurosystem Household Finance and Consumption Survey: description and main results of the first wave', in *ECB Monthly Bulletin*, April 2013.

Many Member States are now in the process of reducing the debt bias in their housing tax systems by scaling back the amount of tax relief granted on mortgage interest payments. ⁽²⁵⁾

Fiscal and economic consequences

The tax arrangements for owner-occupied housing have a budgetary and broader economic impact. As far as the budgetary impact is concerned, the focus is on the revenue lost from housing tax expenditure, namely the tax exemption of imputed rent and tax relief on mortgage interest payments. The different channels through which the low level of housing taxation and specific design issues, such as the prevalence of transaction taxes, affect macroeconomic outcomes are discussed in turn.

Relief and exemptions granted to homeowners under the personal income tax system carry a significant fiscal cost. Table III.1 gives a static estimate of the corresponding lost revenue for selected euro area countries, obtained using EU-SILC data and the micro-simulation model EUROMOD.

As Table III.1 shows, the hypothetical inclusion of net imputed rents in the personal income tax base would represent between 5 % of personal income tax revenues in France to 24 % in Finland. ⁽²⁶⁾ The resulting average effective rate of taxation would range from around 16 % in France to 47 % in Belgium. The marked disparity across countries is due to three factors: i) the proportion of owners and their position in the income distribution, ii) the value of imputed rent with respect to taxable

⁽²⁵⁾ Spain and Ireland removed interest relief entirely for new mortgages (from 2013), while the Netherlands and Finland will reduce it gradually. In the Netherlands, interest deductibility will only apply to new mortgages if the principal is fully repaid within 30 years. Moreover, the maximum income tax rate for the deduction will be gradually reduced from 52 % to 38 %. In Finland, the deductible part of mortgage interest will be reduced for homeowners from 85 % in 2012 to 50 % by 2018. Luxembourg and Estonia have both significantly reduced the maximum deduction. See European Commission (2014), *op.cit.*

⁽²⁶⁾ For the methodological issues, see Verbist, G., F. Figari and F. Zantomio (2014), 'HESTIA: Housing taxation in EUROMOD: a statistical tool for imputed rent and policy analysis', *mimeo*, European Commission, Joint Research Centre, Institute for Prospective Technological Studies. These estimates clearly have the advantage of being derived from a harmonised methodology, thus enabling cross-country comparability. As such, however, they might differ from the data in EU-SILC, where each EU member State reports values of imputed rent obtained with a specific approach. For the related methodological challenges see, European Commission (2013), 'The distributional impact of imputed rent in EU-SILC 2007-2010', Eurostat, *Methodologies and Working Papers*.

Table III.1: Revenue cost of tax expenditure for housing, 2012

	AT	BE	FI	FR	DE	IT	ES
Imputed rent tax exemption (mn EURs)	3 027	6 533	5 973	10 101	21 409	24 972	12 439
in % of personal income tax revenue	10.8	15.4	23.5	5.2	8.5	13.2	18.4
Mortgage interest tax relief (mn EURs)		2 646	333	2 157		1 436	2 907
in % of personal income tax revenue		6.2	1.3	1.1		0.8	4.3

Source: European Commission — Joint Research Centre, based on the EUROMOD model.

income, and iii) the structure and progressivity of the personal income tax regime.

The overall revenue cost stemming from tax relief on mortgage interest payments can be sizable. It ranges from about 1 % of personal income tax revenue in France and Italy to 6 % in Belgium.

The economic consequences of a low tax burden on housing are far reaching. At the microeconomic level, tax incentives enable owners to afford a disproportionately high level of housing consumption and can distort individual location decisions. ⁽²⁷⁾

At the macroeconomic level, the main concerns are the effects of preferential tax treatment on investments in housing capital, its price and household debt. The impact on savings and investments has been widely analysed using general equilibrium settings, where the main source of distortion is indeed the breach of tax neutrality across different types of investment. In models with fixed house prices, repealing existing exemptions and relief, in a revenue-neutral fashion, has the effect of improving welfare while at the same time shifting investment from housing to productive capital in the corporate sector. ⁽²⁸⁾ Likewise, establishing neutrality in the tax treatment of homeowners and landlords (often facing heavier taxation) would affect incentives to supply rental housing services, as households would reshuffle their portfolios and thus, ultimately, change their tenure decisions. Importantly, in this context it is shown that the progressivity of the tax system matters because it affects relative incentives that households with

different marginal tax rates face in allocating their portfolios, including housing investment. ⁽²⁹⁾ Finally, tax subsidies for housing are likely to be capitalised into higher asset prices. Thus, a decline in house prices, following a repeal of housing tax expenditure, would bring about an overall welfare gain and increase home ownership rates among younger and poorer households. ⁽³⁰⁾

The widely held view that housing tax expenditure fosters home ownership is challenged also by the empirical literature, which points to a significant impact on house price inflation in the presence of supply rigidities, particularly when it comes to mortgage interest tax relief. ⁽³¹⁾ Moreover, tax subsidies on mortgage interest payments have also been found to correlate with price volatility on the housing market. ⁽³²⁾ Ultimately, the extent to which prices and/or quantities adjust to accommodate demand pressures depends on the elasticity of supply, which, in turn, is affected by institutional and regulatory arrangements. ⁽³³⁾

A third important concern relates to the fact that the tax relief on mortgage interest payments can incentivise excessive household leverage. The role of mortgage debt has been recognised as playing a pivotal role in crisis episodes, and is likely to have

⁽²⁷⁾ Albouy, D. and A. Hanson (2014), 'Are houses too big or in the wrong place? Tax benefits to housing and inefficiencies in location and consumption.' *NBER Tax Policy and the Economy Book Series*, Vol. 28, pp. 63-96.

⁽²⁸⁾ Gervais, M. (2002), 'Housing taxation and capital accumulation,' *Journal of Monetary Economics*, Vol. 49, No 7, pp. 1461-1489.

⁽²⁹⁾ Chambers, M., C. Garriga and D. Schlagenhauf (2009), 'Housing policy and the progressivity of income taxation,' *Journal of Monetary Economics*, Vol. 56 No 8, pp. 1116-1134.

⁽³⁰⁾ Sommer, K. and P. Sullivan (2014), 'Implications of U.S. tax policy for house prices, rents, and homeownership,' *mimeo*.

