independent Annual Growth Survey

Third Report

iAGS

2015

ECONOMIC COUNCIL OF THE LABOUR MOVEMENT

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INDEPENDENT ANNUAL GROWTH SURVEY 2015
iAGS

A DIVERGING EUROPE ON THE EDGE

This is the third independent Annual Growth Survey (iAGS), each a response to the European Commission's AGS, and we have to take note sadly of the continuation of the crisis. Response to the euro sovereign debt crisis has been substantial, but we analyse that it was not sufficient to give a strong enough momentum to the euro area economy in order lastingly to exit the recession it entered 6 years ago.

Failing to exit the crisis brings many poisons, economic, social, and political. Unemployment is at high levels, inequality is rising, and convergence between European regions that was once the rule is no longer occurring. Pressure on wages and the need to restore internal balances between countries fuels deflation. Debt deleveraging, private or public, is far from accomplished and the prospect of falling prices may be the mechanism by which stagnation is perpetuated. The European project of a prosperous and inclusive society is going to sink if we fail to rebound.

Monetary policy alone can't solve the problem. Fiscal policy coordination still does not work well and its bias toward front loading has to be corrected. In the opinion of the authors, what is needed is to circumvent the rules of the fiscal compact. The Juncker plan is one attempt to do so, by proposing to exclude Member State's contribution from national deficit and debt rules. That is far from sufficient, but it opens the way to find ways to achieve fiscal stimulus while continuing to exert pressure on national public finance. Structural reforms cannot be used as a substitute for a stimulus and the possible short term impact on prices or activity should be considered with extreme care.

The report is organized in 5 chapters, one introduction and a bibliography at the end. Table of content precedes. Chapter 1 analyses the macroeconomic situation, presents our forecast. The debt deflation dynamic is a present concern and the nominal adjustment needed as well as fiscal rules increase this risk. Chapter 2 deals with inequality development in the European Union. End of regional convergence, absolute poverty increases, long term unemployment draw a picture of divergence that goes beyond a sluggish macro outlook. Chapter 3 deals with monetary policy in a fragmented financial system. Monetary policy alone will not change the course of the events, but quantitative easing is to be pushed forward. More can be done, with a monetary financing of public investment. Chapter 4 discus the necessity of “greening” an investment plan and propose a “carbon fiscal shock” to drive the European economy out of the crisis and toward low carbon pathway. Chapter 5 evaluates the magnitude

of the nominal adjustment inside the euro area. Adjusting only countries in deficit could increase the pressure toward deflation and ask for a balanced adjustment, involving surplus countries.

We hope you find the iAGS 2015 report a stimulating read, on behalf of the iAGS team.

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A DIVERGING EUROPE ON THE EDGE

(…)
"There must be some way out of here," said the joker to the thief,
"There's too much confusion, I can't get no relief.
Businessmen, they drink my wine, plowmen dig my earth,
None of them along the line know what any of it is worth."

"No reason to get excited," the thief, he kindly spoke,
"There are many here among us who feel that life is but a joke.
But you and I, we've been through that, and this is not our fate,
So let us not talk falsely now, the hour is getting late."

(…)

All along the watchtower, 1968, Bob Dylan

Six years after the world economy entered its deepest crisis since World War II, most economies are showing some solid signs of recovery. Most, but there is a prominent exception: the European economy—and within it especially the euro area—is still stuck in the crisis. Powerful forces of divergence are being fed by the failure to exit the crisis quickly. The risk of a long-lasting stagnation is real.

The euro area crisis has been a tough test of the construction of the euro. A lot has been done to respond to the revealed failure of the European institutional framework, that some rightly denounced years before. Europe is advancing in crisis, as often said, even if this way to progress is far from efficient and presents juridical challenges. Having said that, we need to acknowledge and to react to the fact that presently Europe is not doing what is needed to exit the crisis once and for all. Losing that opportunity is certainly not acceptable to citizens who already question a construction that many feel impinges negatively, and no longer positively, on their lives.

It is no surprise against this background that we have seen the rise of Eurosceptic parties on both the Right and the Left calling for the break-up of the euro area and, in some cases, withdrawal from the EU or for the European integration project to be thrown into reverse gear. We reject these siren calls. A return to national currencies and the supposed certainties of national politics is not the way forward. The costs of a disorderly break-up of the euro area are incalculable, and it is hard to imagine how an orderly break-up might be brought about. Should a Eurosceptic majority be elected in one of the Member States the crisis will be upon us once again. Instead the aim must be to build on what has been achieved in the past five years and to chart a path towards a euro area that is viable, stable, vigorous and sustainable.

Times of divergence

Recovery has been announced many times since 2011 (see Table 1 and chapter 1 of this report). All these hopes have vanished as economic indicators repeatedly showed that Europe, and especially the euro area, was unable to lastingly free itself from stagnation at a much reduced level of output and employment (Table 2). At the end of 2014, economic activity as measured by GDP is still below its pre-crisis level and far from its potential. The output gap is wide open and the per capita GDP comparison –which allows for the more favourable demographics in the US—is striking (Figure 1).

Table 1. EC and iAGS forecasts and outcomes

In %

	EC Autumn forecast in year n-1	iAGS Autumn forecast in year n-1	GDP growth
2012	0.5		-0.7
2013	0.1	-0,3	-0.4
2014	1.1	1.0	0.8
2015	1.1	1.3	
2016	1.7	1.6	

Sources: Eurostat, European Commission, iAGS.

The Great Recession in 2008-2009 was as deep in the euro area as in the United States. But recovery has continued overseas whereas it broke down in 2011 in the euro area, precisely when member states engaged a strategy of tough and synchronized fiscal consolidation and when existing European institutions were unable to circumvent the sovereign debt crisis.

Table 2. GDP growth rate forecasts

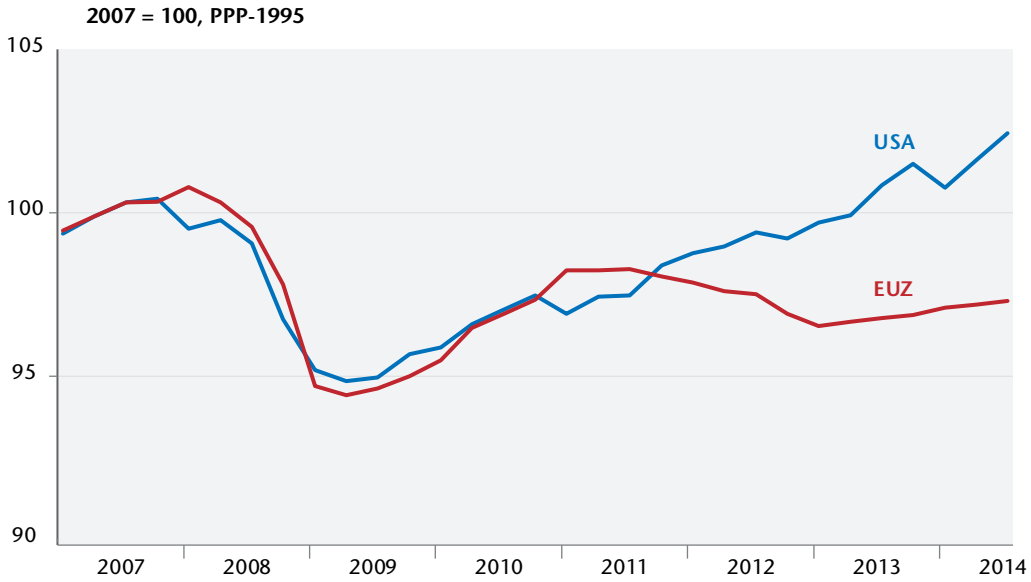
In %

	2013	2014	2015	2016
DEU	0.2	1.5	1.4	1.7
FRA	0.4	0.4	1.1	1.7
ITA	-1.8	-0.2	0.5	0.7
ESP	-1.2	1.3	2.1	2.3
NLD	-0.7	0.6	1.4	1.9
BEL	0.2	1.0	1.2	1.6
PRT	-1.4	0.8	1.4	2.0
IRL	0.2	4.0	2.8	2.6
GRC	-3.3	0.4	1.9	1.9
FIN	-1.3	-0.1	1.3	1.2
AUT	0.3	0.7	1.3	1.6
EA	-0.4	0.8	1.3	1.6
UK	1.7	3.0	2.1	1.8
UE-28	0.1	1.3	1.5	1.7

Sources: Eurostat, iAGS calculations.

The unemployment rate has been slightly decreasing recently but remains at historical high levels. Since October 2009, it has been plateauing at a level above 10% of the active population. A profound divide exists between countries experiencing unemployment rates around 25% (Spain and Greece) and some nearly at full employment (Germany and Austria).

Figure 1. Per capita GDP in the United States and in the euro area



Sources: Eurostat, iAGS calculations.

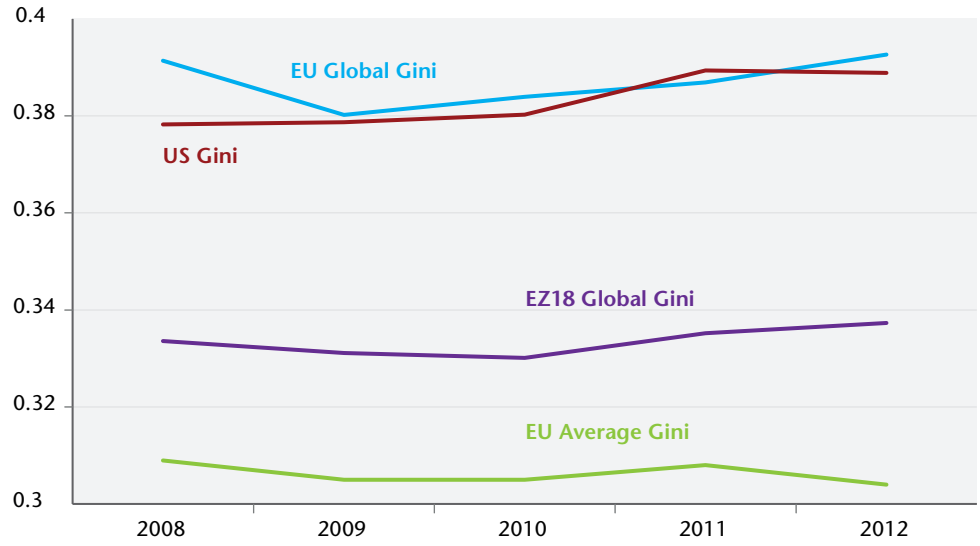
Nearly 12 million people in the EU28 have been unemployed for one year or more. Young people find it harder to get their first job, their first experience, which is so important for the rest of their working-life. More and more people have been thrown out of unemployment benefit schemes and forced to take any job on offer. Welfare states are being cut back, in some countries slashed, under austerity programmes and because they are wrongly seen as being at the roots of the crisis. More and more Europeans are suffering from material deprivation—absolute poverty—notably in Greece, Hungary, Cyprus or Italy. Falling GDP per head, the rise of unemployment and the cut in social public expenditures are highly correlated to the extent of poverty increases in the different EU countries (chapter 2 of this report).

Inequalities are widening. A global EU inequality indicator (a gini coefficient) that—in contrast to an average measurement by country—measures overall inequality among EU28 or euro area citizens (Figure 2) is striking: the level of inequality in the EU28 is comparable to that in the United States. It has significantly increased since 2009, and euro area also displays such a trend of rising inequality. Divergence between countries is the main source: regional convergence, once a goal, has stalled in the crisis and gone into reverse (see figure 1 and 2 of chapter 2 of this report).

The current trends of the European economy are not those of an inclusive society. The severity and particularly the duration of the crisis are compromising

the achievement of the Europe 2020 strategy goals. High unemployment is already pushing real wages downward in many countries. Labour market reforms have amplified and will probably continue on the race to the bottom already engaged by countries using relative competitiveness as a mean to compensate for the negative impact of fiscal consolidation. But this asymmetrical strategy is bringing inadequate results in terms of adjustment, threatens to exacerbate the loss of social cohesion and is fuelling disinflation while risking deflation (chapter 5).

Figure 2. Evolution of inequality in EU, euro area and United States



Source: EU-SILC, OECD, iAGS calculations.

Is Europe condemned to underachieve?

In the heat of the Euro sovereign debt crisis, a lot has been done. Since July 2012, the ECB (European Central Bank) publicly stated a willingness to act as a lender of last resort, securing sovereign debt markets. The banking union is laying the ground to end the *liaisons dangereuses* between banks holding national public debt and states covering extreme balance sheet risks in the financial sector. Under the reinforced SGP (Stability and Growth Pact) and its sequel, the fiscal compact, fiscal discipline has been more under the scrutiny of peers than under the scrutiny of the market, hence removing speculative attacks.

What was done has certainly contributed to put an end to the double-dip induced by the euro sovereign debt crisis. Paradoxically though, it has in part also contributed to this double-dip and risks longer-run stagnation. The counterpart of the emergency assistance from the European Institutions was the frontloading of fiscal policy in Member States. The frontloading was done in a time of high fiscal multipliers and therefore placed a large toll on economic activity. This has been analysed as a failure or as a lost opportunity in previous reports (iAGS 2013 and iAGS 2014). There is now a broad consensus ranging from the OECD to the IMF about the value of fiscal multipliers, and drawing on this consensus, alternative

scenarios of backloaded fiscal consolidation[1] with the same powerful intervention of ECB and other European institutions (ESM in particular) showed that it was possible for the euro area to avoid most of the double dip of the years 2011-2012. The significance is grave: it means that the double dip was self-inflicted.

Failing to exit promptly from the euro crisis and enduring the double dip have come with consequences: the euro area is now close to deflation and the debt-deflation dynamic is threatening to prolong stagnation. Moreover, the reinforced rules of the SGP call for a reduction of the public debt ratio back to 60% within 20 years from now. Low inflation (not to mention deflation) is going to imply higher structural primary surpluses than those aimed at today. A more restrictive fiscal stance, in a time when fiscal multipliers are still high in many countries, will close the fiscal trap.

The ECB is clearly aware of this situation and, even if the board is divided on the policy implications, stands firm on the "whatever it takes" doctrine. Aggressive monetary policy will be maintained, quantitative easing will be conducted, even probably extended to sovereign bonds in 2015. The tightening of US and UK monetary policies, meanwhile, will depreciate the euro against the dollar or sterling. But many fear that monetary policy alone will not be effective enough to prevent stagnation. Quantitative easing by the ECB is to be welcomed. But it must be recognised that it works through indirect channels. In a deflationary environment with private and public actors struggling to deleverage, it may not be enough to avoid a continent-wide paradox of thrift, i.e. in the end an increase of debt to GDP ratios.

There is more. Sustained unconventional monetary policy in a stagnating economy may bring distributional downsides and negative side effects under the form of risk mispricing, asset price bubbles, carry trade and exchange rate volatility. This adds to the imperative need to escape the stagnation.

The Annual Growth Survey,[2] published by the Commission in November 2014, proposes a three-pillar response to the crisis. The first pillar is the 300bn € Juncker plan. Presented as a way to revive investment in Europe, back to "normal and sustainable" levels, the Juncker Plan adds virtually no fresh money. Recycling funds from the EU budget and the EIB (European Investment Banks), a new vehicle, the EFSI (European Fund for Strategic Investment) will carry on projects with an expected leverage of 1:15, thus expanding 21bn € to 315bn €. It is not at all clear that, in the current environment, the incentives offered will be anywhere near sufficient to induce additional private investment of this order of magnitude. It is highly likely that any investment forthcoming under the Juncker plan will be in large measure a reflection of reduced investment elsewhere (substitution) or will be investment that will have occurred in any case (deadweight). The scheme is a step in the right direction but it would be foolhardy to rely on such an inherently uncertain pillar to jolt Europe out of crisis.

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1. Backloaded fiscal consolidation alternative scenarios have been simulated by iAGS 2014 and iAGS 2015. These alternatives are calculated such as to bring the same debt to GDP ratios as in the frontloaded fiscal consolidation 20 years from now. The better outcome in term of GDP and unemployment is due to fiscal multipliers being lower when output gap is closed than when output gap is largely negative.
2. http://ec.europa.eu/europe2020/pdf/2015/ags2015_en.pdf

The second pillar refers to structural reforms and investment-friendly regulations. Promoting legitimate evolutions of the competitive framework might be genuinely beneficial in the long run. But the real question remains: is that going to help to change the course of events in the next few years? On that matter, empirical evidence leaves no doubt and suggests that most structural reforms may have negative effect on activity or prices in the short term. Any payoffs come much later and are themselves contingent on adequate expansion of demand.

The third pillar is the streamlining of the fiscal governance architecture. Indeed, the current fiscal governance is complex and biased toward frontloading. It is profoundly inadequate to deal with a sustained period of low inflation not to speak about a deflation. Streamlining the fiscal governance could end in the deepening of the fiscal trap. The Commission rightly points out that some countries have fiscal space and could compensate countries in consolidation. Unfortunately, —not for the counties themselves, but for policymaking at the European level—those countries with fiscal space—the only one with the potential to have substantial spillovers to other countries is Germany—are countries with low unemployment, not likely to boost an economy seen as being already close to a steady-state path. Hence, the spillovers one can expect from a positive fiscal stance in a country like Germany are highly unlikely to be strong enough to alleviate the burden of consolidating countries.

To repair the damages of past frontloading, more than less frontloading—utilising the flexibility opened for countries in the preventive arm of the SGP—is needed. Overall, the three pillars strategy of the Commission, as proposed in the AGS, is likely to miss the target. Underachieving policies while claiming to enforce a stricter discipline will end in a loss of confidence in European institutions and the integration process more generally. The advances from the common market to the single currency and the painful and slow establishment of a more democratic Europe in 28 countries are promises we cannot break.

Beyond the fiscal compact

More is needed. Suspending the SGP is unfortunately not an option, in the short term. The SGP and its reinforcement with the TSCG (Treaty on stability, coordination and growth) is one of the pillars of the nascent solidarity that ended the euro sovereign debt crisis. Weakening or renegotiating it could reopen a period of large uncertainty in which the euro may not survive. Asking more from countries where political and social discontent is everyday fuelled by the crisis can reveal the European fiscal governance weakness. Peers have no democratic legitimacy to define national policies except where there are clear consequences on the common house. Peers face no responsibility nor accountability, and, consequently, have no coercive power on national policies. In the end, current European governance rely on the willingness of member states to apply recommendations. The bias toward frontloading thus ensues: discipline only works out of fear, not out of responsibility and accountability. It fuels distrust in Europe and peers, perceived as advisors defending their own interest.

It is not going to be possible to exit from the crisis and have a sustained upturn while sticking to the letter and spirit of all the rules (see Box 1). At the very least we are going to have to creatively use all the legal ambiguities and all the

backdoors we can to overcome the limits the fiscal compact imposes. The Juncker Plan has opened a breach, excluding Member States participation in the EFSI from the deficit and debt rules. A proposition similar in spirit is to be found in the recent Franco-German joint report by Enderlein and Pisani-Ferry.[3] Fresh money, borrowed using present-day very low rates, channelled through a supranational vehicle and targeted on specific uses can ease the acceptance of peer pressure on national fiscal policy, as long as it excluded from calculation of the national debt or deficit. It is a way to give room of manoeuvre while monitoring specific policies through the control of the funds reinvested. It is a way to backload fiscal consolidation while at the same time safeguarding fiscal discipline and moderating its negative impacts.

As we show in chapter 5 of this report, although some progress has been made in bringing about an adjustment in competitiveness, the remaining nominal adjustment requirement is still large. Solving it with a (further) decrease of nominal wages in deficit countries will precipitate deflation. The fiscal cost of the real public debt appreciation will exert further deflationary pressure resulting in a vicious circle. Reflation of surplus countries is an important objective to rebalance European competitiveness issues. Increasing wages is not something you can decide by law or by government action. We advocated in iAGS 2014 a differentiated evolution of minimum wages norms based on current account (or preferably on structural current account) positions. The implementation of a minimum wage in Germany is one step forward and this policy proposal still stands. More generally, a strengthening of capacities at both national and European level to ensure balanced wage and price developments and prevent beggar-thy-neighbour strategies is needed in the medium run.

We should assess the scope for further-reaching measures which should be prepared for use and that would lead to *direct* impacts on investment and the economy, rather than relying on measures that work through indirect channels. A fiscal carbon shock and a targeting of investment in transition toward a low carbon economy could add 200bn € a year in investment and produce the needed boost. The key element is political acceptance of the implementation of a price of carbon using either a cap-and-trade mechanism (ETS) or a carbon tax. A transition fund, fed by member states and exempted from the SGP accounting, could finance over-compensation to Member States of the resources withdrawn via the tax, and support action with significant contribution to the economy and particularly in the area of climate-change-prevention (this is developed and simulated in chapter 4 of this report). Public investment on this scale would be enough to counter the stagnation, especially if, as the IMF now estimates, the multiplier for public investment in the current environment could be as high as 3.

Ultimately consideration needs to be given to financing public investment through purchases of newly created EIB bonds by the ECB on secondary markets and the distribution of resources to Member States for the purposes of public investment (this proposal is discussed in chapter 3 of this report). The bonds are held by the ECB for an agreed period, and this forms part of its QE program, with

3. http://blog.en.strategie.gouv.fr/wp-content/uploads/2014/11/Rapport-Henderlein-Pisani-EN-final-1.pdf

the difference that real spending in the economy is assured without initially raising the government debt burden. Different modalities for distributing the resources and paying down the loans are discussed, along with a mechanism to ensure compatibility with the ECB's mandate to ensure price stability.

Once again Europe finds itself in a critical situation. A change of policy course is required. The existing policy space needs to be exploited to the full. And more unconventional policies need to be readied in the case of a failure to emerge from what otherwise threatens—secular stagnation.

Box 1. Four trilemmas

The crisis opened in 2008 implies that the Euro area is confronted with at least 4 trilemmas. Retrieving a stable macroeconomic equilibrium requires a different strategy for the European economy. iAGS 2015 develops on this.

Trilemma 1: achieving inflation at target (of 2% per year in the mid term), endorsing structural reforms (flexibilising goods and service or labour markets) and achieving fiscal discipline (60% debt-to-GDP ratio in the mid term) is not possible at the same time. Fiscal discipline and structural reforms pave the way for deflation. Fiscal discipline and inflation at target produce high social costs to structural reforms (fiscal discipline urges a mix of higher taxes and lower spending in high-employment countries, those where structural reforms are urged; inflation at target without nominal wage increase reduces purchasing power) and make their endorsement unlikely. Inflation at target and structural reforms are inconsistent with fiscal discipline: a rise in inflation reduces the real debt burden and governments face incentives to use the proceeds to increase, not decrease, public deficits, and the (short-run) costs of structural reforms need to be mutualized.

Trilemma 2: achieving inflation at target (of 2% per year in the mid term), financial stability and having a conservative central banker (with a relative high aversion against inflation) is not possible. If the ECB is leaning against the wind to achieve financial stability, hence implementing a restrictive monetary policy to dampen financial bubbles, the ECB will underperform its inflation target. Experience has finally shown recently that inflation close to target with a conservative ECB has been inconsistent with financial stability. Consequently, achieving the inflation target and financial stability requires an accommodative monetary policy.

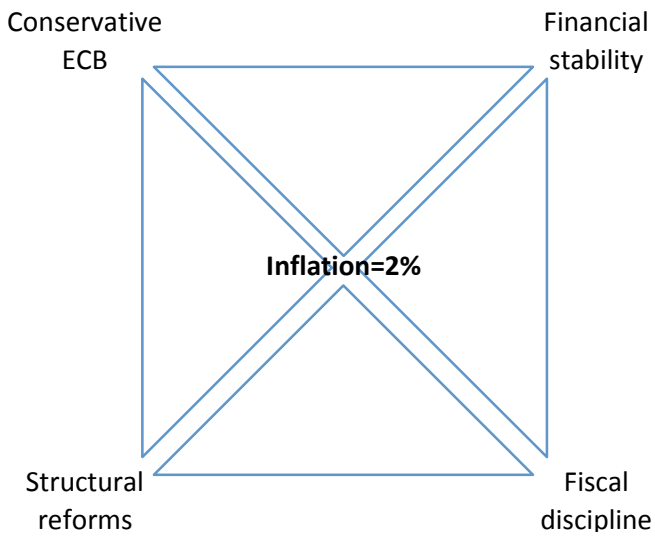
Trilemma 3: achieving inflation at target (of 2% per year in the mid term), endorsing structural reforms and having a conservative central banker is not possible. A conservative ECB achieving its inflation target sets high real interest rates which increase the opportunity cost of implementing reforms in the real sector, hence benefiting the financial sector where real yields are rising. A conservative central banker and endorsement of structural reforms lead to below-target inflation. Inflation at target and structural reforms therefore require an accommodative monetary policy.

Trilemma 4: achieving inflation at target (of 2% per year in the mid term), under fiscal discipline, and achieving financial stability is not possible. Inflation at target and fiscal discipline prevent the endorsement of structural reforms (see trilemma 1) and limit the attractiveness of the real sector at the benefit of

the financial sector: investors buy more private financial assets, hence paving the way for a disconnection between the real and the financial sectors which fuels new bubbles. Recent experience has also shown that despite fiscal discipline and inflation close to target, the euro area has been hurt by financial instability. Inflation at target and financial stability require a balanced portfolio of risk-free and risky assets: they are not consistent with fiscal discipline of all euro area countries alike. Achieving financial stability and fiscal discipline requires to limit leverage, not only from governments but also from private firms (high leverage is one important component of the global financial crisis); it would thus lead to below-target inflation because of low overall activity level.

These 4 trilemmas are strikingly interconnected (see the four triangles in figure 3 below). It thus appears that to solve these trilemmas, only two changes are required; replacing the conservative central banker with a social central banker, and fiscal discipline with fiscal accommodation. Of course, a general overhaul of monetary and fiscal policies in the euro area would be the first-best option. Nevertheless, it is unlikely that these changes would be accepted all over the euro area. The second-best option is to have a central banker who endorses unconventional monetary policies (the current one does) and implements them. In this latter case, we propose a plan by which some monetary financing of domestic public spending with positive spillovers to all member states which could start the process. As for fiscal accommodation, the latter plan, including a reform of the carbon tax, would give an impetus to euro area economic growth in the short run but also an improvement in the path towards a sustainable economy in the longer run.

Figure 3. 4 trilemmas in a graph



Source: iAGS calculations.

DEFLATION IS COMING:
ECONOMIC PERSPECTIVES FOR THE EURO AREA AND EURO AREA COUNTRIES IN 2014, 2015 AND 2016

Six years after the start of the Great Recession, the economic and social situation in the euro area is still depressed and fragile as shown by key macroeconomic indicators. Growth will not exceed 0.8% in 2014 after two consecutive years of recession. The risk of deflation is increasing as inflation has now been below 0.5% since May 2014. Employment has improved moderately but unemployment remains at an unacceptably high level. Consequently, inequality and the risk of poverty are increasing significantly.[1] In short the euro area still suffers the aftermath of the crisis and has not yet engaged in a buoyant recovery.

Recovery had been expected for 2014 as fiscal consolidation was weakening. It has yet not materialized (Table 1). Fears of a new recession even resurfaced during the autumn. Christine Lagarde, Head of the IMF, estimated in October 2014 that the probability of a recession in the euro area at the end of 2014 ranged between 35 and 40%. Recession has been avoided thus far but GDP growth reached only 0.2% in the third quarter of 2014 after 0.1 in the previous quarter. The risk of a sustained period of low growth has been reinforced. The threat of deflation is becoming more prevalent. With high unemployment, high public and private debt and banks' fragility, the decline in inflation could precipitate some countries, then the rest of the euro area, into a vicious circle of rising public and private real debt leading to a new recession. At best, the euro area will be bogged down in a low growth and low inflation trap if no additional measures to stimulate growth are taken. The downward revision of growth expectations for 2014 reflects the premise of this situation. Even Germany has shown signs of cooling down. GDP growth has come to a halt during the last two quarters.

It remains the case that taking the year as a whole, Germany will remain the main driver of the euro area, with GDP increasing by 1.5% in 2014. With a 0.4% growth expected in 2014 as in 2013, France remains in virtual stagnation. Italy is still mired in recession, it has recorded 13 consecutive quarters of decline of the GDP. On a yearly basis, the recession will amount to -0.2% in 2014 after -1.8% the previous year. Italy will be the only euro area country alongside Finland to be in recession. On the other hand, growth has gained momentum in Ireland and Spain. Irish GDP grew by 2.8 and 1.5% in the first two quarters of 2014. After a sharp reduction in economic activity in 2011 and 2012, Spanish GDP has grown for five quarters and is forecast to end up the year 2014 with 1.3% growth (Table 2). The economic outlook is gradually improving in the Netherlands and Portugal. Both countries have reported positive growth in 2014 after recessions in 2013. Greece will also grow by 0.4% in 2014, after a 6-year slump where the fall in activity exceeded 25%. Finally, Austria has been characterized by slow growth for the first three quarters of 2014, which is mainly due to weak activity in the rest of Europe. Over the full year, growth is expected to reach 0.7%.

1. See Chapter 2 of this report for more details on rising inequalities in the EU.

Table 1. EC and iAGS forecasts errors

In %

	EC Autumn forecast in year n-1	iAGS Autumn forecast in year n-1	GDP growth
2011	1.5	1.7	1.8
2012	0.5	0.9	-0.7
2013	0.1	-0.3	-0.4
2014	1.1	1.0	0.8

Sources: Eurostat, European Commission, iAGS forecasts (for 2011 and 2012).

Although fiscal impulses remained negative, they have been decreasing, raising hopes for an acceleration of growth, as the negative impact of austerity would have been mitigated. Recent evidence has thwarted these expectations, however. Austerity and other factors have slowed down economic activity. Disinflation has pushed upward real financing conditions. In some countries, it has completely offset the observed reduction in official interest rates. Furthermore, the euro also appreciated between July 2012 and the end of 2013, reinforcing disinflation, although there has been a correction more recently. The ECB is also concerned with the appreciation of the euro observed in 2013 and the heightened risk of deflation. It has announced new monetary policy measures targeting notably credit distribution to non-financial corporations. While essential, these measures may have limited impacts on credit growth.

Within the euro area, exchange rate adjustments cannot be used, forcing countries to resort to internal devaluations to fight against unemployment. Such strategies are also supported by the new macroeconomic governance of the euro area and emphasized by the European Commission in yearly in-depth reviews. Gains in competitiveness are obtained, not by currency devaluation, but by downward adjustment in production costs. The aim is to reduce current account imbalances and boost growth by stimulating exports. But efforts of first-movers are quickly thwarted by those engaged in the same beggar-my-neighbour strategy. There is here a powerful mechanism that pushes the entire euro zone to deflation. In iAGS 2014 report, we stressed the need to implement wage coordination mechanisms to avoid the shortcomings related to this race to competitiveness.[2] This idea is more than ever relevant.

Finally, financial constraints still weigh on households, enterprises and governments, and reduction in the inflation rate makes deleveraging more difficult. Besides, non-performing loans are not yet fully cleared in many European banking systems. Household or non-financial corporates' debt remains high. In the euro area, deleveraging of private agents has been rather slow so the process is set to continue. That would then weigh down investment, consumption and employment perspectives, risking leading the euro area in a vicious circle similar to Japan's Lost Decade during the 1990's. Debt reduction efforts will still be significant for some governments. Constraints for reducing public debt have now been enshrined in the new institutional set-up. Countries will have to make efforts to reduce structural deficits in order to converge towards a ratio of debt-to-GDP ratio

2. Competitiveness issues are analysed in depth in chapter 5 of this report.

of 60% in 20 years (see Box 1 for more details on current fiscal rules). Austerity is far from over, which could make it difficult to support initiatives for public investment. Under these conditions, the risk of weakening growth goes largely beyond short-term perspectives. The Europe 2020 targets for smart, sustainable and inclusive growth, already distant, would become entirely unattainable.

Table 2. GDP growth rate forecasts

In %

	2013	2014	2015	2016
DEU	0.2	1.5	1.4	1.7
FRA	0.4	0.4	1.1	1.7
ITA	-1.8	-0.2	0.5	0.7
ESP	-1.2	1.3	2.1	2.3
NLD	-0.7	0.6	1.4	1.9
BEL	0.2	1.0	1.2	1.6
PRT	-1.4	0.8	1.4	2.0
IRL	0.2	4.0	2.8	2.6
GRC	-3.3	0.4	1.9	1.9
FIN	-1.3	-0.1	1.3	1.2
AUT	0.3	0.7	1.3	1.6
EUZ	-0.4	0.8	1.3	1.6
GRB	1.7	3.0	2.1	1.8
UE-28	0.1	1.3	1.5	1.7

Sources: Eurostat, iAGS forecasts.

Box 1. Short description of current fiscal rules

There are currently five fiscal rules which must be fulfilled by EU Member States. Except for one fiscal rule exclusively related to the Fiscal Compact—the new medium-term fiscal objective, see fifth fiscal rule below—all EU fiscal rules have been in force since at least November 2011.

First, the cornerstone of European fiscal rules remains the public deficit to GDP limit at 3%. Deficits above this threshold can be labelled "excessive deficits", setting in train an excessive deficit procedure.

Second, the public-debt-to-GDP ratio must be limited to 60% of GDP or it must be decreasing towards this level.

The first and second fiscal rules are embedded in the Stability and Growth Pact originally introduced in 2005.[3] They were confirmed by the revised

3. The first rule has been the cornerstone of European fiscal rules since 1997 and the first version of the Stability and Growth Pact, whereas the second rule was only a convergence criterion between 1997 and 2005, before it was introduced in the first reformed version of the SGP. Legally speaking, the debt-rule was not a binding constraint on Euro area members states between 1999 (creation of the euro) and 2005.

Stability and Growth Pact adopted in November 2011 under Council Regulations 1173/2011, 1175/2011 and 1177/2011.

Third, if the public-debt ratio is above the threshold limit, the ratio will be considered to diminish at a sufficient pace if the difference between actual debt and the 60%-of-GDP limit has been decreasing during the three preceding years at an average yearly rate of 1/20th of the difference. This 1/20th debt rule is incorporated in the revised Stability and Growth Pact adopted in November 2011 under Council Regulation 1177/2011, (article 2, (1bis)). It has also been included in the Fiscal Compact, article 4, of the Treaty on Stability, Coordination and Governance in the EMU of March 2012.