⁽³¹⁾ Andrews, D (2010), 'Real house prices in OECD countries: The role of demand shocks and structural and policy factors', *OECD Economics Department Working Papers*, No 831. Hilber, C. A. and T. M. Turner (2014), 'The mortgage interest deduction and its impact on homeownership decisions', *Review of Economics and Statistics*, Vol. 96 No 4, pp. 618-637.

⁽³²⁾ Van den Noord, P. (2003), 'Tax incentives and house price volatility in the euro area: theory and evidence', *OECD Economics Department Working Papers*, No 356; Andrews, D. (2010), *op. cit.*

⁽³³⁾ Gattini, L. and I. Ganoulis (2012), 'House price responsiveness of housing investments across major European economies', *ECB Working Paper Series*, No 1461.

intensified and prolonged the recession.⁽³⁴⁾ Excessive borrowing could create significant financial pressure on households in the wake of negative income shocks and/or a sharp reduction in the value of property used as collateral, as experienced in several euro area countries during the recent crisis. Empirical analyses tend to confirm that homeowners with outstanding debt are more likely to face liquidity constraints, and thus adjust their consumption level significantly in the wake of unexpected income shocks.⁽³⁵⁾

Transaction taxes generate additional distortions for the whole economy because they tend to discourage property transfers, especially when statutory tax rates are high.⁽³⁶⁾ Ultimately, this results in a thin market and hampers the price discovery process, which could be particularly distortive in the case of immovable property. Labour market adjustment through labour mobility is also affected negatively by taxing the purchase of residential property heavily.⁽³⁷⁾ On the positive side, a tax on property transactions could theoretically deter speculation but this relationship remains empirically ambiguous.⁽³⁸⁾

Distributional aspects

It is important to explore the distributional consequences of housing tax arrangements, including exemptions and relief, from both an equity and macroeconomic perspective, because household heterogeneity can significantly affect aggregate outcomes. The distribution of recurrent taxes, of tax relief on mortgage interest and of the

implicit gain stemming from the tax exemption of imputed rental across income classes is presented below, based on micro-simulation results obtained from the EUROMOD model.

Recurrent taxes. The results presented in Table III.2 suggest that recurrent property taxes, in addition to being relatively low, have a relatively neutral impact across income categories in Germany and Finland. In France, the effect of such taxes tends to be progressive up to middle-range incomes and then regressive for richer households compared with the middle quintiles. In the other countries considered, particularly Spain, property taxes generally appear to be regressive. The distributional patterns observed and the aggregate level of the tax burden are strongly affected by housing tax design (e.g. tax rates, relief granted to those on low incomes or other vulnerable categories), as well as by the distribution of tenure types across households. Levying the tax on a base that does not fully reflect property market values could also ultimately have an adverse redistributive impact.

Table III.2: **Recurrent property taxes in % of household gross disposable income by income quintile, 2012**

	BE	DE	ES	FR	IT	FI
I	1.25	0.32	3.31	1.80	0.99	0.2867
II	0.93	0.35	2.38	2.34	0.55	0.2078
III	0.62	0.30	1.66	2.76	0.45	0.1774
IV	0.51	0.31	1.21	2.54	0.35	0.1558
V	0.36	0.31	0.87	2.24	0.29	0.1691
Total	0.81	0.32	1.63	2.33	0.79	0.1981

Source: European Commission -Joint Research Centre, based on the EUROMOD model.

Mortgage interest tax relief. The tax subsidy for mortgage debt is likely to be a regressive instrument. High income households tend to benefit more both at the extensive margin (higher propensity to borrow and easier access to bank credit) and at the intensive margin (amounts borrowed). Tax breaks therefore exacerbate these discrepancies. In absolute terms, the induced reduction in tax liabilities — larger for richer people — implies a sizable revenue cost. Data from 2012 reported in Table III.3 show that this tax benefit is strongly regressive in Belgium and Spain. In Belgium, the deduction amounts to more than 2 % of net disposable income for the top two quintiles. In Spain, the impact of the tax credit on disposable income also differs significantly between the richest quintile (0.92 %) and the poorest one

⁽³⁴⁾ IMF (2012), 'Dealing with household debt', *Global Economic Outlook*, Chapter 3, pp. 89-124. Sutherland, D. and P. Hoeller (2012), 'Debt and macroeconomic stability: An overview of the literature and some empirics', *OECD Economics Department Working Papers*, No 1006.

⁽³⁵⁾ Cloyne, J. and P. Surico (2014), 'Household debt and the dynamic effects of income tax changes,' *Bank of England Working Paper Series*, No 491.

⁽³⁶⁾ As an example, the temporary and unanticipated tax holiday recently granted from the stamp duty land tax in the UK has been shown to result in increased transactions for the affected properties by 8 %. See, Besley, T., N. Meads and P. Surico (2014), 'The incidence of transaction taxes: evidence from a stamp duty holiday', *Journal of Public Economics*, Vol. 119, pp. 61-70.

⁽³⁷⁾ Econometric evidence from the Netherlands point to sizable effects: a 1 percentage point increase in the value of transaction costs as a percentage of the value of the residence would decrease residential mobility rates by (at least) 8 %. See Van Ommeren, J. and M. Van Leuvensteijn (2005), 'New evidence of the effect of transaction costs on residential mobility' *Journal of Regional Science*, Vol. 45 No 4, pp. 681-702.

⁽³⁸⁾ Aggerer, N., M. Brown and E. Ross (2013), 'Transaction taxes, capital gains taxes and house prices', *Swiss National Bank Working Papers*, No 2.

(0.04 %). In France ⁽³⁹⁾, Finland and Italy these policies also seem to have regressive effects, although they are relatively low in relation to household disposable income. Again, the considerable variation across countries depends on factors such as the frequency and distribution of debtors in the different income classes, the structure of personal income tax systems and the specific design of the relief (deduction vs. credit, unlimited vs. capped).

Table III.3: Mortgage interest tax relief in % of household net disposable income by income quintile, 2012

	BE	ES	FR	IT	FI
I	0.16	0.04	0.01	0.08	0.12
II	0.80	0.19	0.08	0.15	0.23
III	1.73	0.61	0.14	0.22	0.38
IV	2.25	0.85	0.29	0.26	0.43
V	2.04	0.92	0.32	0.21	0.39
Total	1.33	0.55	0.16	0.19	0.29

Source: European Commission -Joint Research Centre, based on the EUROMOD model.