Fourth, if a Member State is under an excessive deficit procedure, Council Regulation 1177/2011, article 3, states that: "in its recommendation, the Council shall request that the Member State achieve annual budgetary targets which, on the basis of the forecast underpinning the recommendation, are consistent with a minimum annual improvement of at least 0.5% of GDP as a benchmark, in its cyclically adjusted balance net of one-off and temporary measures, in order to ensure the correction of the excessive deficit within the deadline set in the recommendation". In its article 5, Regulation 1175/2011 restates the same benchmark of a yearly improvement of 0.5% of GDP of the cyclically-adjusted deficit to reach the medium-term fiscal objective of a balanced-budget expressed in structural terms.

Fifth, the medium-term fiscal objective was made more precise in the Fiscal Compact, article 3. It states that general government budgets shall be balanced or in surplus, a criterion that "shall be deemed to be respected if the annual structural balance of the general government is at its country-specific medium-term objective, as defined in the revised Stability and Growth Pact, with a lower limit of a structural deficit of 0.5% of the gross domestic product at market prices". The limit is set at 1% for countries with debt below 60%.

Some of the above-mentioned rules make provision for exceptional circumstances. Such has always been the case for the first rule. However the strictness of exceptional circumstances has largely changed over the years. Between 1999 and 2005, exceptional circumstances meant a recession: a yearly real GDP contraction of at least -2% permitted automatically delayed austerity to converge towards the 3%-of-GDP limit for the public deficit and balanced budget in the mid-run. A yearly real GDP decline of at least -0.75% permitted delayed austerity provided a majority of member states approved these exceptional circumstances. In 2005, the scope of exceptional circumstances was widened to encompass the implementation of structural reforms that were elaborated to cope with the Lisbon agenda strategy, and the implementation of public investment. Moreover, an unexpected economic slowdown could be considered as exceptional circumstances.

The 2011 body of legislation—the 6-pack—recalls the reform of the 1997 version of the SGP. It opens up a scope to use pension reforms as authorizing a public finances' gap *vis-à-vis* the convergence path towards the medium-run deficit objective (article 5, regulation 1175/2011). The fiscal compact introduced the following (complementary) definition of exceptional circumstances: "an unusual event outside the control of the (MS) which has a major impact on the financial position of the general government or periods of severe economic downturn as set out in the revised SGP, provided that the temporary deviation (…) does not endanger fiscal sustainability in the medium-term" (article 3, (b)). The definition of an "unusual event" remains unclear.

1. A fragile economic outlook

Austerity in the euro area: Slow but steady …

Since 2010, European countries have implemented restrictive fiscal policies to reduce budget deficits (Table 3), with highly negative fiscal impulses[4] (-4.3 points of GDP in the euro area). These policies have put an end to the emerging recovery. In the euro area, the institutional crisis triggered a sharp increase in interest rates in Greece, Ireland, Portugal, Spain and Italy, after a decade of convergence within euro area countries, which followed the adoption of the euro. The revision of the Greek fiscal deficit in late 2009 brought to light the risks of public finance unsustainability in Greece and highlighted the institutional weaknesses of the monetary union, shortcomings that were already identified at the start of EMU.[5]

Government bond rates rocketed, thus accelerating fiscal consolidation policies which were in any case necessary to comply with the Stability and Growth Pact. Facing market pressures, governments have sought to gain credibility and rapidly endeavoured to cut down budget deficits. This strategy was first implemented by governments for which access to market financing was restricted or denied (Greece, Ireland and Portugal). In these countries, accumulated negative fiscal impulses reached unprecedented levels, exceeding 19 points of annual GDP in Greece, 13 points in Ireland, 11 points in Portugal and 9 points in Spain. In Italy, despite difficulties similar to those faced by Spain, the cumulated negative fiscal impulse was lower. However, as fiscal stance was less expansionary in Italy in 2008 and 2009, the cumulated fiscal stance over 2008-2013 has been significantly negative and on average more restrictive than in France. In other European countries, austerity policies were carried out in the Netherlands, in Belgium, in Austria and to a lesser extent in Germany. Fiscal policy was nearly neutral over the period only in Finland.

These policies, however, have moved again the euro area into recession[6] and failed to restore credibility in crisis countries, notably those countries which benefited from financial assistance and were under the surveillance of the Troïka. Despite fiscal consolidation, CDS premiums continued to increase in 2010 and 2011 and have receded only after Mario Draghi pronounced the "Whatever it takes…" in July 2012 (Figure 1). Countries have then gradually regained access to financial markets (see Pisani-Ferry, Sapir and Wolff, 2014). The restrictive fiscal policy stance will lessen considerably in the euro area in 2014 and 2015. Beyond this, stability programs forecast further consolidation, but at a moderate pace because most countries won't be concerned anymore by the excessive deficit procedure. Fiscal consolidation will then depend on medium-term fiscal objectives and the ability of countries to converge towards the threshold for the debt-to-GDP ratio of 60% (see Part III of this chapter).

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4. Fiscal impulse measures the fiscal stance (generally measured by a change in structural fiscal balance). A negative fiscal impulse is a restrictive fiscal policy.
5. See Bordo & Jonung (2003) and more recently de Grauwe (2012).
6. The macroeconomic and social impacts of these strategies have been widely discussed in the two previous reports of IAGS (see OFCE-ECLM-IMK, 2012 and 2013).

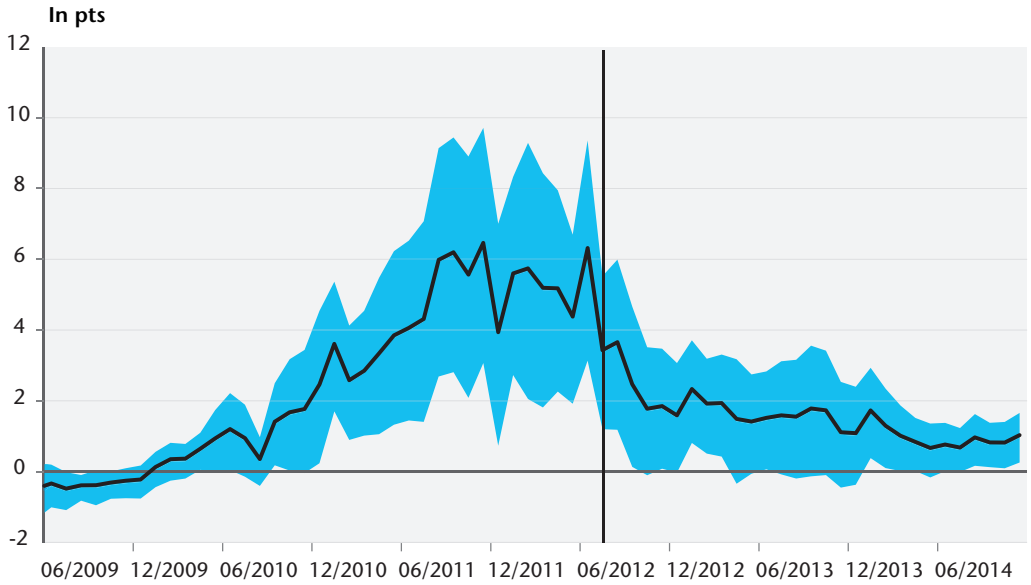
Table 3. Fiscal impulses

In % of GDP

	2008-2009	2010-2013	2014	2015	2016-2018
DEU	0.5	-0.7	0.2	0.1	0.2
FRA*	2.9	-4.6	-0.3	-0.3	-1.0
ITA	1.0	-4.0	0.2	0.0	-0.6
ESP	4.3	-9.1	-1.0	-0.4	-1.3
NLD*	4.1	-5.9	-0.9	-0.5	-0.1
BEL	2.5	-2.6	-0.5	-0.7	-1.6
IRL	8.3	-13.1	-1.8	-1.1	-0.8
GRC	6.0	-19.3	-1.7	-1.9	n.a
POR	5.6	-11.4	-1.0	-0.5	-0.9
AUT	-0.2	-3.4	-0.4	0.0	-0.5
FIN	1.7	0.2	0.1	-0.4	-0.6
EUZ	2.2	-4.3	-0.2	-0.1	-0.4
GBR	2.9	-5.4	-0.7	-0.7	n.a
USA	6.3	-6.8	-1 .1	-0.6	n.a

* Data available until 2017 in the P-stab.
Source : iAGS forecasts, National Stability Programmes.

Figure 1. Credibility of fiscal adjustment plans or credibility of the ECB



Note: The solid line represents the montly estimate of a 1-point increase of public debt on CDS premia (simple linear regression with a constant term). Regressions are run for 11 euro area countries (excluding Greece).The grey areas represent the range with +/- 2 standard-type errors.
Source: iAGS forecasts.

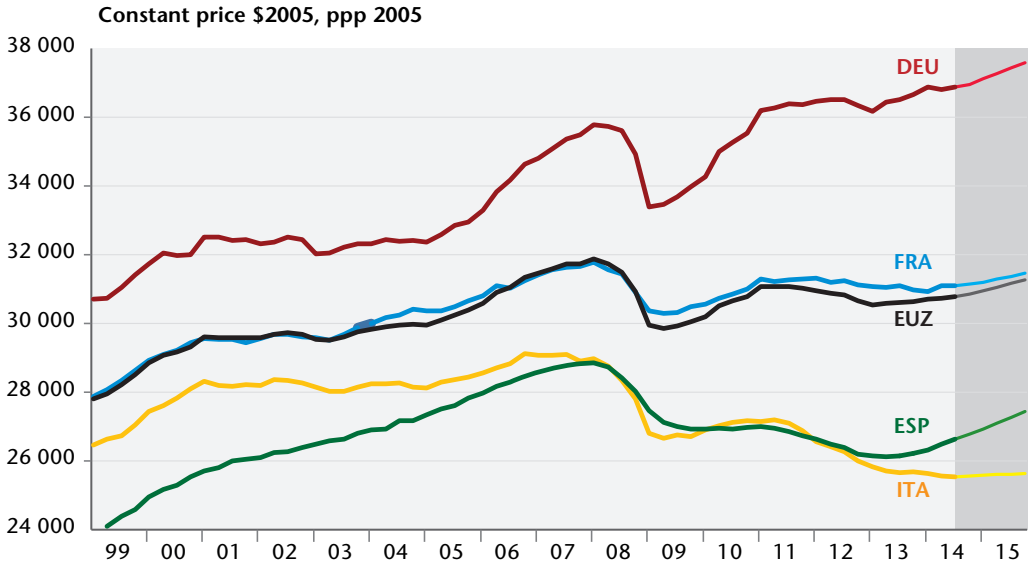
The impact of fiscal policy depends on the level of fiscal impulse but also on the size of fiscal multipliers, which varies with the macroeconomic outlook,[7] financial and monetary conditions. Composition of the adjustment also matters—whether it is an expenditure-based or fiscal revenue-based adjustment. Thus, the fiscal multiplier increases when unemployment—or the output gap—is high, when credit conditions are more restrictive, or when the financial situation of agents is worsening. Non-financial agents are more sensitive to a decrease of income because they cannot offset it by credit access as a result of liquidity/solvency constraints. Moreover, while the effects of fiscal policy are normally mitigated by monetary policy, this is not the case when the interest rate hits the zero lower bound. Finally, at the low (respectively high) point of the cycle, the multiplier effect is higher (resp. weaker) for expenditures than for revenues.

In the euro area, the arguments previously highlighted suggest that the size of the multipliers is still high. The unemployment rate remains close to an all time record level. It has just stabilized in France and is still rising in Italy. The assumption of a weaker multiplier—around 0,5—applies above all for Germany, the only country close to full employment and with an output gap close to zero. Moreover, banks' situation in the euro area is not totally cleaned as non-performing loans continue to rise (notably in Italy, Portugal and Spain) and as balance sheets of non-financial private agents are still deteriorated because of a deleveraging process barely started. Finally, in some countries, particularly in France, fiscal consolidation is now realized by expenditures' cuts in a context of high unemployment. Consequently, the fiscal impulse, even though it is much smaller than in recent years, will still negatively affect the growth in most countries of the euro area, including Germany, where the negative impacts will stem from the fiscal impulse of the other countries. These differences between fiscal impulses affect the growth of the euro area countries and explain to a considerable extent the heterogeneity of growth paces between countries (Figure 2).

In this context, the direct effects of austerity will still be significant in 2015, particularly in France, Spain, Netherlands, Belgium, Ireland, Greece, Portugal and Finland. In the other countries, such as Germany, Italy or Austria, where fiscal impulse are neutral or slightly negative, growth will be slowed down because of the indirect effects of fiscal policy conducted abroad. Some measures will have more persistent effects and cut the growth beyond the year of implementation. Moreover, while growth dynamics in 2012 and 2013 was deeply affected by restrictive fiscal policies, other factors have hampered growth in 2014 (real interest rates, exchange rate appreciation and private deleveraging). Among these factors, some will still play in 2015 (notably private deleveraging) while other dragging factors will progressively fade away (a euro's depreciation is expected) explaining growth's acceleration.

7. For a more detailed discussion, see Blot, Cochard, Creel, Ducoudré, Schweisguth and Timbeau (2014) or Creel, Heyer and Plane (2011) or Gechert and Rannenberg (2014).

Figure 2. Per capita GDP in the main euro area countries

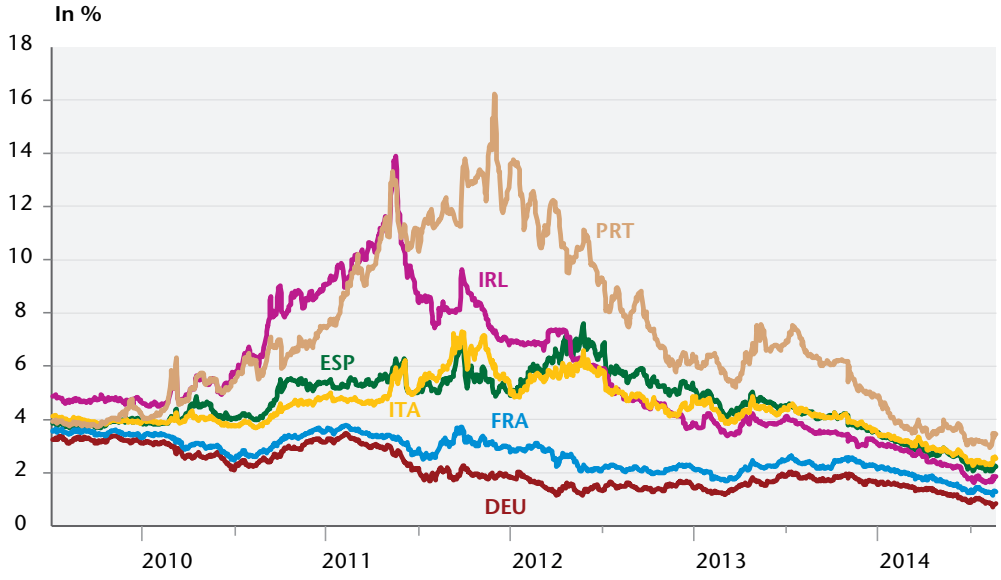


Source: iAGS forecasts.

Increasing real interest rates

Between January and September 2014, the yield on 10-year benchmark government bonds decreased from 3% to 1.8% in the euro area. Even though some spreads remain with the German rate, the yield on Italian and Spanish bonds has decreased below 2.5% since the summer of 2014 (Figure 3). Ireland and Portugal have succeeded in issuing bonds on the financial markets and were able to get long-term funding at 1.7% and 3.2% respectively in October 2014. In spite of the decrease of the sovereign-debt interest rates, the pass-through to the

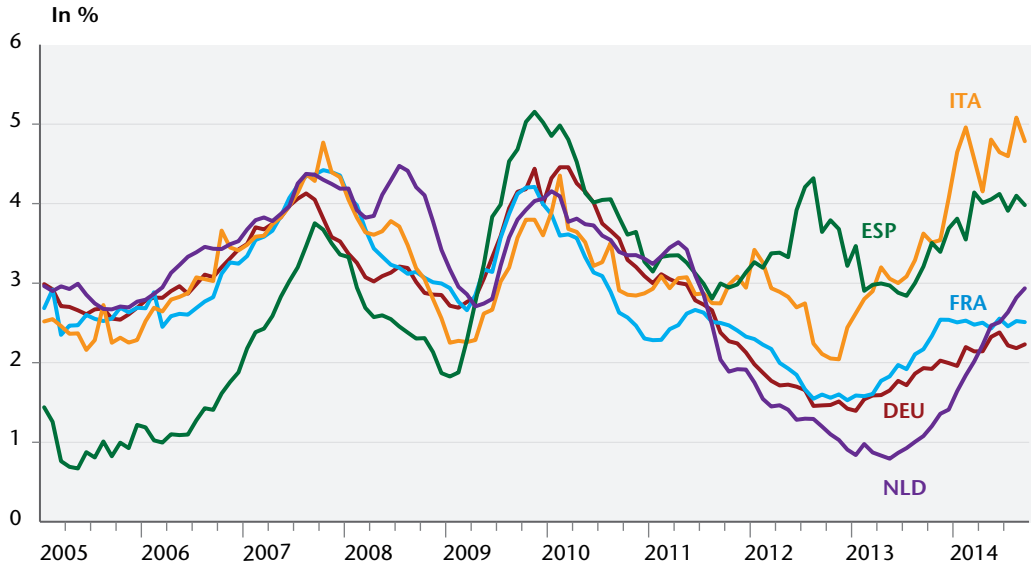
Figure 3. 10-year sovereign bonds yield



Source: Datastream.

private retail bank interest rates is slow and partial. These heterogeneities are explained by the characteristics of mortgaged credits, banking systems, and by the health of the banking system. Differences have widened because of the fragmentation of the banking systems (see chapter 3 for more details). So, despite the drop of the public bond rates, retail bank interest rates on new business have not declined as much as market rates. Moreover, the drop in the inflation rates observed in every country has increased real interest rates (Figure 4). Consequently, in real terms, the cost of credit for the non-financial sector has increased since the beginning of 2013.