Tax exemption for imputed rent. Although it is difficult to determine the actual taxation of imputed rent objectively from a political and practical standpoint, a quantification of the current tax benefits is useful in gauging the importance of housing consumption for homeowners. The impact of the exemption across income quintiles splits the countries into two groups depending on the relative importance of imputed rents in household disposable income (Table III.4). The exemption leads to slightly increased inequality in Austria, Germany and Spain, while the opposite is true for Finland, France and Italy.

Table III.4: Imputed rent exemption in % of household disposable income by income quintile, 2012

	BE	DE	ES	FR	IT	AT	FI
I	2.36	0.35	0.53	2.15	6.67	1.04	7.81
II	5.17	1.28	1.96	1.54	4.15	2.07	7.26
III	5.01	1.62	3.22	1.67	4.15	2.29	6.99
IV	4.58	1.89	3.45	1.42	3.71	2.57	6.65
V	4.22	1.99	3.47	1.40	3.32	2.20	6.24
Total	4.23	1.39	2.61	1.65	4.39	2.02	7.05

Source: European Commission — Joint Research Centre, based on the EUROMOD model.

⁽³⁹⁾ In the case of France, the results refer to the mortgage stock receiving the tax credit until 2010, when the relief was abolished with a grandfathering clause.

Results are less clear-cut in Belgium, where the lowest incomes benefit the least from the imputed rent tax exemption; the relative gain from the exemption is highest at the second quintile, and then decreases with income. By contrast, in Italy and Finland the relative gain from the exemption decreases unambiguously with income, with the lowest quintiles reaping the largest benefit. Overall, the differences observed across countries depend on several factors: institutional features, such as the progressivity of the personal income tax regimes, the position of homeowners in the income distribution and the value of imputed rents with respect to income. The risk of regressivity increases where households are asset-rich but income-poor.

Conclusions

In a context where the contribution of property taxes to the budget is relatively low, the favourable treatment of owner-occupied housing suggests additional scope for intervention, particularly by abolishing or phasing out unjustified relief that entails an additional revenue cost, brings about significant economic distortions and is potentially unfair. The rebalancing of property taxation from transaction taxes towards recurrent taxes, ideally ensuring that the tax base adequately reflects property values, could partly offset the subsidy granted to owner-occupied housing from other tax provisions.

This tax expenditure leads to distortions in tenure choices and the allocation of capital and, in the presence of a relatively rigid supply, are ultimately capitalised into higher asset prices, which is contrary to the intended aim of fostering home ownership. Moreover, the tax breaks granted to mortgage interest payments are likely to encourage leveraged housing investment. These distortions are a potential risk to macroeconomic and financial stability.

All in all, since recurrent housing taxes are relatively growth-friendly compared with other taxes, particularly income taxes, they could serve as a potential source of revenue for consolidation purposes or to finance a structural shift away from labour taxation. In addition, policy action may be needed to address design issues that generate significant economic distortions, in particular mortgage interest relief and high transaction taxes.

Distributional issues, particularly when it comes to indebted and liquidity-constrained households, should be taken into account when considering tax reforms to improve the efficiency of housing taxation. In this respect, abolishing tax relief on mortgage interest would generally have a positive distributional impact, as the highest incomes

benefit most from the tax break. By contrast, increasing the yield from recurrent taxation could impose an excessive burden on asset-rich, income-poor households. Such adverse redistributive effects could be mitigated by appropriate adjustments to recurrent tax design.

IV. Investment dynamics in the euro area since the crisis⁽⁴⁰⁾

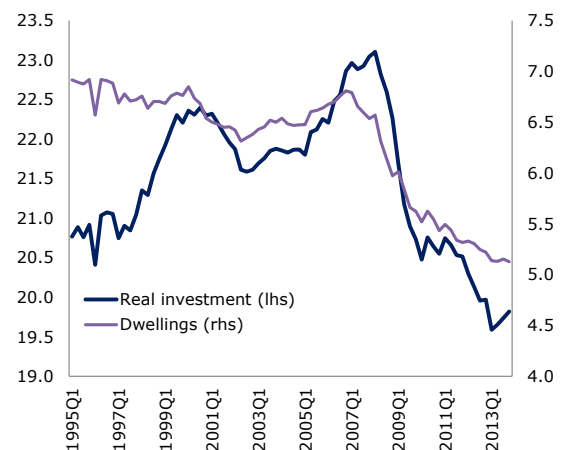
This section analyses the investment dynamics in the euro area since the global financial and economic crisis. Investment across euro area remains below its pre-crisis level and its recovery has been sluggish. Investment is determined by a range of factors with complex and multiple interactions, which are not easy to capture in simple empirical models. Therefore, to better understand the dynamic relationships between investment and key macroeconomic variables, this section presents a sort of stress test for investment carried out with a relatively larger model for the period of the crisis in a system that takes into account joint dynamics of 26 macroeconomic variables. Overall, the analysis largely confirms previous findings: the weakness in investment dynamics is largely due to a strong accelerator effect and high real interest rates. However, to be able to explain the acute phases of the recession, the depth of the fall in investment during the first and second dip, and the delay in the rebound, long-lasting factors such as deleveraging in the private sector must be taken into account. Credit developments for both households and firms seem to have become important sources of fluctuations for the euro area business cycle in recent years. Therefore, given a protracted effect of private sector deleveraging, the European Investment Plan should play a central role in supporting capital formation.

Introduction

Investment in the euro area, in percent of GDP, remains below its pre-crisis level and even below its average level during the period 1995Q1-2007Q4 (see Chart IV.1). Moreover, its performance in terms of growth has been weaker during the crisis than in previous recessions. Several factors have been at the root of the investment weakness such as more sluggish economic growth than in previous downturns, high real long-term interest rates, bank and corporate deleveraging, weak public investment and increased uncertainty.⁽⁴¹⁾ Given the

uncertainty about the interaction among these key drivers and investment, to better understand the role they have played during the crisis, this section presents a sort of stress test for investment in a large system that takes into account joint dynamics of 26 macroeconomic variables.⁽⁴²⁾ The model will also bring insights on the stability of the dynamic relationship between total investment and the rest of the economy as well as on the joint co-movement among other GDP components in the euro area since 2008.

Graph IV.1: **Real total investment and housing investment in the euro area (1)**
(% of GDP)



(1) Y0 marks the year of the cyclical trough as measured by ECFIN's output gap estimate. For the recovery after 2009, Y6 and Y7 are based on the Winter Forecast. EA 12 comprises of BE, DE, IE, EL, ES, FR, IT, LU, NL, AT, PT, FI.

Source: DG ECFIN.

The investment recovery in historical perspective

Recoveries from major recessions have always tended to be sluggish and hesitant in most euro area countries, especially when compared with the US. But, even against such a dismal record, the euro area recovery after the global financial crisis clearly stands out with domestic demand being the main cause of this weakness as identified in the Commission 2015 Winter Forecast.

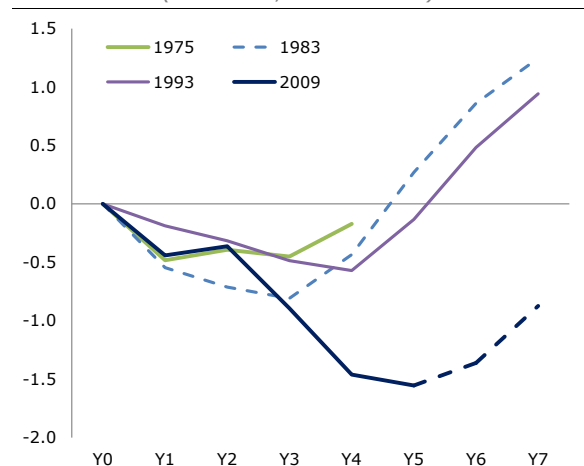
⁽⁴⁰⁾ Section prepared by Narcissa Balta.

⁽⁴¹⁾ Buti, M. and P. Mohl (2014), 'Lacklustre investment in the Eurozone: Is there a puzzle', *Vox Column*, June. European Commission (2014), *Autumn Forecast*, Box 1.1., 'Drivers and implications of the weakness of investment in EU'.

⁽⁴²⁾ Banbura M., D. Giannone and M. Lenza (2015), 'Conditional forecasts and scenario analysis with vector autoregressions for large cross-sections', *International Journal of Forecasting*, 01/2015.

Among the domestic demand components, national investment appears to have been much weaker in recent years than would normally be expected in a 'typical' recovery. Seven years after the onset of the global financial crisis, a 'typical' rebound in investment is foreseen to only begin in 2015. Chart IV.1 shows the investment recoveries of the three major recessions of the 1970s, 1980s and 1990s in the euro area. Such inter-temporal comparisons should of course be considered with caution, if only because of the radical institutional and structural changes brought by the single currency. However, they can illustrate the constraints bearing on the ongoing recovery in investment the euro area.

Graph IV.2: Comparing recoveries: gross fixed capital formation, EA12, (1)
(% of GDP, Index: Y0=0)



(1) Y0 marks the year of the cyclical trough as measured by ECFIN's output gap estimate. For the recovery after 2009, Y6 and Y7 are based on the Winter Forecast. EA 12 comprises of BE, DE, IE, EL, ES, FR, IT, LU, NL, AT, PT, FI.
Source: DG ECFIN.

The investment dynamics since the crisis

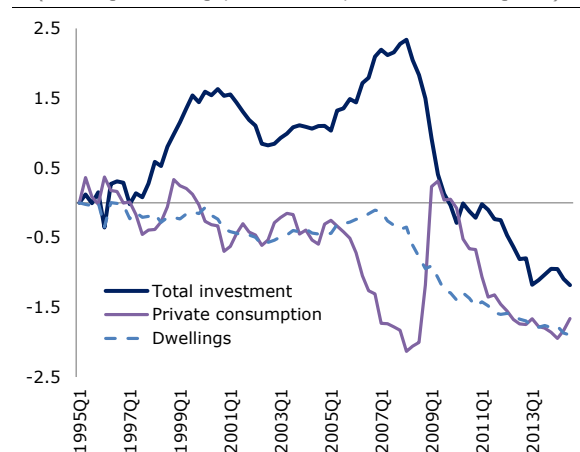
The observed decline in investment-to-GDP ratio since the beginning of the crisis, according to IMF methodology for classification of financial crises, seems to be more severe than in standard financial crises, however, in line with most severe financial crises⁽⁴³⁾ – with the ratio in 2014Q3 still standing 3 ½ percentage points below its 2008Q1 peak and 2 ¼ percentage points below its average level between 1995Q1 and 2007Q4 (see Graph IV.3).

⁽⁴³⁾ Financial crisis as classified by IMF methodology: Barkbu B.B., P.S. Berkmen, and H. Schölermann (2015), 'Investment in the euro area: why it has been so weak?', *IMF Working Paper*, 15/32.

Housing investment certainly has played a role in this decline. The housing investment-to-GDP ratio in 2014Q3 was 1 ¾ percentage points below its 2006Q4 peak and 1 ½ percentage points below its average during the period 1995Q1 to 2006Q3. This is not surprising, given the specificities of the current crisis, notably a severe house prices boom-bust episode in several euro area Member States.

However, there seems to be more than just developments in housing investment affecting the total investment-to-GDP ratio. Graph IV.3 shows developments in two domestic demand components: the investment ratio and the private consumption-to-GDP ratio since 1995Q1.

Graph IV.3: Investment and private consumption, euro area
(1995Q1-2014Q3, % of GDP, Index: 1995Q1=0)



(1) Euro area is defined as EA18.

Source: DG ECFIN.

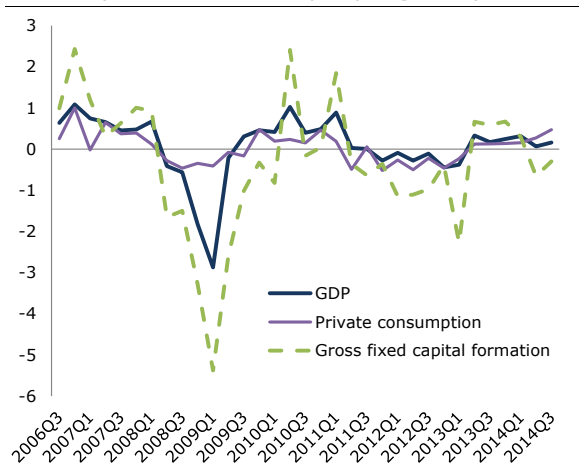
Several stylised facts on the ratios to GDP are notable. First, the pre-crisis peak in the investment-to-GDP ratio occurred in 2008Q1, while the peak in housing investment-to-GDP ratio took place earlier in 2006Q4. Second, with the introduction of the euro in 1999, a positive upward shift in the investment-to-GDP ratio occurred in anticipation of the euro adoption during 1997-1999, which does not seem to be related to developments in housing investment. Third, a second upward shift occurred in 2004, this time in relation to the boom in housing-to-GDP ratio. Fourth, the correction brought by the 2008-09 recession pushed the investment-to-GDP ratio well below its 1995Q1 level. Last, while the investment-to-GDP ratios seemed to be still adjusting downwards in 2014Q3, private consumption-to-GDP ratio was very slowly rebounding, but still stood 1 ¼ percentage points

below its pre-crisis average during the pre-housing investment peak period, 1995Q1 to 2006Q3.