Figure 4. Real retail bank interest rates to non-financial corporations



Note: Nominal bank interest rates are deflated with the 1-year average headline inflation.
Source: ECB, Eurostat.

Exchange rate appreciation

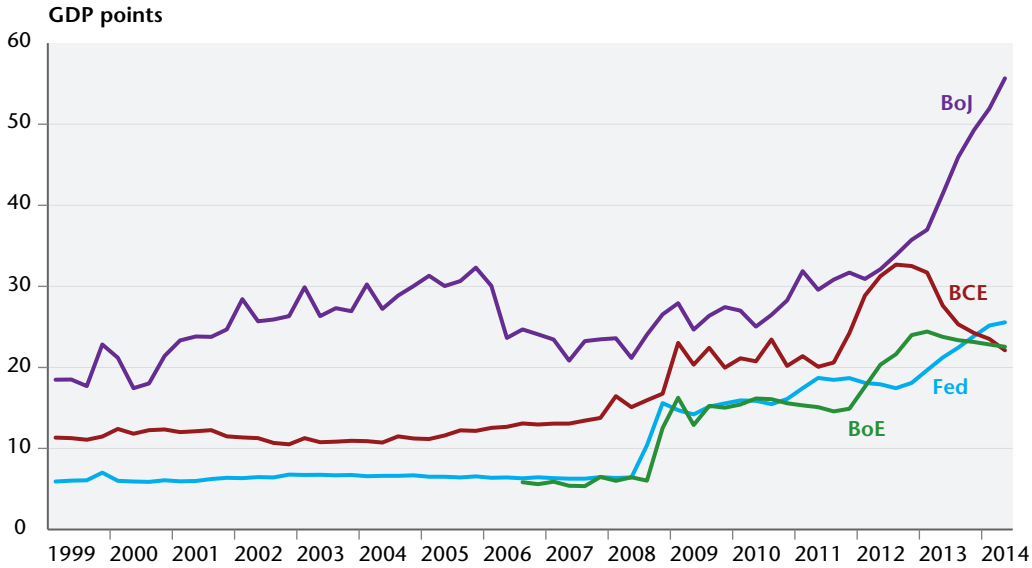
Exchange rate developments may also explain the lag between the recovery in the euro area and with respect to other advanced economies, especially the United States. Between mid-2012 and June 2014, the euro has appreciated against the US dollar by 10% and by more than 40% against the Yen. The joint movements of these bilateral exchange rates have contributed to a real appreciation of the euro of 9 %, which has negatively weighed on exports.

To a large extent the appreciation of the euro can be explained by monetary and financial events. First, the perceived risk of default of sovereigns or of withdrawal from EMU of one or more countries decreased substantially during second semester of 2012. This trend started after the well-known speech of the President of the ECB, M.Draghi, of July 2012 announcing that "the ECB is ready to do whatever it takes to preserve the euro". Afterwards, in September 2012 the launch of the OMT program (*Outright monetary transaction*) confirmed the credibility of the former speech and restored confidence in the common currency which appreciated strongly despite successive cuts on interest rates. Meanwhile, the balance sheet of the ECB has decreased by more than 10 points of GDP (Figure 5) while the Fed continued to expand its balance sheet by a further 8 points. The fall in the

ECB balance sheet does not reflect a conscious withdrawal of unconventional monetary policy, but is explained by a lower demand for liquidity from banks. The joint impact of higher real interest rates and more limited liquidity signals tighter monetary conditions in euro area which also contribute to a relative appreciation.

Another pressure on the euro exchange rate was the significant improvement in the current account balance (from a balanced position in 2011 to a surplus of more than 3% of GDP in 2014, see Figure 6). This improvement reflects the asymmetric correction of country-level imbalances. While deficit countries, like Spain, Ireland or Greece, have improved their position, surplus countries (mainly Germany and the Netherlands) have maintained theirs.

Figure 5. Size of central banks' balance sheet



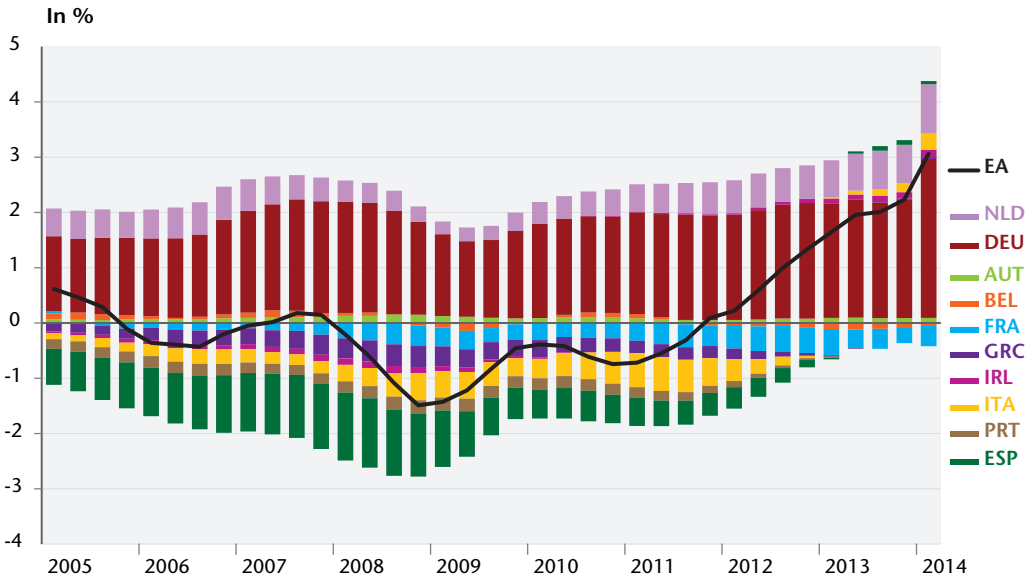
Sources: ECB, BoE, BoJ, Federal Reserve, National accounts.

All other things held constant, the appreciation of the euro weighs on activity through its impact on net exports. However, this effect has been offset by adjustment of labour costs in some countries. In this regard, Spanish cost-competitiveness has improved significantly since the start of the crisis and despite the evolution of the euro (Figure 7). French cost-competitiveness has worsened since the start of the crisis despite its improvement between 2009 and 2012. If German competitiveness has improved since 2010, from its already high level, this trend has been interrupted lately, in line with the joint effect of euro appreciation and a faster wage growth than most of its Eurozone partners. Finally, among the biggest Euro Area countries, the Italian situation is the more worrisome as its cost-competitiveness has continued its deterioration.

The link between export-competitiveness and GDP growth depends on the weight of exports in total demand and on the elasticity of exports to prices. Germany may seem to be the large country most dependent on international trade according to the share of exports in total GDP (45 %, while this figure is 34 % in Spain, 29 % in Italy and 28 % in France), but external demand for German goods is less sensitive to price developments. According to recent

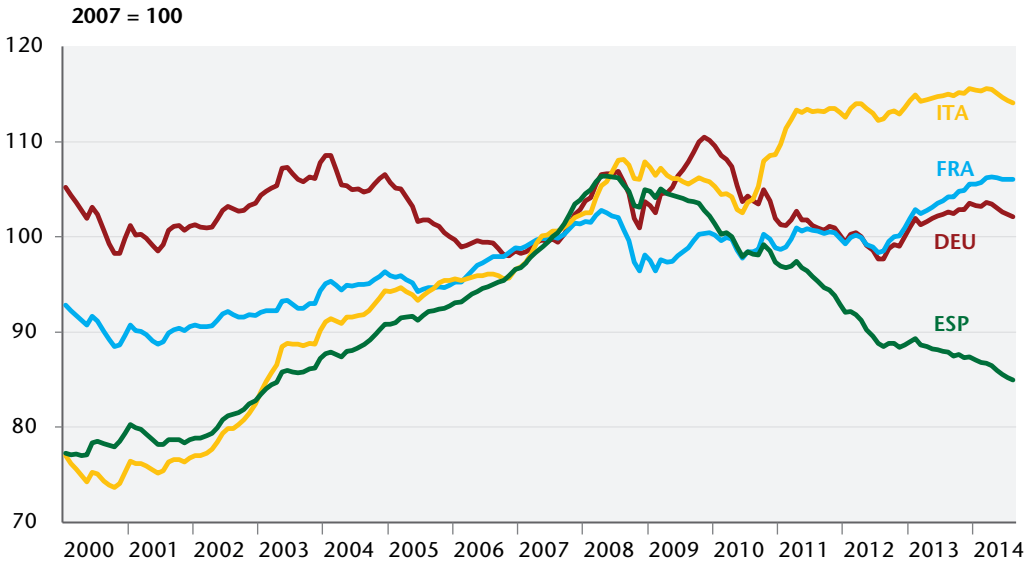
estimates,[8] the price-elasticity of exports is equal to 0.4 in Germany, 0.6 in France and Italy and 0.95 in Spain. All in all the euro's appreciation has influenced growth at the end of 2013 and at the beginning of 2014, largely explaining the slowdown of economic activity in the euro area. However, in countries that realized a severe wage adjustment international trade may have supported growth in 2013, like in Spain (contribution of 1.6 point to GDP growth) where exports rose by 4.9 % while imports decreased slightly (-0.4 %).

Figure 6. Current account balance in the euro area



Source: Eurostat.

Figure 7. Real effective exchange rates (ULC based)



Source: IMF.

8. See OFCE (2014).

The appreciation of the euro was reversed starting in mid-2014 and we expect the trend to continue, in line with the divergence of monetary policy between ECB and the Fed. First, the measures announced by the ECB in order to fight against deflation should weight on the euro exchange rate. Second, the fast decrease of US unemployment has already led to the cessation of asset purchases by the Fed and should push the Fed to tighten its monetary policy in 2015 as its forward guidance policy suggests. Currency depreciation will serve to counter somewhat the disinflationary forces in the euro area.

Among Eurozone countries, wage moderation will persist in Spain as the high level of unemployment will continue to undermine the bargaining power of employees. Effort have also been made to cut down labour costs through reductions in public sector wages or freezing of minimum wages (see Box 2). Besides, labour market reforms have also been promoted to increase flexibility. In France, the strategy of competitive disinflation will be accentuated with the progressive implementation of the CICE[9] and of the *Pacte de responsabilité*, which will lead to cuts in labour costs. In Germany, the recent wage acceleration should persist. The higher growth, the decrease of unemployment and the introduction of a minimum wage should favor wage dynamics. Nevertheless, German firms have a comfortable profitability and low debt and they could absorb the anticipated growth of wages and limit the impact on price-competitiveness. Hence, German market shares are expected to decrease, but only modestly, during the next years.

Box 2. Labour markets' reforms: Case-studies

Spain

Since 2010, some key reforms have been undertaken on the Spanish labor market. The most important was the reform adopted in 2012 with the Royal Decree Law 3/2012 on urgent measures to reform the labor market. On 28 February 2014, a new plan on urgent measures to promote employment creation and indefinite hiring was adopted. All these packages aim at increasing the internal and external flexibility, reducing the labor market duality (due to the over use of temporary employment) and enhancing the workers 'employability through liberalization of regulation. They involve measures on:

Job protection legislation

From 2012, firm-level collective agreements prevail over other levels in a wide range of issues, including working conditions, wages, paid overtime, working time and other elements decided upon by higher level agreements. The prevalence of firm level agreement was already foreseen if not otherwise established by higher level agreements. With this new legislation, the employer may decide, *via* an agreement with workers representatives, not to apply for economic, technical or organisational reasons (i.e. the same reasons considered for a substantial change in working conditions) the terms of a collective contract. The economic reasons that warrant these changes occur when revenues or sales falls for at least 2 consecutive quarters. Job categories have been

9. *Crédit d'impôt, pour la compétitivité et l'emploi* (Tax rebate for competitiveness and employment).

more broadly defined, making job duties more fluid and giving firms the means to adapt to changing conditions. Firms are also allowed to make substantial changes to individual or collective contracts. In case of changes to the individual contract, the notice period has been reduced from 30 to 15 days, and to 7 days in case of no agreement in the consultation with workers' representative on collective changes. End of the so-called ultra atividad: an expired agreement has no validity beyond one year after the expiry date.

External firm flexibility, dismissal and unemployment benefits

From 2012, specification of the conditions for justified dismissals is broadened to a situation of a persistent reduction (effective or expected) in the level of sales (previously only revenues were considered). A persistent reduction occurs when sales or revenues fall for 3 consecutive quarters. Removal of the administrative authorization required for collective dismissals or other business decisions, such as the suspension of contracts or the temporary reduction of working hours for economic or business-related reasons. Also the notification period for justified dismissals is reduced to 15 days compared to 30 previously. In the event of unfair dismissal, reduction of the compensation that all workers on permanent contracts receive, from 45 days' pay per year worked for a maximum of 42 months to 33 days' pay for year worked for a maximum of 24 months. After a rise of the working time to 37.5 hours a week in 2011, in the public sector (central government), public administration can make collective redundancies for economic or business-related reasons. These measures are permissible specifically in cases of "insufficient budget" or for other technical or organizational reasons.

Fiscal incentives on labor costs

With the 2012 reform, introduction of an indefinite contract for young and unemployed workers—called "support to entrepreneurs"—, which can be used by companies of less than 50 employees. Companies that hire young unemployed workers under permanent contracts receive a €3,000 tax reduction upon first hire. Moreover, if the new worker had been receiving unemployment benefits, the tax reduction is equal to 50 per cent of the amount the worker was receiving in unemployment benefits at the time of hire. Other financial incentives include discounts in social security contributions for hiring an unemployed worker aged 16 to 30 years or over the age of 45 on a permanent contract, and for hiring a woman in an industry where females are under-represented. Incentives are conditional to keeping the worker at least 3 years in the firm (some exceptions are foreseen). The new contract will remain in force until the unemployment rate in Spain falls to under 15%. With the 2014 reform, introduction of temporary single monthly contributions to Social security (for common contingencies such as pensions, health and safety) of 100 euros (instead of 23,6% employer contribution rate) for all firms and self-employed, during 24 months, who increase their level of net indefinite employment and maintain it for at least 36 months. The new contracts have to be executed between February 25, 2014 and December 31, 2014. The new flat rate is regardless of the size and whether the recruitment is full or part time. In case of part-time contracts, the company's contribution will amount Euro 50 or 75 per month depending on the working times being up to 50% or 75% of a full time contract. These reductions apply for a period of 24 months, and during the following 12 months, companies with less than 10 employees are also entitled to obtain a reduction of 50% of contributions.

Wage Setting in the public sector

Cut in public sector wages by an average of 5% in 2010 (cut by between 8% and 15% for high-ranking officials and between 0.56% and 7% for those on lower pay). Public sector wage freeze since 2011.

Greece

In the framework of 'Measures for the immediate reduction of public expenditure and the creation of a favorable investment environment, of 6 May 2010 and of Economic Adjustment Programme (EAP) of 2011 set up with the Troïka support (IMF, ECB and EU), Greece has launched a reform programme aimed to undermine the collective agreements from the 'social Pact of 1990' and reduce the labor costs. The main measures are as follows:

About Job Protection

2010 Lowering the thresholds for collective dismissals. Abolishing the principle of the "implementation of more favourable provision", that the terms of company agreements apply only when they are more favourable than the terms of sectoral agreements, which, in turn, apply only when they are more favourable than the terms of the General Confederation of Greek Workers. Shortening significantly the notice period for terminating white-collar workers' open-ended employment agreements. This amounts to an indirect reduction of white-collar workers' severance pay by 50%. Extension of probationary period from 2 months to 1 year. Extension of maximum work period under temporary work agencies.

2011 Expanding use of fixed-term contracts.

2012 Reducing the length of the periods of notice for terminating an open-ended employment contract (from 1 to 2 months according the seniority in the firm). Reduction of severance pay on dismissal. All rules providing special protection (banks, public sector companies) against dismissal are to be abolished and only the common regulations of dismissal shall apply.

About Wage Setting

In the public sector

2009 Freeze of basic salaries of civil servants and public sector pensioners.

2010 20% Cutbacks in the earnings of all persons employed in the wider public sector. 30% reduction in the maximum limit of overtime afternoon hours. Introduction of a ratio of one hire to five departures for permanent employees and for those with indefinite-term private law employment contracts—except in health, safety and education sectors. Readjustment of bonuses, the Christmas, Easter and holiday bonuses which amount to two monthly salaries and are referred to as the 13th and 14th month salary.

2011 Increase in working hours in government sector to 40 hours per week. Cut in productivity allowance to 50% for ordinary staff for one year. Introduction of a single wage grid. Freeze of government wage drift. Reduction in maximum hours of overtime– ordinary staff only – from 40 to 20 hours.

2012 Reduction in salaries of special wage regimes of general government. Abolition of the remainder of Christmas, Easter and summer allowances (1000 per year). Postponing the implementation of the productivity allowance of Law 4024/2011 (after 2016)

In the private sector

2010 Introducing the possibility to derogate from conditions set at higher level agreements

Introducing a new type of company-related Collective Employment Agreement (CEA), the 'special company-related CEA', which may provide for remuneration and other working terms that are less favourable than the remuneration and working terms provided for by the respective sectoral CEA. Minimum wages and minimum working conditions at national and intersectoral level are still laid down by the EGSSE. Freeze of Minimum wage frozen for three years (2010-2012) and decreasing for workers under 25 years of age, to 84% of the minimum national wage and for underage workers aged 15-18 years to 70% of the minimum wage through the conclusion of apprenticeship agreements

2011 The suspension of the favourability principle implies that firm-level agreements prevail over sector and professional agreements for the duration of the EAP (2011-2016). Suspension of the extension of occupational and sectoral collective agreements to non-signatory parts for the duration of the EAP. Possibility of undercutting wages set in collective agreements by up to 20% for the hiring of new workers between 18 and 25 years old

2012 Reducing the 'after-effects' regime of expired collective agreements to 3 months. If, after this period, no new collective agreement has been signed, the 'after-effect' principle means that after which some allowances can be suspended until a new contract is signed. Maximum duration of collective agreements set at 3 years. Cut of 22% of the minimum wage (32% for workers under the age of 25). Temporary suspension of automatic wage increases

2013 Approbation of a new statutory way to set the national minimum wage

About labor costs

2010 Reducing overtime costs by between 5% and 10%. Abolition of tripartite financing of the social security fund

2011 Working time arrangements have been made more flexible

2012 Reduction in social contribution rates for employers by 1.1 percentage points

2012-2013 Abolishing regulations limiting commercial shop opening hours

About unemployment benefits

2011 Cap on duration of unemployment benefits (450 days over a four-year period as of 1 January 2013—400 days as of 1 January 2014). Cut in unemployment benefits paid around Easter and Christmas

2012 Reduction from 12/3/2012, of the basic unemployment benefits by 22%

Source: http://ec.europa.eu/economy_finance/indicators/economic_reforms/labref/

Ireland

Despite an attractive labour market regulation for firms, Ireland has put in place some new measures to deepen flexibility and stimulate job creation. Active labour market policies are very used but government has also implemented several reforms

About Job Protection

2012 Reduced State rebate on statutory redundancy lump sums from 60% to 15%.

About Wage Setting

In the public sector

2009 End of social partnership as public sector talks collapse.

Public service wages were cut on average by about 14% over 2009 and 2010

2010 Four year 'Crooke Park' Agreement (2010-2014):less generous pension scheme for new recruits; increased room for flexibility, mobility and redeployments; and increase in working time in certain sectors.

2013 Four year 'Haddington Road' Agreement (2013-2016): temporary cuts (from 5,5% to 10%) on salaries above €65.000; increase of the standard working hours. additionnal Flexible working arrangements

In the private sector

2010 Reduction of statutory minimum wage by 1 euro (or 12%), down to 7.65 euros

2012 Regulation by the Government of the wage bargaining framework (e.g. extension of collective agreements, representativeness of social partners, etc.)

About labor costs

2010 Exemption from social insurance contributions for 12 months in case of hiring of unemployed for 6 months or more

2013 JobsPlus incentive programme to recruit long-term unemployed people: €7.500 for recruits unemployed for more than 12 but less than 24 months and €10.000 for recruits unemployed for more than 24 months. To date over 1.800 jobseekers have benefitted from this subsidy, ca. 60% of whom were two years unemployed

About unemployment benefits

2009 Reduction of Unemployment benefits by 4,1%

2010 Reduction of Unemployment benefits by 4,1%

2011 Penalty measures for beneficiaries not in compliance with job-search conditionality

2012 Reduction of the duration of Jobseeker's Benefit by 3 months (from 12 months to 9 months for recipients with 260 or more contributions paid; and from 9 months to 6 months for recipients with less than 260 contributions paid) and the benefits are now linked to previous earnings. Withholding or reducing up to 9 weeks under certain circumstances (refusal to take up a suitable job offer or to participate in the activation process.

2013 Reducing duration of JobPlus scheme for those younger than 26. Reduced Jobseeker's Allowance for those younger than 26.

Sources : http://ec.europa.eu/economy_finance/indicators/economic_reforms/labref/, National Reform Programme, Ireland, April 2014, Macroeconomic Imbalances, Ireland 2014, EUROPEAN ECONOMY, Occasional Papers 181, March 2014.

Deleveraging is going on…

Beyond these factors, the absence of significant recovery, coupled with a slowing inflation rate and weak credit conditions highlight a deeper crisis, which is reminiscent of the Japanese situation in the early 1990s. Some seven years after the financial crisis broke out, the euro area GDP is still 1.6% below its pre-crisis level. Between 2007 and 2013, growth averaged -0.2%. By way of comparison, Japanese GDP grew by 0.5 % per year on average between 1992 and 1999 during the so-called "lost decade". Can the euro area also end up in a situation of deflation and anaemic growth? There is a real risk and the literature on financial crises highlights that recessions which occur in such circumstances are longer and more costly (Claessens, Kose and Terrones, 2011). Post-financial crisis periods are characterized by weak credit and investment, due to deteriorating financial intermediation and deleveraging by private agents (Jorda, Schularick and Taylor, 2013). The euro area banking system, which plays a major role in financing non-financial agents, was severely undermined by the subprime and sovereign debt crises.

Moreover, the crisis stems from excessive private debt which created real-estate bubbles, especially in Spain and Ireland. Under these conditions, non-financial agents (households and non-financial corporations) need to clean up their balance sheet before activity can recover. These two elements—fragility of the banking system and balance-sheet deleveraging of non-financial agents—epitomizes the idea of balance-sheet recession, which was described by Koo (2011). The consequence is a weak internal demand, especially as regards investment. This situation fuels deflationary pressures, which in turn deteriorate the situation of indebted agents and makes monetary policy ineffective.

After the two crises which hit the euro area banking system, the question of its soundness remains. The recent AQR led by the ECB has clarified some doubts on the risk of insolvency, but vulnerabilities remain, notably because their leverage effect[10] is still high. European banks were very exposed to toxic assets (structured products, subprime). They were also exposed to the sovereign risk of their home country, and to the sovereign risk of other countries[11] in the euro area, because of an increasingly integrated of EU bond market during the 2000s. The collapse of the market for structured products, followed by the fall in the price of some sovereign bonds reduced banks' access to liquidity and threatened their solvability. This led the ECB to intervene by proposing fixed rate refinancing (FRFA) and longer maturities (LTRO and VLTRO). Non-performing loans have not been completely cleared from the banks' balance sheets (in Spain, in Italy, Table 4): this reduces the banks' risk appetite and reinforces the fragmentation in European banking systems. The high level of non-performing loans hampers the distribution of new credits by banks, in spite of the ECB's very accommodating monetary policy, and of the recent TLTRO program.

10. The leverage effect is measured by the ratio between equity and non-weighted assets. When it comes to the calculation of solvency ratios, assets are weighed according to the associated risk level. Thus, public bonds, which are regarded as riskless, are not taken into account in the weighted assets.
11. See Davies and Ng (2011).

Table 4. Major trends in non-performing loans between 2008 and 2013, in some euro area countries

	Bank Regulatory Capital/Risk-Weighted Assets	Variation *in % points*	Non-performing loans/total loans	Variation *in % points*
	2013	2008-2013	2013	2008-2013
AUT	18.0	5.1	2.9	1.0
BEL	18.7	2.3	4.3	2.7
DEU	19.2	5.6	2.7	-0.2
ESP	13.3	2.0	9.4	6.6
FIN	16.0	2.4	0.5*	0.1*
FRA	15.4	4.9	4.5	1.7
GRC	13.5	3.5	31.9	27.2
IRL	20.4	8.4	25.3	23.4
ITA	13.7	3.3	16.5	10.3
NLD	14.9	3.0	3.2	1.5
PRT	13.3	3.9	10.6	7.0

* 2012 figures.
Source: FMI Financial Soundness Indicators, octobre 2014.

These difficulties are reflected in the weakness of credit to non-financial corporations. Credit flows are negative since the start of 2013 (Figure 8). The SAFE survey, realized by the ECB on the access to finance of enterprises, also indicate that SMEs are facing funding difficulties. In Greece 32% of SMEs report that access to finance was their most pressing problem between April and September 2014 (Table 5). These percentages amount to 18% in Ireland and 17% in Spain and Portugal, while German and Austrian firms encountered less difficulties since access to finance is the most pressing problem for only 9% and 7% of SMEs.

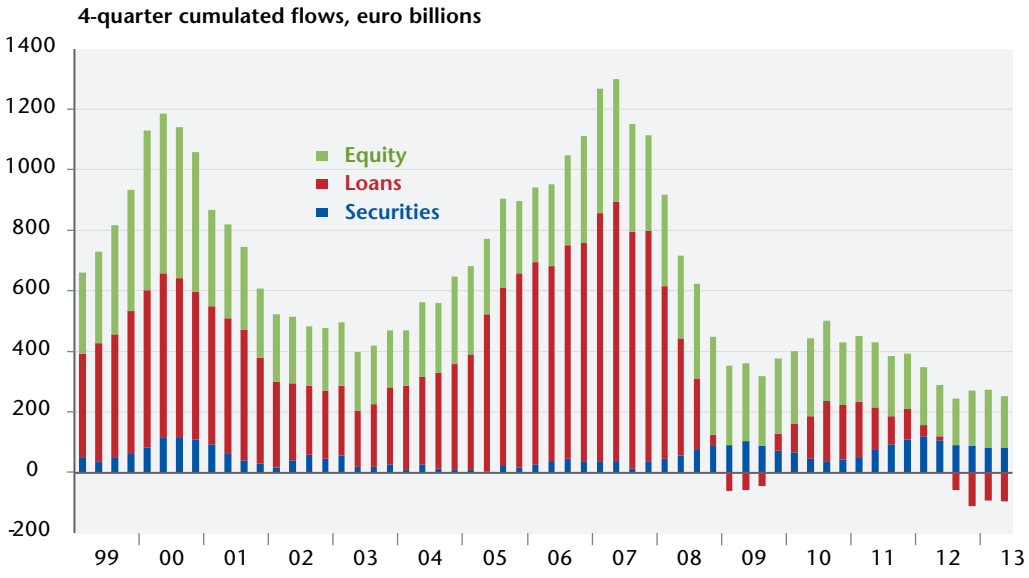
Table 5. Access to finance of firms in the euro area

	BEL	DEU	IRL	GRC	ESP	FRA	ITA	NLD	AUT	POR	FIN	EUZ
% of SMEs for which the most pressing problems is access to finance												
Oct-13/Mar-14	9.2	6.2	21.6	39.8	16.6	11.9	16.3	16.0	8.0	18.3	9.1	13.4
April-14/Sept-14	11.2	8.8	17.6	31.7	17.3	11.2	14.4	14.1	7.1	17.0	10.4	13.2
	BEL	**DEU**	**IRL**	**GRC**	**ESP**	**FRA**	**ITA**	**NLD**	**AUT**	**POR**	**FIN**	**EUZ**
% of SMEs that did not apply for bank loans because of possible rejection												
Oct-13/Mar-14	4.4	1.9	13.1	22.3	5.4	8.0	7.8	9.9	1.7	7.5	2.8	6.3
April-14/Sept-14	3.9	6.3	14.9	29.4	9.1	5.6	9.5	9.9	4.4	8.6	3.7	8.4
	BEL	**DEU**	**IRL**	**GRC**	**ESP**	**FRA**	**ITA**	**NLD**	**AUT**	**POR**	**FIN**	**EUZ**
% of SMEs that did not apply for bank loans because of sufficient internal funds												
Oct-13/Mar-14	54.9	53.3	53.5	22.8	36.2	30.9	31.1	51.4	65.0	30.8	55.2	40.4
April-14/Sept-14	37.6	48.5	39.6	25.7	34.0	33.8	23.5	36.5	50.2	37.8	33.8	36.2

Source : ECB (SAFE survey).

However, it is difficult to disentangle between supply problems (credit rationing) and reduction of credit demand. The Bank Lending Survey (BLS), also conducted quarterly by the ECB, stressed that banks from the euro area have reported that demand factors have been as important as supply factors. From the banks' perspective, the refusal to provide credit may reflect a deterioration in the average quality of borrowers. But the borrower would here consider that credit supply was rationed if he has been denied a request for funding. Moreover, even if debt securities issuance has increased, it is far from compensating the decline in bank lending. In addition, equity financing has also declined so that total non-financial corporations financing flows are lower than in 2003. The weak demand for credit in the euro area reflects both the slowdown in economic activity but also the deteriorating financial situation of non-financial agents.

Figure 8. Euro area financing flows of non-financial corporations



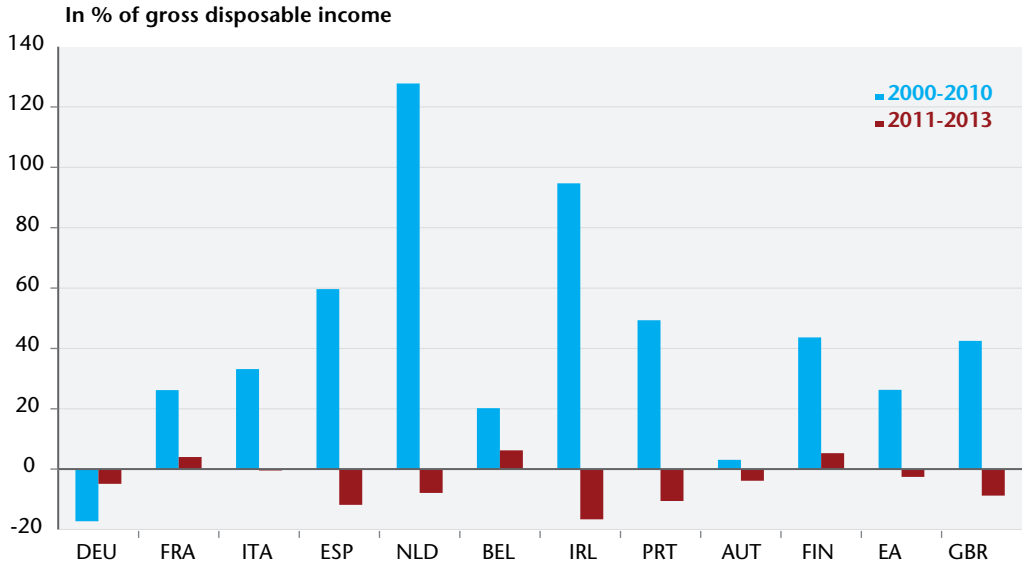
Source: ECB.

Access to external funding may be restricted for firms or households if they suffer from a fall in their income or profitability, or if they are not able to provide adequate collateral. External financing (funding from banks or financial market) becomes more expensive. In practice, enterprises (or households) reduce their funding requests because they know that their situation has deteriorated and therefore cannot benefit from attractive financing conditions. This self-selection process has concerned 36% of SMEs in the euro area according to the SAFE survey (Table 5), notably 48.5% of German or 50% of Austrian firm against less than 26% of Greek SMEs for which the fear of a possible rejection was the main reason given for not seeking funding. However, it can be considered that the difference between these two motivations is rather subjective. These two factors may then reflect the weakening of the financial situation of small and medium firms in the euro area.

Spending is then constrained either because of the inability to get credit or by the need to reduce debt. Deleveraging generally takes a considerable time explaining why post-financial crisis periods are characterized by low growth. In

the euro area, household debt has fallen by 3 points since 2011, which is still very limited compared to the previous increase of 25 points between 2000 and 2010 (Figure 9). Household debt has declined in all countries but France, Belgium and Finland. Debt has decreased at a very moderate pace in Italy and more significantly in Spain, Ireland and Portugal. In Austria, the level of household debt at the end of 2013 is slightly lower than its 2006 level and Germany is the only country for which household debt is decreasing since 2000, where it amounted to 106.6% of disposable income against 83.3% in 2013.

Figure 9. Change in household debt in the euro area



Source: ECB.