Overall, the decline in the investment-to-GDP ratio seems to be long-lasting and the recovery in households' consumption ratio still at a distance.

Looking at growth rates, Graph IV.4 also shows that investment growth has not really recovered since the beginning of the crisis in 2008Q3 with no positive consecutive quarters of growth during the first GDP rebound between 2009Q4 and 2011Q1 and an episode of renewed contraction in 2014Q2-Q3 after the second GDP recovery in 2013Q2.

Graph IV.4: Real GDP, private consumption and gross fixed capital formation, euro area (1)
(1995Q1-2014Q3, q-o-q % growth)



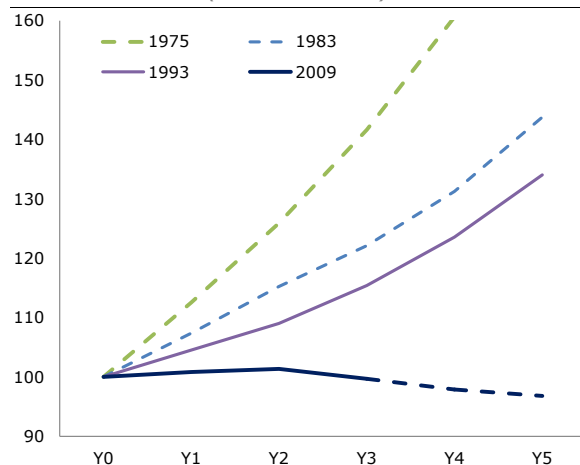
(1) Euro area is defined as EA 18.
Source: Eurostat, QNA data (chain linked volumes (2010), million euro).

Private consumption has exhibited a clearer double dip pattern that tracks very closely GDP growth with a prolonged period of adjustment in household spending during the second contraction between 2011q4 and 2013Q1. However, its performance seems to have been slightly weaker than GDP growth with signs of a more robust pick-up only starting in 2014Q2 (see Chart IV.4).

At first sight, a protracted weakness in investment and household spending should not come as a surprise given the well-known legacy of excessive private and public-sector debt brought by the crisis. A large literature has highlighted the specificities of recoveries after financial and banking crises, pointing in particular at their persistent

sluggishness. (44) The euro area began the current recovery with a much higher level of private sector debt than in previous similar cyclical episodes and credit growth has since been flat or even decreasing when previous recoveries were typically associated with rapid credit expansion (see Chart IV.5).

Graph IV.5: Comparing recoveries: credit to non-financial private sector, EA11
(Index: Y0=100)



(1) Y0 marks the year of the cyclical trough as measured by ECFIN's output gap estimate. EA 11 comprises of BE, DE, IE, EL, ES, FR, IT, NL, AT, PT, FI.

Source: DG ECFIN.

Moreover, public debt has been increasing since 2009 at a much faster pace than in than in previous similar cyclical episodes, reflecting both the direct impact of the crisis on public finances and the need to rescue the financial sector. Macroeconomic policies have been substantially constrained compared with the past, with monetary policy at the zero lower bound (ZLB) and front-loaded fiscal consolidation.

Nevertheless, given their deep impact on the euro area economy, the question arises to what extent the financial and sovereign crises has brought changes in the historical behaviour of domestic demand components that might render the investment rebound uncertain.

(44) Reinhart, C. M. and K. S. Rogoff (2014), 'Recovery from financial crises: Evidence from 100 episodes', *American Economic Review*, Vol. 104(5), pp. 50-55; May. Jorda, O., M. Schularick and A. M. Taylor (2013), 'Sovereigns versus banks: credit, crises, and consequences', Working Paper Series 2013-37, Federal Reserve Bank of San Francisco; Jorda, O., M. Schularick and A. M. Taylor (2013), 'When credit bites back', *Journal of Money, Credit and Banking* 45(s2): 3-28; Claessens, S., A. Kose, L. Laeven, and F. Valencia (2013), 'Understanding financial crises: Causes, consequences, and policy responses', *CEPR Discussion Papers*, No. 9310.

Comparing investment developments with a counterfactual path for investment

Sluggish aggregate demand

To understand to which extent the weakness in investment dynamics during the crisis can be attributed to economic activity such as sluggish weakness in aggregate demand and high real interest rates and to which extent it can be attributed to other factors such as uncertainty and deleveraging pressures present in both private and public sectors, a large system that models the joint dynamics of 26 macroeconomic variables has been estimated for the period 1995Q1-2007Q4. Given the estimated past correlations, a counterfactual path for investment (i.e. a conditional forecast) can be obtained for the entire period, 1995Q1-2014Q3, conditional on observed GDP growth, inflation and short-term interest rates. The deviations of current investment developments from this counterfactual path can be interpreted as a lower bound on possible estimates of the existing gaps in the relationship between investment and the rest of the economy in the euro area since the crisis. The correlations in the data have been obtained using three models, a large Bayesian VAR, both in levels and in differences as well as a factor model (see Box IV.1 for details on the methodology). All three models point qualitatively towards the same conclusions.

Graph IV.6 presents the conditional forecasts of 9 macroeconomic variables implied by the observed path of real GDP, inflation and short-term interest rates between 1995Q1 and 2014Q3. The graphs show the actual data as compared to the results obtained using the three models: (i) the distribution of the conditional forecasts in the BVAR in levels; (ii) the point estimate of the median of the distribution of the conditional forecasts in the BVAR in differences; and (iii) the point estimate of the conditional forecasts in the factor model.