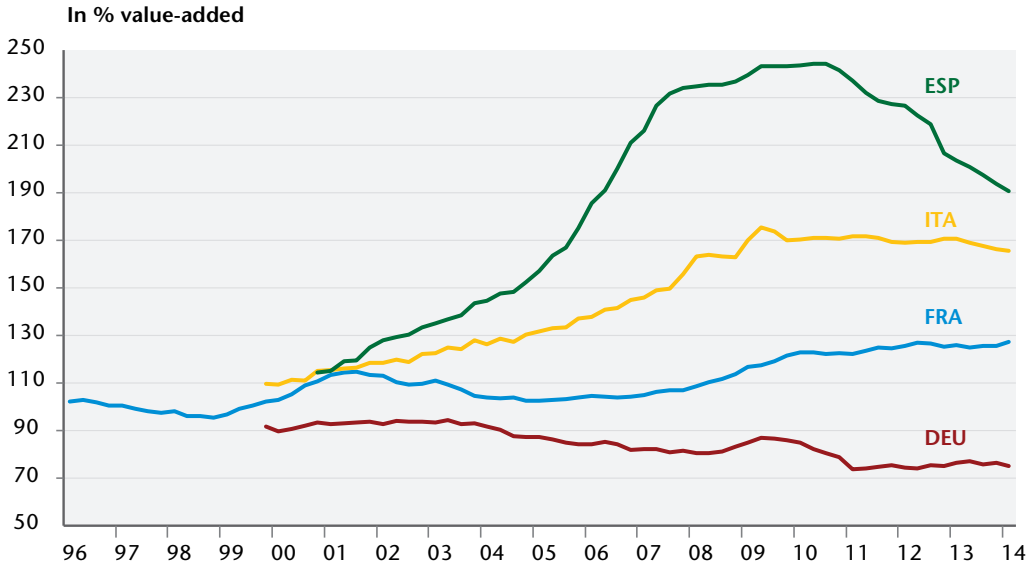
For firms, strong heterogeneity remains across countries in the euro area. The reduction of corporate debt is particularly marked in Spain but less marked in Germany and Italy, while in France, corporate debt has stabilized at around 127% of value added (Figure 10). Deleveraging may not have come to an end but it is yet difficult to assess its likely duration, not least because the target value of debt for households and corporates is not known. According to the European Commission[12], it might be a long-lasting process which is expected to hamper investment spending by non-financial corporations and households (housing investment) and consumption spending. Medium-term growth will then be negatively impinged.

In this environment, monetary policy may play a crucial yet limited role. It is crucial to avoid a credit crunch as banks and non-financial agents' balance sheets are impaired. Ongena, Peydro and Saurina (2012) analyse the impact of monetary policy through the bank lending channel in Spain. They suggest that rejection of loans decreases when the ECB cuts interest rates. The effect is stronger for fragile banks (less liquid or capitalized). Thus, monetary policy plays an important role in reducing the effects of credit supply restriction. But the impact on demand may be limited when financial net worth of firms is impaired. Bech, Gambacorta and

12. See European Commission, Autumn forecasts, 2014 (box I.1, I.2 et I.3)

Kharroubi (2012) find indeed that monetary policy is less effective during recoveries following financial crises. The interpretation is that spending is weakly supported by loose monetary policy as long as deleveraging is the priority for the non-financial sector. However, the exchange rate channel of monetary policy may be powerful during these periods as it improves competitiveness and boosts external demand. Although the exchange rate is not a target of the ECB, recent statements of Mario Draghi have illustrated that ECB is showing stronger interest in the value of euro. The aims of ECB measures taken in June 2014 was at least indirectly to bring down the euro and reduce the risk of deflation.

Figure 10. Non-financial corporate debt in the euro area



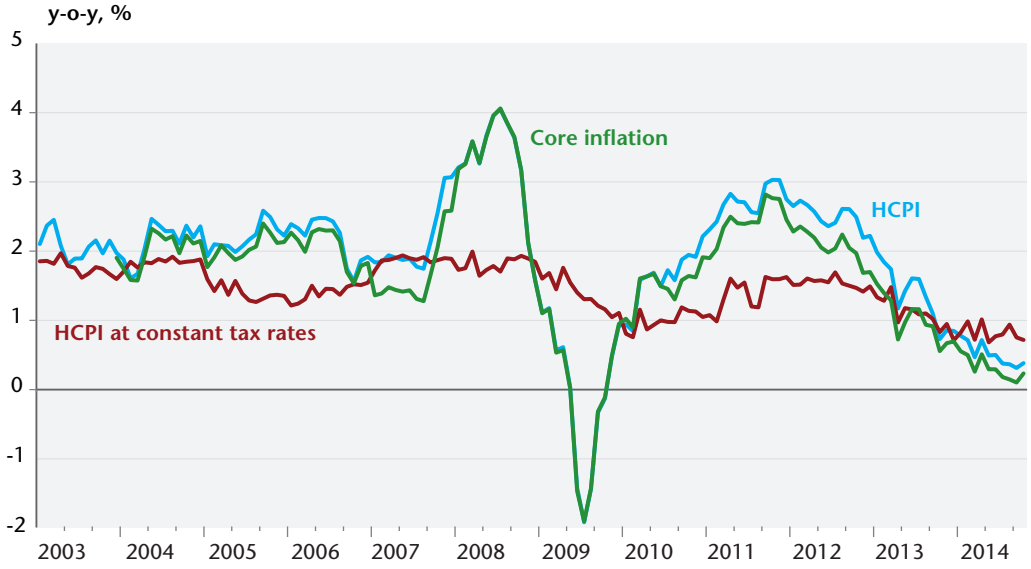
Source: Banque de France.

2. Risk of deflation and hysteresis

Harmonised consumer price inflation was 0.4% in October 2014, at constant tax rates the rate stood at only 0.2% (figure 11). In the past 12 months, the decline has been largely due to lower import prices, especially energy prices. But already a year ago headline inflation was well below the ECB's target of 1.9%, reaching only 0.7% in October 2013 and 0.8% in November 2013. The core HICP rate excluding energy, food alcohol and tobacco better reflects the underlying inflation dynamic. It has fluctuated between 1.0% and 0.7% during the past 12 months and is currently at 0.7%. The euro area is in the midst of a longer period of too-low inflation, with several countries registering negative rates, i.e. deflation.

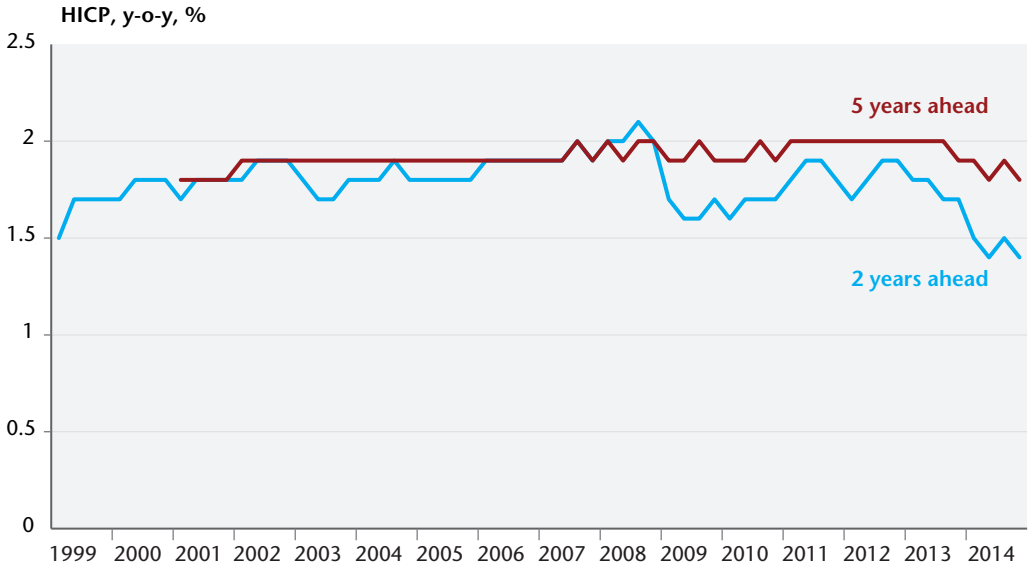
Inflation expectations have continually declined over the past year (Figure 12). This applies to short-term, medium-term and long-term expectations. Lower inflation expectations imply higher real interest rates. In a simulation for the euro area, IMK (2014) found that a decline in inflation expectations by 1 percentage point would depress euro-area GDP by 0.9 percentage points (Figure 13).

Figure 11. Harmonized consumer price index (HICP)



Source: Eurostat.

Figure 12. Inflation expectations (Survey of Professional forecasters)



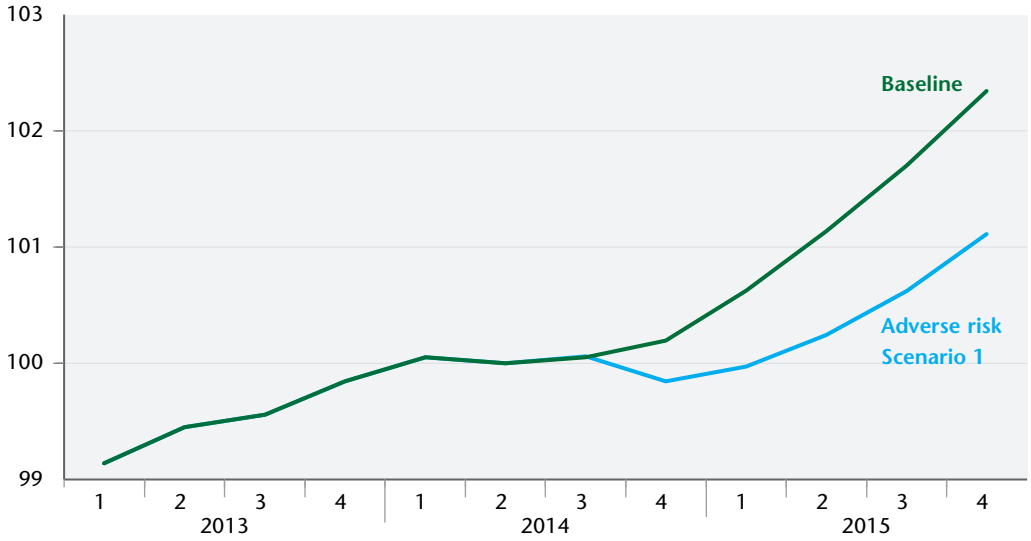
Note: In 1999 and 2000 the SPF collected five-years ahead inflation expectations only in the first quarter.
Source: ECB (Survey of professional forecasters).

Only the real-interest effect is captured by the simulation. Beyond this effect, lower longer-term inflation expectations negatively impact on investment and consumption demand by raising uncertainty: They signal that market participants are less confident that the ECB will be able to meet its inflation target. Lower inflation expectations and lower inflation also increase the debt burden of consumers and enterprises which further reduces aggregate demand and investment,[13] in

13. See Eggertson and Krugman (2012) for a recent theoretical approach on Fisherian debt deflation mechanisms.

particular. If inflation expectations turn negative, i.e. deflation sets in, matters are made worse as consumers and investors defer purchases in expectation of lower prices. Once inflation is very low, the ECB's policy rate become ineffective, because it has a nominal lower bound of zero. As inflation expectations decline, the real rate of interest increases, effectively robbing the central bank of its key policy instrument. This is one reason why central banks have an inflation target well above zero. The inflation target has to provide a "sufficient safety margin against deflation" (ECB 2003, p. 17).

Figure 13. Lower inflation expectation: Impact on euro area GDP



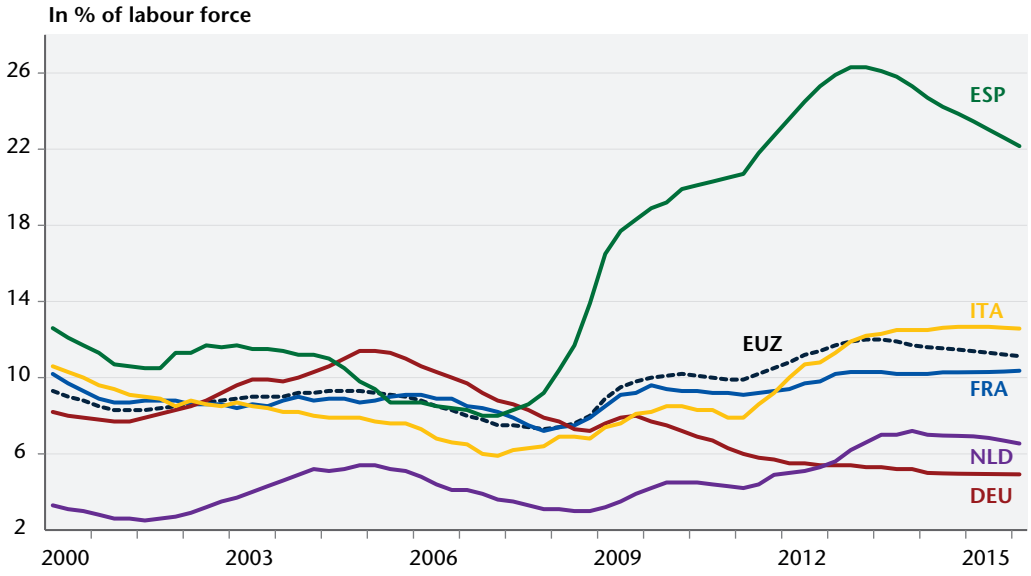
1 Lower 10-year inflation expectations in the euro area by 1 percentage point compared to baseline.
Source: IMK (2014), NiGEM.

The ECB currently expects inflation rates to remain well below its inflation target in the longer term. According to its latest forecast in September 2014, the ECB expects an inflation rate of 0.6% in 2014, 1.1% in 2015 and 1.4% in 2016. Monetary policy makers still have tools available and are currently using them: a negative deposit rate, long-term fixed rate refinancing operations and security purchases, in particular the purchase of covered bonds and ABS. But there is little empirical data to gauge the effect of these instruments. Waiting to see whether deflation takes hold to implement them—as recently suggested by the German Council of Economic Experts (2014, p. 163)—seems highly unwise.

The safety margin against deflation is no longer sufficient. This alone justifies that the ECB has adopted new policy measures to prop up demand and inflation. But aside from the risk of deflation, another strong argument for more expansionary macro policy is to be found in the long duration of the current crisis. Low inflation is indicative of a large output gap as well as low investment opportunities and aggravates the euro area's problem of high indebtedness. Firms and households are faced with higher real debt burdens as incomes fall short of their expected nominal values. The unemployment rate in the euro area has been above 10% for almost 5 years. Currently it is at 11.5% and well above this level in many euro-area countries, reaching around 25% in both Spain and Greece.

Resources are wasted and future potential output is impaired as youth unemployment is well above the average rate, reaching more than 50% in both Spain and Greece (see also Chapter 2). The longer GDP remains below its potential level and the higher remains the unemployment rate, i.e. the longer a negative output and unemployment gap persists, the more likely it becomes that potential output declines as well. This risk is significant today as unemployment rates still reach record levels in some euro area countries (Figure 14) and may persist given our current growth forecasts.

Figure 14. Unemployment rate



Sources: Eurostat, iAGS forecasts.

Potential output is the sustainable, non-inflationary output an economy can produce. The key factors that affect the level of potential output are the capital stock, the labour force and productivity. As investment comes to a halt, the capital stock declines due to depreciation. With low investment and reduced expenditure on research and technology, the rate of innovation slows impacting negatively on total factor productivity. And as unemployment spells lengthen, the unemployed may experience a loss of skills and human capital and become discouraged. This causes the labour force to decline as both the inflation-stable rate of unemployment (NAIRU) rises and the participation rate falls (Ball 2009, Logeay/Tober 2006). Through these so-called hysteresis effects, the level of potential output is thus affected by the level of actual output. In this vein, ECB-president Draghi also argued for more expansionary macroeconomic policies in the euro area when he stated in August 2014:

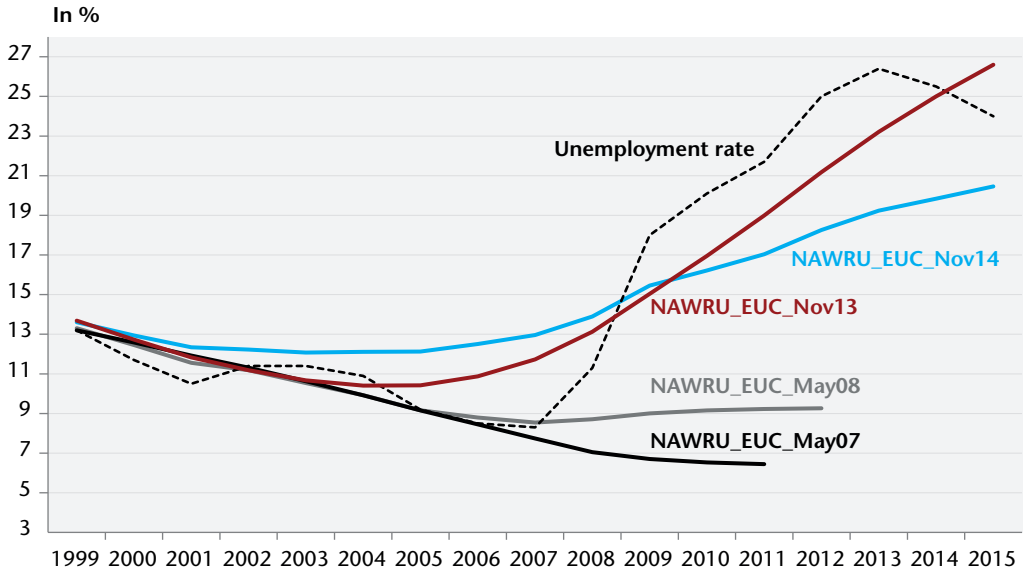
"Demand side policies are not only justified by the significant cyclical component in unemployment. They are also relevant because, given prevailing uncertainty, they help insure against the risk that a weak economy is contributing to hysteresis effects." (Draghi 2014)

Potential output is endogenous to the actual level of economic activity not only on the theoretical, but also on the empirical level. Unfortunately, in empirical estimations potential output adjusts to actual output largely for econometric

rather than economic reasons.[14] During a long-lasting crisis such as the current crisis in the euro area the estimated potential output is revised downwards: the output gap may as a consequence appear to be smaller than it is and with it the perceived necessity of expansionary macroeconomic policies.