Several stylised facts on business cycle co-movement during the crisis emerge from the counterfactual analysis.

First, the large fall in economic activity during the first dip of the recession and the more moderate drop during the second dip should have implied a less sharp fall in investment than the observed one, both for total and housing investment. This is also true when one takes into account the fact that, due to the zero lower bound, real interest rates have

been higher than what the pre-crisis relationship between interest rates and activity would have suggested. The actual fall in investment lies in the tails of the distribution of conditional forecasts during both the first and the second dip of the recession (see Graph IV.6).

Second, the observed fall in private consumption during the second dip of the recession has been faster than what economic activity would have implied, but not during the first dip. The actual data lie almost outside of the distribution of conditional forecasts during the second dip of the recession (see Graph IV.6).

Third, large deviations occur between the observed decrease in outstanding loans to households and firms and their counterfactual paths, illustrating that deleveraging pressures in the private sector during the recession have been much stronger than what the downturn in economic activity and the level of real interest rates would have predicted (see Graph IV.6, loans to households, loans to firms).

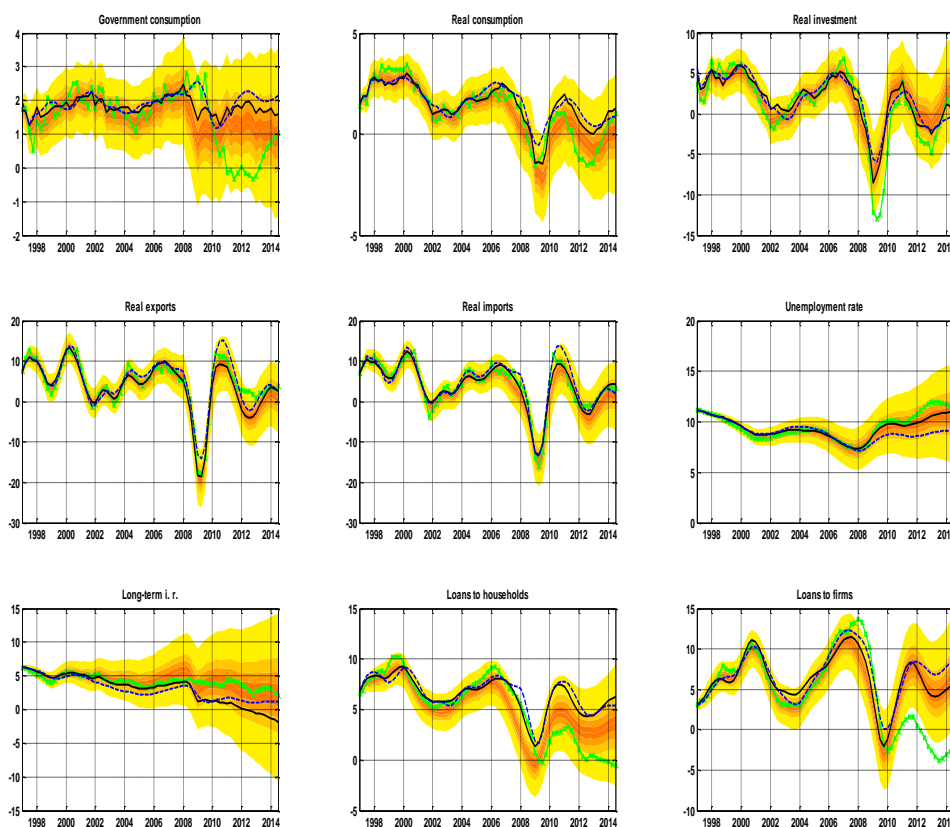
Fourth, large deleveraging pressures in the public sector have led to a significant decline in the euro area aggregate government consumption over the period 2011-2012. However, this decline had almost been reversed by the end of 2014, closing the gap between actual government consumption and its counterfactual path obtained through conditioning on economic activity (see Graph IV.6, Government consumption). By 2014Q3, the government consumption-to-GDP ratio had actually slightly increased - by ½ percentage point - as compared to 2008Q4.

Last, external as well as labour market performances seem to be fully in line with their counterfactual paths given by the distribution of conditional forecasts (see Graph IV.6, Real exports, Real imports and the Unemployment rate).

Uncertainty

Adding a measure of macroeconomic uncertainty to the conditioning set of variables describing economic activity seems to deliver better conditional forecasts for the unemployment rate and the long-term interest rates. However, it does not seem to significantly affect the distribution of conditional forecasts of investment. This is suggesting that uncertainty might have not been one of the main factors driving the misalignments between investment and economic activity

Graph IV.6: **Conditional forecasts based on real GDP, inflation and short-term interest rates (1)**
(1997Q1-2014Q3, y-o-y % growth)



(1) Shades of orange: distribution of the conditional forecasts in the BVAR in levels, excluding the lower and higher 5% quantiles. Dashed blue line: point estimate of the conditional forecasts in the DFM model. Solid black line: point estimate of the conditional forecasts in the BVAR in differences, which is computed as the median of the distribution of the conditional forecasts in this model. Green line with crosses: actual values. The variables are all reported in terms of annual percentage changes, except for the unemployment rate and the long-term interest rate, which are in levels. Conditioning assumptions: real GDP, HICP, and the short-term interest rate.

Source: DG ECFIN, MATLAB codes replication files of the methodological paper (see Box IV.1).