In the case of the inflation-stable unemployment rate (NAIRU) the procyclical development recently led the EU Commission to change the specification of the NAIRU model for several countries, most prominently Spain (European Commission 2014a). As can be seen in Figure 15, in Autumn 2013 the EU Commission's forecast of the Spanish NAIRU for 2014 almost equaled the forecast of unemployment for that year. As Spanish unemployment was declining at the time, the actual unemployment rate was likely to be lower than the estimated NAIRU in 2015. An unemployment rate of above 20% entailing youth unemployment of more than 50% was thus being interpreted as labour market equilibrium or even labour market tightness, i.e. an overutilization of labor. Given this implausible outcome, in the Spring 2014 forecast the EU Commission changed the model specification of NAIRU. Rather than climbing to 26.6% in 2015, the new NAIRU now increases to only 20.5% in 2015.

Figure 15. EU Commission estimates of the Spanish NAIRU at different publication dates



Sources: European Commission, *Economic Forecasts*, European Economy and CIRCA website.

Despite the change in model specification, the NAIRU estimate is still procyclical, albeit less so. This is relevant for economic policy, because the NAIRU estimate affects the estimate of potential output and thereby also the structural deficit of euro-area countries. On average, an increase in the EU-Commission's

14. For a discussion of the dominance of time series properties in the estimates of the EU Commission's NAIRU, see Gechert/Rietzler/Tober (2014), who show that the European Commission's NAIRU is mostly driven by actual unemployment and turns out to be quite resilient to structural reforms.

NAIRU by 1 percentage point lowers the output gap by 0.65 percentage points which, in turn, increases the structural deficit by 0.4 percentage points (EU Commission 2014b: 29).

Economic growth is a major factor not only in attaining low unemployment but also in achieving sustainable public finances. If GDP is 2% higher, the deficit will be 1 percentage point lower, given a budgetary semi-elasticity of 0.5. Analogously, if potential output is 2% higher, the structural deficit will be 1 percentage point lower. There is thus a risk of a vicious circle in which persistent low growth leads to upward revisions of the NAIRU, reduced estimations of potential output, higher structural deficits and thus pressure for greater fiscal consolidation, which in turn depresses output further.

Given a shortage of aggregate demand and a lack of investment in part due to adverse profitability prospects, more expansionary monetary and fiscal policies are required to boost economic growth. If successful, there is even the real chance, that the euro area enters a virtuous cycle of higher growth and employment as well as fiscal consolidation with a declining inflation-stable unemployment rate, a rising labour participation rate, more capital investment and a higher rate of productivity growth.

3. The risk of a new wave of austerity

Though it has still significant impact on economic activity, austerity has been lessened in 2014 and 2015. Two arguments may explain this slowing pace of consolidation. On the one hand, countries have benefited from extended deadlines in 2013 for correcting the excessive deficit. Spain, France, the Netherlands and Portugal were notably concerned. New headlines deficits targets were set by the European Commission, which also mentioned careful attention would be paid to the reduction of structural deficits. The aim was not to allow countries to reduce their effort of fiscal consolidation, but rather to take into consideration the fact that former targets were not achievable given the deterioration of the economic outlook. With these new deadlines, excessive deficits should have been corrected in 2014 for the Netherlands, which is the case, in 2015 for France and Portugal and in 2016 for Spain. On the other hand, some countries are already under the 3% threshold and have exited the excessive deficit procedure: Germany, Italy, the Netherlands, Belgium, Austria, Finland, Luxembourg, Slovakia, Lithuania and Latvia. Although Greece is still in the excessive deficit procedure, the headline deficit is expected to be below 3% of GDP in 2014. Given GDP forecasts and voted fiscal impulses for 2014, the situation should not change in 2015, as France, Portugal and Spain will not reach the target, whereas Ireland would exit the EDP (table 6).

But austerity has not yet not come to an end, as fiscal rules were reinforced in 2011 with the fiscal compact. Beyond the deficit rule according to which headline deficit should not exceed 3% of GDP, a debt rule was introduced, stipulating that debt-to-GDP ratio should reach 60%. Besides, the medium term objective (MTO) sets a maximum value for structural deficits that should not exceed 0.5% (or 1% for countries where debt is below 60%). Considering the current level of public debt, countries will hardly benefit from fiscal space even if they have succeeded to reduce the headline deficit below 3% and are no longer in the excessive deficit

procedure. Some will have to implement further austerity as soon as the transition period is over. The aim of this last section is precisely to assess the amount of consolidation that will be needed to comply with fiscal rules. To that end, we run simulations based on the iAGS model.[15] The first step involves simulating the macroeconomic dynamic with current expected fiscal impulses already decided for 2015 and expected according to the Stability Programmes for the period 2016-2018 (see table 3). Simulations start in 2015 and initial values, as well as the main features of the model are detailed in Box 3.

Table 6. Fiscal balances

In %

	2014	2015
DEU	0.5	0.4
FRA	-4.5	-4.3
ITA	-3.0	-2.9
ESP	-5.0	-4.2
NLD	-2.9	-2.2
BEL	-2.6	-1.9
PRT	-3.8	-2.4
IRL	-3.6	-2.6
GRC	-1.6	-1.0
FIN	-2.7	-2.4
AUT	-2.5	-1.4
EUZ	-2.3	-2.0

Source : Eurostat, iAGS forecasts.

Box 3. Short description of the model and main hypotheses for the baseline simulations

The key features of the model are the following:

- It allows for an explicit representation of the main euro area countries: Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal and Spain. An aggregated euro area is also computed.
- On the demand side, an open economy aggregate demand function is represented, with fiscal and monetary policy, external demand (a channel for intra EU interdependencies) as well as exogenous shocks on the output gap (the gap between actual and potential GDP). The equation is written as an error-correction model. The stabilization of the economy stems from adjustments in the long-term interest rates and competitiveness, which have feedback effects on the output gap. The stabilisation may then hinge on private demand (through interest rates adjustment and monetary policy) and on external demand (through the decrease in relative prices).

15. A full representation of the model is given by Blot, Cochard, Creel, Ducoudré, Schweisguth and Timbeau (2014).

Exchange rate is exogenous. The calibration allows to simulate standard hypotheses as well as alternatives, checking the dependence of results on different sets of hypotheses. Furthermore, the size of fiscal multipliers is allowed to vary along the business cycle. The ineffectiveness of monetary policy is made possible when the economy hits the zero lower bound (ZLB).

- External demand is modelled using a bilateral trade matrix representing interdependencies between countries. The trade matrix is also used as a basis for imbalances analysis.
- We model prices by a generalized Phillips curve relating current and expected inflation to the output gap, imported inflation and other exogenous shocks. Expectations can be modelled as adaptive (backward-looking) or rational (forward-looking).
- A Taylor rule sums up monetary policy, except under the Zero Lower Bound.
- Changes in the short-term monetary policy rate are then passed through the long-term interest rates. Hence, according to the expectations theory, the long-term interest rate for German public bonds is set equal to the expected sum of future short-term interest rates (Shiller, 1979), with short-term interest rates set by the (European) central bank. The long- term public rate for Germany is considered risk free, and long-term public rates for other countries include a risk premium that is set exogenously. We also temporarily set exogenously the long-term rate for countries that entered the EFSF to account for a lower interest rate on debt refinancing. Finally, for each country the long-term interest rate on private bonds is equal to the public one plus a risk premium that is set exogenously.
- The stance of monetary policy remains expansionary as long as the euro area aggregate output gap is negative and if inflation is below the 2% target. In case of a negative idiosyncratic demand shock, the convergence to the potential growth rate hinges partly on the effects of common expansionary monetary and on a competitiveness effect. Due to hysteresis effect, the output level may be permanently affected by a negative demand shock. Trend growth of the potential output will always converge to an exogenously set path.
- The public balance separates interest payments, cyclically-adjusted balance and cyclical components, in order to properly assess the fiscal stance, *i.e.* the part of fiscal policy which is under the direct control (discretion) of current governments. We then derive public debt projections for euro area countries.

Simulations begin in 2015. To do so, we need to set some starting point values in 2014 for a set of determinant variables. Output gaps for 2014 come from OECD forecasts. These hypotheses, as well as those for long-term growth projections are necessarily open to debate. Simulations are provided to assess the sensitivity of our result on the output gap and long-term growth. Concerning fiscal policy and budget variables, the main assumptions are as follows:

— Public debt and public balance in 2014 come from iAGS forecasts;[16]

16. There might be some small differences with previous tables or with country-tables in the appendix for fiscal balance, public debt or fiscal impulses as simulations have not necesseraly been realized with the latest available information.

— Fiscal impulses come from iAGS forecasts for 2015. For 2016-2018, we use fiscal impulses implied by the Stability and Growth Pact reported in the "Stability Programmes" presented in 2014 by each country.

— Sovereign spreads come from iAGS forecasts under the hypothesis of convergence of long-term interest rates completed in 2017.

Table 7. Main hypotheses for 2014

In %

	Public debt	Fiscal balance	Structural balance	Primary structural balance	output gap	Inflation rate	potential growth
DEU	75.6	0.2	0.2	2.2	-0.1	1.0	1.0
FRA	93.9	-4.5	-2.6	-0.4	-3.9	0.7	1.4
ITA	131.6	-3.0	-0.3	4.8	-5.4	0.2	0.2
ESP	98.4	-5.5	-2.1	1.3	-6.8	0.1	1.4
NLD	75.6	-2.9	-0.5	1.2	-4.3	0.4	1.3
BEL	102.3	-2.6	-1.6	1.5	-1.9	0.8	1.5
PRT	131.5	-3.8	-0.6	3.7	-7.0	0.2	1.0
IRL	118.7	-3.6	-0.4	4.3	-8.0	0.4	1.8
GRC	176	-3.3	2.4	7.4	-13.1	-0.9	1.0
FIN	61.3	-2.7	-0.6	-1.6	-4.2	1.3	1.6
AUT	76.1	-2.9	-1.4	0.7	-3.3	1.6	1.4

Sources: OECD, European Commission, iAGS forecasts.

With current fiscal impulses (corresponding to the current stance for 2015 and to P-stab forecasts for 2016-2018), we first illustrate the debt dynamic until 2034. A 20-year horizon was chosen here to stick to the horizon set in the fiscal compact for achieving the 60% debt-to-GDP ratio. The 60% threshold would not be reached by France, Italy, Spain and Finland. It must be stressed here that initial values on structural balance are critical to assess the relative position of each country in 2034. Debt dynamics hinge on the critical gap between real interest rate and real GDP growth rate. Given the model properties, the critical gap converges to zero[17] so that the structural balance matters to explain differences across countries in the baseline's projections for public debt. As fiscal impulses beyond 2015 remain limited, the initial value for structural deficit is a critical hypothesis. This hypothesis is here strongly related to the output gap. For a given headline deficit, the higher is the output gap, the smaller is the structural deficit. This may explain here why situation is more favourable in Spain than in France. Though the Spanish headline deficit is higher, the structural deficit would be smaller, so that debt-reduction by 2034 is more substantial in Spain than in France. It must be added that structural balance between 2014 and 2034 will also depend on expected fiscal impulses and on the dynamic of potential output. With hysteris effects, a reduction in activity leads to a decrease in the potential output and everything else equal a rise in the structural deficit, because the decrease in potential output triggers a permanent reduction in fiscal receipts.

17. In the long run, real interest rate is equal to the potential output growth rate to make sure that output gap converges to zero.

In Table 8,[18] output gaps are closing between 2015 and 2019 explaining why GDP growth rates are above long-term growth rates. Inflation is below 2% for all countries and reverts to the ECB target after 2020.

Table 8. Baseline scenario

In%

	Public debt			Structural balance			CFI	Average growth rate		Min-OG	Average inflation rate	
	2015	2020	2034	2015	2020	2034	2015-2018	2015-2019	2020-2034	2015-2034	2015-2019	2020-2034
DEU	73	60	29	0.4	0.7	1.2	0.3	1.2	1.0	0.0	1.2	2.0
FRA	96	94	86	-2.4	-2.0	-2.6	-1.3	1.8	1.5	-3.6	1.0	2.0
ITA	133	119	67	-0.2	1.0	2.3	-0.6	0.9	0.2	-4.5	0.8	2.0
ESP	101	96	66	-1.7	-0.8	-0.3	-1.7	2.0	1.5	-5.3	0.6	1.9
NLD	76	69	49	-0.3	-0.4	-0.3	-0.5	2.0	1.3	-3.6	0.4	2.0
BEL	102	86	33	-0.7	1.2	2.3	-2.3	1.7	1.5	-1.9	0.7	2.0
PRT	131	114	60	-0.4	0.7	1.9	-1.4	1.8	1.1	-5.8	1.2	2.0
IRL	116	95	14	0.8	2.4	4.8	-1.9	2.9	1.9	-6.1	-0.1	2.0
GRC	172	141	50	2.6	2.4	4.9	-0.9	2.7	1.0	-10.5	0.4	1.9
FIN	64	64	73	-0.8	-2.0	-3.5	-1.0	2.1	1.6	-3.9	0.9	2.0
AUT	77	71	57	-1.3	-1.0	-1.0	-0.5	1.8	1.4	-3.0	1.4	2.0
EUZ	**96**	**86**	**56**	**-0.7**	**-0.1**	**0.2**	**-0.7**	**1.5**	**1.1**	**-2.9**	**0.9**	**2.0**

CFI: Cumulated fiscal impulse.
Source: iAGS forecasts.

The next step is to assess whether countries are able to meet the ceiling by 2034. As for last report, the aim is to reach 60% for all countries so that for countries which are below 60% in table 8, we consider positive fiscal impulses. These countries have fiscal space (this point is also discussed in Box 4 to take into account the constraints coming from the MTO). Considering current fiscal rules, we apply fiscal impulses capped at +/-0.5. Successive positive (if country-debt is below 60% in table 8) or negative (if country-debt is above 60% in table 8) impulses are implemented until the debt-to-GDP reaches 60%. We find that all countries would be able to comply with the fiscal rule on public debt. Yet, it may involve a significant additional effort. The cumulated effort to reach the 60% ratio would amount to 3.4 points in France (Table 9) instead of 1.3 in table 8. Italy, Spain and Portugal would be constrained to additional efforts of 0.7, 0.5 and 0.7 point of GDP. Considering fixed annual value for fiscal impulses of 0.5, additional effort for Italy, Spain and Portugal would not go beyond 2 years. Germany would benefit from fiscal space according to the debt criteria and may implement a fiscal stimulus of 2.1 points (approximatively 4 years of positive fiscal impulses of 0.5 point of annual GDP. It must be stressed that Ireland and Greece would also have fiscal space in this scenario. This conclusion critically hinges on the initial

18. Simulations are based on the main hypotheses table for 2014. Public debt figures may be slightly different than expected in country-tables.

values for structural deficits which are supposed to be -0.4 for Ireland and +2.4 in Greece. Considering the extreme case where the entire headline deficit is structural, conclusions would be significantly modified. This alternative scenario is considered in table 10 where we have made the extreme hypothesis that output gap is zero. Deficts are now fully structural explaining why all countries but Germany, Belgium and Ireland would have to consent to significant fiscal consolidation efforts. The cumulated restrictive fiscal stance between 2015 and 2034 would now exceed 5 GDP points for France, Italy, Spain and Greece.

A more positive scenario may also be considered if long-term growth is higher. An increase in potential growth may stem from an initiative for investment as the ones described in iAGS report 2014 or in Chapters 3 and 4 of this report. This may also be the objective of the recently annouced Junker investment initiative but we may cast some doubts on its ability to boost investment and growth (see Box 5). The ability to comply with the debt-rule is then assessed when long-term growth rates are higher[19] (Table 11). The values for long-term growth in this new scenario are shown in column 7.

Table 9. The cost of reaching 60% debt-to-GDP

In %

	Public debt			Structural balance			CFI	Average growth rate		Min-OG	Average inflation rate	
	2015	2020	2034	2015	2020	2034	2015-2034	2015-2019	2020-2034	2015-2034	2015-2019	2020-2034
DEU	73	64	60	0.4	-1.4	-1.7	2.4	1.4	1.0	-0.1	1.3	2.0
FRA	96	93	60	-2.4	-0.6	0.1	-3.4	1.7	1.5	-3.6	1.0	1.9
ITA	133	119	60	-0.3	1.5	3.1	-1.3	0.8	0.3	-4.5	0.7	2.0
ESP	101	95	60	-1.7	-0.3	0.4	-2.2	2.0	1.5	-5.3	0.6	1.9
NLD	76	71	60	-0.3	-1.1	-1.3	0.3	2.1	1.3	-3.7	0.5	2.0
BEL	102	91	60	-0.8	-0.5	-0.1	-0.6	1.9	1.5	-1.9	0.8	2.0
PRT	131	118	60	-0.5	0.7	2.2	-2.1	1.4	1.2	-5.9	1.0	1.9
IRL	116	98	60	0.8	-0.6	0.2	1.7	3.4	1.8	-6.1	0.1	2.0
GRC	172	138	60	2.6	1.5	3.6	0.4	3.1	1.0	-10.5	0.6	2.0
FIN	64	62	60	-0.9	-1.2	-2.3	-2.0	2.0	1.6	-4.0	0.9	2.0
AUT	77	72	60	-1.4	-1.2	-1.3	-0.4	1.8	1.4	-3.0	1.4	2.0
EUZ	**96**	**87**	**60**	**-0.7**	**-0.5**	**-0.1**	**-0.5**	**1.5**	**1.1**	**-2.9**	**0.9**	**2.0**

CFI: Cumulated fiscal impulse
Source: iAGS model.