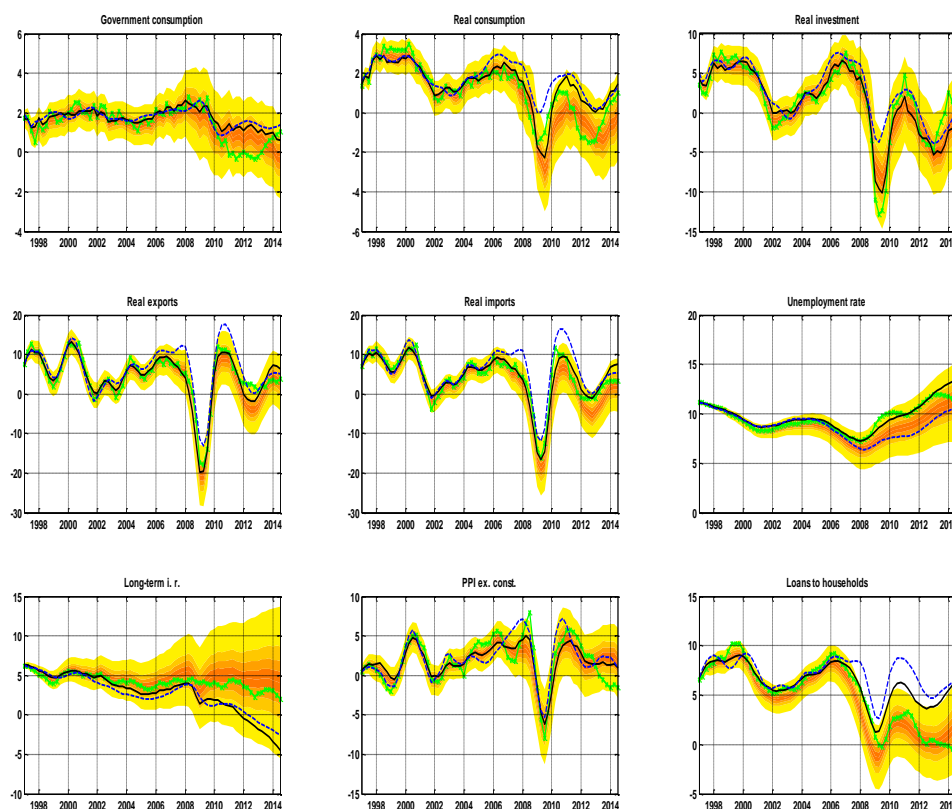
evidenced above, and that, by contrast, uncertainty developments have been fully in line with real GDP. Uncertainty has been measured as the dispersion in answers provided by households to the Commission Consumer Confidence Survey on questions related to their expected financial situation over the next 12 months.⁽⁴⁵⁾ Alternative measures of macroeconomic uncertainty have also been considered without a qualitative change in results.

Deleveraging in the private and public sectors

The most significant change in the counterfactual path of investment during the crisis can be obtained when adding measures of private deleveraging pressures to the conditioning set of variables describing economic activity (see Graph IV.7). Including the change in the stock of loans to firms in the conditioning set describing economic activity, makes the observed fall in investment during the second dip of the recession fully in line with its counterfactual path as described by the distribution of conditional forecasts. This also holds true for private consumption, when including the change in the stock of loans to households. By contrast, the

⁽⁴⁵⁾ For more details on uncertainty indicators, see 'Focus: Assessing the impact of uncertainty on consumption and investment', *Quarterly Report on the Euro Area*, Volume 12, N° 2.

Graph IV.7: **Conditional forecasts based on real GDP, inflation, short-term interest rates, uncertainty and loans to firms**
(1997Q1-2014Q3, y-o-y % growth)



(1) Shades of orange: distribution of the conditional forecasts in the BVAR in levels, excluding the lower and higher 5% quantiles. Dashed blue line: point estimate of the conditional forecasts in the DFM model. Solid black line: point estimate of the conditional forecasts in the BVAR in differences, which is computed as the median of the distribution of the conditional forecasts in this model. Green line with crosses: actual values. The variables are all reported in terms of annual percentage changes, except for the unemployment rate and the long-term interest rate, which are in levels. Conditioning assumptions: real GDP, HICP, the short-term interest rate, the uncertainty indicator and the change in the stock of loans to firms.

Source: DG ECFIN, MATLAB codes replication files of the methodological paper (see Box IV.1).

observed initial fall in total investment during the first dip of the recession remains faster than what economic activity would have implied (see Graph IV.7, Real investment). However, when looking only at non-housing investment, the fall during the first dip of the recession moves into the distribution of conditional forecasts, indicating that the exceptional depth of the first trough in total investment (compared with normal recessions) was much related to a housing cycle and severe corrections in housing investment.

Last, adding a measure of public deleveraging pressures, as measured by the changes in public consumption, together with the measure of private deleveraging does not seem to change the

counterfactual paths for total investment and private consumption during the crisis, indicating that deleveraging pressures in the private sector were the key factor explaining deviations from ‘typical’ downturns during the second dip of the recession. Public sector deleveraging, despite its large size and its misalignment with economic activity, does not seem to have been one of the main factors driving the gap between investment developments and economic activity during the crisis.

Overall, it is necessary to add uncertainty, private deleveraging, inflation and interest rates to the conditioning variables to explain changes in the relationship between total investment and GDP

since the crisis. These variables are, therefore, crucial to understand the change in the euro area business cycle in recent years.

Some degree of stability in the economic relationships following the financial crisis seems to still exist as the conditional forecasts for this period based on the parameters estimated with data until end of 2007 are relatively accurate. However, conditional forecasts based on three variables (real GDP, inflation and short-term interest rate) cannot without credit variables track very closely the severe fall in total investment and private consumption during the last two dip recession.

There are three stylised facts that cannot be tracked by conditional forecasts based on only three variables: (i) the initial sharp decline in total investment during the first dip of the recession, leading to a protracted downward adjustment in the investment-to-GDP ratio, and the more moderate decline of the second dip; (ii) the fall in private consumption during the second dip of the recession; and (iii) the observed path of adjustment in outstanding loans to firms and households, which seem to lie in the tail of the distribution of conditional forecasts, indicating existing misalignments between credit to the real economy and economic activity that cannot be tracked down by aggregate demand, inflation and short-term interest rates.

In order to understand the relationships between GDP and key macro variables such as domestic demand and unemployment since the crisis, in addition to inflation and short-term interest rates, there is a need to include also private credit and uncertainty in the conditioning set of variables. These variables are therefore crucial to understand the sources driving the fluctuations in the euro area business cycle in recent years.

While the investment dynamics in the euro area seems to be very much determined by an accelerator model in which past changes in output explain well much of the investment path, there are episodes of the last recession, notably the depth of first and the second dip, which cannot be tracked down, both for total and housing investment, unless credit and housing cycle developments are taken into account. In particular, a continued long-lasting deleveraging period in the household and non-financial corporate sectors seems to have played an important role in shaping the investment path since the crisis.

Conclusions

Euro area investment has been much weaker in recent years than would normally be expected in a 'typical' recovery. Seven years into the current crisis, a 'typical' rebound in investment is only foreseen to begin in 2015.

The analysis presented in this section suggests that three or four variables are sufficient to capture most developments in the euro area economy, indicating that there are only few sources of fluctuations in the euro area. All in all, the model estimates point to a relatively stable economic relationships following the financial crisis: the conditional forecasts for this period based on the parameters estimated with data until end of 2007 are relatively accurate.

Nevertheless, for the period of the crisis, some exceptions are notable from what would have been expected based on the 1995Q1-2007Q4 estimated economic relationships: (i) differences appear in the developments in credit variables, whose actual developments were much more subdued than what would have been predicted based on information on economic activity; (ii) differences also appear in private consumption for some of the more severe periods of the double dip recession when credit variables are not included in the information on economic activity; and (iii) even when credit developments are taken into account, some misalignments are still present, notably the initial sharp decline in total investment during the first dip of the recession.

The analysis shows that the weakness in investment behaviour since the crisis can be attributed to a large extent to economic activity such as sluggish weakness in aggregate demand and high real interest rates, but also to credit factors such as deleveraging pressures in the private sector. The latter seem to have started to play a more important role since the second dip of the recession with long-lasting effects on investment dynamics. Credit developments have become a major source of fluctuations in the euro area economy during the current recession. Therefore, given the protracted effect of private sector deleveraging on investment dynamics, there is a need to put in place policies to support capital formation in the euro area. By boosting infrastructure spending, the European Investment Plan should play central role in ensuring a sustained rebound in investment in 2015/2016.

Box IV.1: Conditional forecasts of investment during the crisis

The analysis is based on recent developments in the literature of vector autoregressions (VARs) tools for large data sets (Banbura et. al, 2015, Giannone et. al, 2014). VARs are considered to be a reliable tool for building empirical benchmarks as a complement to alternative representations such as dynamic stochastic general equilibrium (DSGE) models, which provide structural benchmarks more grounded in theory, at the cost of imposing more restrictions on the dynamic cross-sectional correlations in the data. Empirically, there are currently two approaches to deal with the complexity of large datasets, without losing their salient features: Bayesian VARs (BVARs) and dynamic factor models (DFMs). The Bayesian VARs offer a solution to the curse of dimensionality in the VAR framework by adopting Bayesian shrinkage. The idea of this method is to combine the likelihood coming from a highly parameterised VAR model with a prior distribution for the parameters that is naïve but enforces parsimony. As a consequence, the estimates are “shrunk” toward the prior expectations. Factor models exploit the fact that macroeconomic and financial time series are characterised by strong cross-sectional correlation. Under the assumption that most of the fluctuations are driven by a relatively limited set of common sources, factor models offer a parsimonious representation by summarizing the information from a large number of data series in few common factors.

The analysis will consider two versions of the BVAR – with data in log-levels and in log-differences – and a dynamic factor model. The dataset includes 26 quarterly variables for the euro area, as listed in the data appendix of the methodological reference paper, providing also the details of the data transformation applied prior to parameter estimation (Banbura et. al, 2015): macroeconomic conditions (GDP and expenditure components, consumer and producer prices, labour market data, surveys, effective exchange rate, world economic activity, commodity prices), financial variables (short and long-term interest rates, stock prices), credit (both to households and firms) and monetary aggregates (M1 and M3). As a measure of macroeconomic uncertainty, an indicator of consumer confidence is used, measuring the dispersion in the answers given by households to the Commission Consumer Confidence Survey on their expected financial situation over the next 12 months. The sample covers the period from 1995Q1 to 2014Q3 for EA18. Most of the data comes from the Eurostat, Quarterly National Accounts. Data on the world economic activity, as measured by global GDP, oil prices, and non-oil commodity prices, are taken from the last 2014 update of the Area Wide Model database. Remaining variables, notably prices, credit and monetary aggregates are taken from the ECB Statistical Data Warehouse. The US short-term interest rate is downloaded from the FRB database.

From each of the three models, forecasts are generated conditional on the observed realised paths of two sets of variables: (i) a small set: real GDP, HICP, and the short-term interest rate; and (ii) a broader set: real GDP, HICP, the short-term interest rate, the uncertainty indicator and changes in outstanding loans to households and firms. The conditional forecasts are generated over the period 1997-2014. The first two years in the sample are used as initial conditions. Thus the conditional forecasts for 1997-2007 can be considered as “in-sample” while those over 2008-2014 as “out-of-sample”. The conditional forecasts computed for the three models provide similar insights: (i) the “in-sample” part (1997-2007) of the conditional forecasts can be compared with the observed developments in order to test whether knowing only the time series of real GDP, HICP and the short-term interest rate is sufficient in order to capture the dynamics of the variables in the model; (ii) by comparing the “out-of-sample” part (i.e. from 2008 onward) of the conditional forecasts with the observed developments, it can also be assessed whether the financial and the sovereign debt crises have produced a change in the structural economic relationships in the euro area. A change in the economic relationships would likely lead to relevant inaccuracies of the conditional forecasts based on parameters representing the pre-2007 economic relationships (Graph IV. 6 and Graph IV. 7 in the text).

The conditional forecasts are close to the actual outcomes, in particular in the “in-sample” period. This fact suggests that few “dimensions” are sufficient to capture the developments in most of the economy. Turning to the “out-of-sample” evidence, there is a general similarity of the conditional forecasts across approaches. However, some differences appear between forecasts and observed developments for a few variables, indicating instability in the relationships of these variables with the conditioning set. In particular, notable differences appear in the developments in credit variables, whose actual developments were much more subdued than what would have been predicted based on the conditioning information. Furthermore, some differences appear between forecasts and observed developments for investment and private consumption

(Continued on the next page)

Box (continued)

for some of the more severe periods of the double dip recession when credit variables are not included in the conditioning information.

References

Banbura, M., Giannone, D. and M. Lenza (2014), "Conditional forecasts and scenario analysis with vector autoregressions for large cross-sections", *International Journal of Forecasting*, forthcoming. Acknowledgements to the authors for sharing the MATLAB codes replication files of the paper.

Banbura, M., D. Giannone, and L. Reichlin (2010): "Large Bayesian vector auto regressions," *Journal of Applied Econometrics*, 25(1), 71–92.

European Commission (2013), "Focus: Assessing the impact of uncertainty on consumption and investment", *Quarterly Report on the Euro Area*, Volume 12, N° 2, DG ECFIN.

Giannone, D., M. Lenza, and G. E. Primiceri (2014): "Prior selection for vector autoregressions," *Review of Economics and Statistics*, forthcoming.

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