19. The values for these long-term growth rates are taken from OECD estimates (see Johansson *et al.*, 2012). We have computed a weighted average over the period 2014-2050.

Table 10. 60% debt-to-GDP with higher initial structural deficits

In %

	Public debt			Structural balance			CFI	Average growth rate		Min-OG	Average inflation rate	
	2015	2020	2034	2015	2020	2034	2015-2034	2015-2019	2020-2034	2015-2034	2015-2019	2020-2034
DEU	73	64	60	0.4	-1.3	-1.6	2.3	1.4	1.0	-0.1	1.3	2.0
FRA	97	99	60	-4.1	-2.2	1.7	-6.8	1.2	1.4	-0.9	1.3	1.9
ITA	135	131	60	-2.8	0.2	4.7	-5.4	0.0	0.2	-1.2	1.1	1.9
ESP	102	104	60	-4.4	-2.0	1.6	-5.9	1.2	1.4	-0.7	1.2	1.9
NLD	77	74	60	-2.4	-1.0	-1.2	-2.0	1.3	1.3	-0.6	0.7	2.0
BEL	102	92	60	-1.7	-0.6	0.0	-1.5	1.6	1.5	-0.5	0.9	2.0
PRT	132	121	60	-3.3	-0.4	2.7	-4.6	0.9	1.0	-0.7	1.8	2.0
IRL	116	105	60	-2.0	-0.6	0.7	-1.5	2.1	1.8	0.0	0.6	2.0
GRC	172	154	60	-2.3	0.4	5.3	-5.9	0.9	1.0	-0.4	1.5	1.9
FIN	65	67	60	-2.8	-2.0	-1.7	-4.2	1.5	1.6	-0.9	1.2	2.0
AUT	78	75	60	-2.8	-1.1	-1.1	-1.9	1.3	1.4	-0.9	1.6	2.0
EUZ	**97**	**92**	**60**	**-2.2**	**-1.2**	**0.7**	**-2.9**	**1.2**	**1.1**	**-0.4**	**1.2**	**1.9**

CFI: Cumulated fiscal impulse.
Source: iAGS model.

Table 11. 60% debt-to-GDP with higher long-term growth

In %

	Public debt			Structural balance			CFI	Average growth rate		Min-OG	Average inflation rate	
	2015	2020	2034	2015	2020	2034	2015-2034	2015-2019	2020-2034	2015-2034	2015-2019	2020-2034
DEU	.73	64	60	0.4	-1.5	-1.8	2.5	1.5	1.1	-0.1	1.3	2.0
FRA	96	91	60	-2.4	-0.6	-0.2	-3.1	1.9	1.7	-3.6	1.0	1.9
ITA	132	114	60	-0.2	0.6	2.1	0.0	1.7	0.9	-4.5	0.8	2.0
ESP	100	94	60	-1.7	-0.7	0.0	-1.7	2.4	1.8	-5.3	0.6	1.9
NLD	76	70	60	-0.3	-1.4	-1.6	0.6	2.6	1.7	-3.7	0.5	2.0
BEL	102	90	60	-0.7	-0.9	-0.4	-0.2	2.3	1.9	-1.9	0.8	2.0
PRT	130	110	60	-0.4	0.0	1.2	-0.4	2.6	1.6	-5.8	1.3	2.0
IRL	116	97	60	0.8	-0.6	0.0	1.9	3.6	2.0	-6.1	0.1	2.0
GRC	171	134	60	2.6	0.9	2.9	1.3	3.7	1.5	-10.5	0.6	2.0
FIN	64	61	60	-0.9	-1.4	-2.4	-1.8	2.4	2.0	-4.0	0.9	2.0
AUT	77	72	60	-1.3	-1.2	-1.3	-0.3	1.9	1.5	-3.0	1.4	2.0
EUZ	**96**	**86**	**60**	**-0.7**	**-0.7**	**-0.4**	**-0.1**	**1.8**	**1.4**	**-3.0**	**1.0**	**2.0**

CFI: Cumulated fiscal impulse.
Source: iAGS model.

Box 4. Fiscal space and unemployment rate under the MTO

Beyond debt constraints, countries also have to stick to medium-term objectives, which are country-specific. According to the reformed Stability and Growth Pact, stability programmes and convergence programmes present a medium-term objective for the budgetary position. It is country-specific to take into account the diversity of economic and budgetary positions and developments as well as of fiscal risks to the sustainability of public finances, and is defined in structural terms (see structural balance).

In its overall assessment of the 2015 Draft Budgetary Plans (DBPs) [http://ec.europa.eu/economy_finance/economic_governance/sgp/pdf/dbp/2014/communication_to_euro_area_member_states_2014_dbp_en.pdf], the Commission considers that the neutral fiscal stance is an appropriate balance for the euro area but it also considers that "*there is a need to closely monitor on its distribution across member States in relation to the room available under the Stability Growth Pact (SGP). In particular, maintaining a neutral aggregate fiscal stance, while some Member States are called to increase their efforts in order to comply with the SGP implies a degree of fiscal support coming from the exploitation of the fiscal space available elsewhere.*"

This approach would work at the euro area level if effortsmade by countries at risk of non-compliance with the SGP are effectively compensated by the use of the fiscal space for countries which are not constrained. But this recommendation may stumble on two hurdles:

1. only three countries (Germany, Luxembourg, Netherlands) in the euro area have already reached their Medium Term Objective (MTO) and do possess some fiscal space. These countries account for 35% of the GDP of the euro area. At the opposite, the DBPs of seven countries (Belgium, Spain, France, Italy, Malta, Austria and Portugal) pose a risk of non-compliance. These countries represent 57% of GDP. Thus, there is disequilibrium between countries which have fiscal space and countries which do not and have to make more efforts to comply with the SGP. For the euro area to keep a neutral aggregate balance if not a positive one, Germany, Luxembourg and Netherlands would have to implement more expansionary fiscal policies than the seven other countries that will still need to consolidate;

2. the economic context for compliant countries does not push them to stimulate their economies and even if they do it, it might be inefficient in order to spur growth in the euro area.[20] The three compliant countries having already reached their MTO have the lowest unemployment rate in 2014 of the euro area and are probably close to full-employment. For instance, Germany, which represents nearly 30% of the GDP of the euro zone, has an unemployment rate of 5.0% and is benefiting from a very expansionary monetary policy. Even if considerable labour reserves remain, it is probably more prone to accumulate budget surpluses in order to absorb the impact of ageing on their public finances rather than to seek a reduction in unemployment.[21] At the opposite,

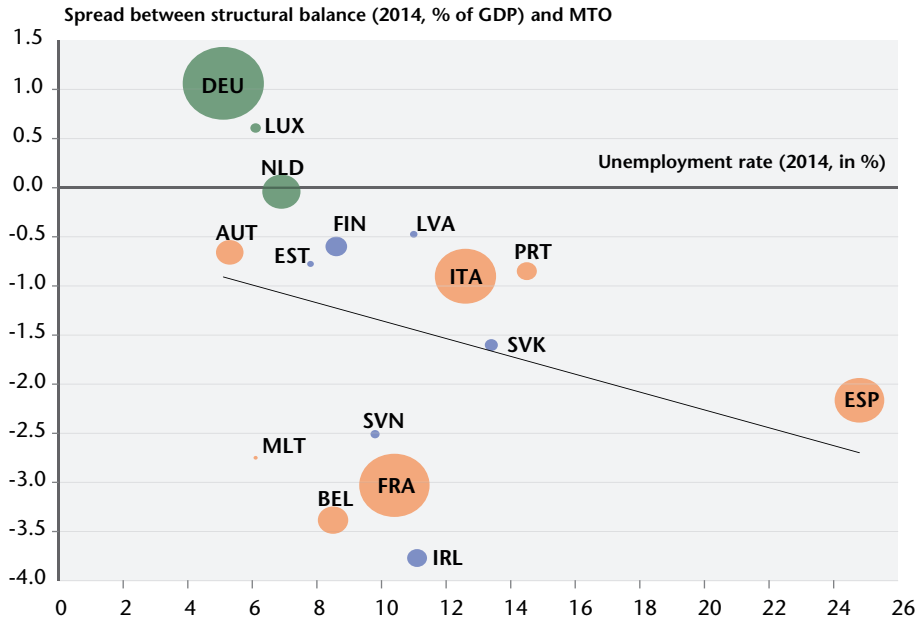
20. See Blot, Cochard, Creel, Ducoudrén Schweisguth and Timbeau (2014), "Fiscal consolidation, public debt and output dynamics in the Euro Area: lessons from a simple model with time-varying fiscal multipliers", *OFCE Working Paper*, 2014-14.

21. Symptomatic is a plan currently under discussion within the German government for a €10 billion investment package. This is not to start until 2016 and will be spread over three years, representing about 0.1% of German GDP each year. This is despite years of negative net public investment in the country (Rietzler 2014).

the majority of countries, for which there is a risk of non-compliance, have high unemployment. This is the case for Spain, Portugal, Italy, and to a lesser extent, France and Belgium. Their output gap and unemployment situation calls for a more lax fiscal policy but the Commission recommends more budgetary efforts to ensure compliance with the SGP.

Moreover, European Commission's recommendations for compliance with the SGP are clearly more binding (ending in sanctions if failed) than the call to use fiscal space when available. As a consequence, if France, Belgium and Italy are forced to increase their fiscal adjustment before March, as it can be expected from the DBP assessment, the forecast of a neutral fiscal stance for the euro area as a whole for 2015 may be put into question and pose new risks to the recovery.

Figure 16. Gap between structural balance (2014,% of GDP) and MTO and unemployment rate for countries in the euro area



Note: *In green , countries which have a fiscal space. In blue, countries which are compliant or broadly compliant with the SGP provisions. In red, countries which pose a risk of non-compliance.*
Sources: European Commission, DBP's, iAGS calculations.

Box 5. Juncker's investment plan for Europe: Much ado about nothing?

Investment is one of the three main pillars of the Commission's strategy for 2015. Indeed, the Commission has presented an Investment Plan for Europe, which should provide at least 315 billion euros of extra public and private investment over a three-year period (2015-2017). The plan relies on a new *ad-hoc* fund—the European Fund for Strategic Investments (EFSI). This Fund

will be granted 21 billion euros: 16 billion euros of guarantees drawn from the 2014-2020 EU budget and 5 billion euros of capital injection from the European Investment Bank (EIB). The Commission estimates the 21 billion euros will allow the EIB to raise €60bn by issuing new bonds, and that this cash will be leveraged by contributions from the private sector: on this basis, the Fund is expected to reach 315 billion euros.

Yet, Mr. Juncker's proposals have been under fire since they were unveiled by the Commission. First of all, the Fund will be created with no "fresh" money: apart from an extra 5 billion euros from the EIB, it will be based on recycled EU resources. An opening has been made to allow member states to contribute and to exclude such contributions from the constraints of the fiscal compact. But contributions can't be targeted to contributing countries and, moreover, the lack of consensus among members States has constantly prevented them from reaching a more ambitious agreement. In June 2012, the Rome summit was largely dedicated to investment. Several proposals were discussed, notably the recapitalization of the EIB, the reallocation of non-used structural fund resources, the idea of project bonds. Yet, the bones of contention remain the same. Even though France defended the idea that more resources were necessary to supplement the Fund, it faced reluctance from multiple sides. The UK strongly opposed an increase in the EU budget, while Germany refused a larger contribution from the EIB that might have jeopardized the EIB's triple A credit rating. Besides, Central and Southern European countries are reluctant to use the European structural and cohesion funds, because it would jeopardize their public balance because of project co-financing. Precisely, EU structural and cohesion funds, which also have a leverage effect, have been notably underused. It is therefore hard to believe that the EFSI could fare better. Moreover, many critics highlighted that the plan was extremely optimistic as regards the willingness of the private sector to invest massively. Many observers doubt that the capital base will be sufficient to raise enough money to fund projects. Therefore, the Juncker plan is likely to fail to deliver on its promises.

Debt-deflation dynamic and fiscal rules

The ability to reduce debt may also depend on the inflation dynamic. As emphasized in debt-deflation spiral, the real debt burden becomes higher when countries enter into deflation. Taking into account the constraints imposed by the TSCG, may then force governement to further austerity measures reinforcing the deflation risk and increasing the debt burden. We illustrate this scenario by considering alternative negative shocks to the inflation rate. For each scenario, we run the same simulations as in Tables 9 to 11 in order to assess whether public debt for each euro area country can reach 60% by 2034. Negative or positive fiscal impulses (capped at +/-0.5) are implemented for countries until they reach the 60% threshold. Four scenarios (described in Box 6) are considered: 3 of them are based on a symmetric shock as inflation rates decrease for all euro area countries. The last shock is asymmetric as we consider that the risk of deflation is certainly higher in some countries (in Spain or Greece rather than in Germany or the Netherlands). Besides, EC's recommendation made within the macroeconomic imbalances procedure have promoted measures favouring competitiveness in countries that had current account deficits before the crisis. A symmetric adjustment is certainly needed as emphasized in iAGS report 2013 and 2014 but it

would imply a relative increase in inflation for Germany, Austria and the Netherlands while other countries would need to restore competitiveness for their net external position to be sustainable. But, it seems more likely that the adjustment is realized asymmetrically, so that inflation in deficit countries may be significantly lower for a sustained period. We have then considerd the case of an asymmetric shock in Belgium, Finland, France, Greece, Italy Portugal and Spain. The adjustment is supposed to take plave over a 20-year period. The calibration of the shock for each country is based on chapter 5 simulations where the aim is to reach a sustainable external position.

The consequences of a symmetric reduction of the inflation rate are rather small in the model. When euro area inflation in reduced by more than 1.2 points during 2 years, the cumulated additional fiscal impulse needed to reach the 60% debt-to-GDP ratio increase by 0.2 on average for the euro area. More efforts are needed Portugal and Greece. Actually, the model would trigger a significant reduction in the interest rate as the monetary policy rule implies a reduction in the short-term interest rate. This implies a reduction in long-term interest rates, which are forward-looking, computed as the weighted average of present and future short-term interest rate. For a symmetric shock, ZLB constraint is not binding beyond 2017. Forward-looking long-term interest rates would also be significantly lower except for Greece and Portugal where intial inflation rates are already low so that real interest rates would increase at the time of the shock.

Yet, it must be stressed that potential costs of deflation are certainly underestimated in the model and for symmetric shock. Monetary policy authority is supposed to be quite reactive in the model and would keep substantial leeways to cut down interest rate. ZLB constraint binds only temporarily. For the ZLB constraint to be effectively binding for a sustained period, it would imply substantial costs, much higher than those estimated here. Recent evidence has indeed shown that the ECB is facing real difficulty to cope with deflation's risk as detailed in Chapter 3. Besides, inflation expectations in the model are also anchored and always revert to the inflation target and private debt are not introduced of the model limiting the scope of debt-deflation spiral.

Turning to the asymmetric shock leads to more significant effects, notably because the ECB would react only to the extent that euro area inflation is decreasing. The decrease of monetary policy rate and of long-term interest rates are then limited and would not fully offset the reduction in inflation rates observed in adjusting countries. The critical gap becomes positive, increasing the debt-to-GPD ratio. For those countries, the 60% threshold might still be achieved but with substantial additional austerity. Such a consolidation might be unrealistic because it would imply high macroeconomic and social costs in countries already suffering from past and current austerity. Costs may even be larger if monetary policy is less reactive than supposed in the model and if private deleveraging would be taken into account. Debt rule may automatically become more stringent triggering a vicious debt-deflation spiral. Lower inflation increases the debt burden driving away the country from the 60% threshold. Further austerity is then needed to comply with the rules. If deflation risk is isolated, this country (or this group of countries) may not benefit from additional monetary stimulus as long as average inflation is close to the target. On the one hand, it may improve competitiveness and foster growth that way—depending on the relative size of

the tradable sector—but on the other hand, it would make the compliance with fiscal rules harder.

Then dealing with the risk of deflation remains a priority. Besides, internal devaluation strategies are also risky and may diffuse debt-deflation spriral in more fragile countries.

These long-term scenarios show that additional austerity may occur when countries have exited from EDP. Fiscal rules set up in the Fiscal compact may hamper growth for a sustained period in the euro area, increasing poverty and inequalities. These rules certainly go beyond the requirement of public finance sustainability. There is a significant risk that the euro area enters a stagnation trap or even a deflation trap if economic policies are not significantly revised. The Fiscal compact has already imposed and will still impose too much austerity and constraints on growth. It is still time to reconsider it and to subsitute alternative rules, which are growth-friendly.

Box 6. Debt-rule and the risk of lower inflation

The ability to reduce debt may also depend on the inflation dynamic. As emphasized in debt-deflation spiral, the real debt burden becomes higher when countries enter into deflation. Taking into account the constraints imposed by the TSCG, may then force governement to further austerity measures reinforcing the deflation risk and increasing the debt burden. To this end, we analyse the consequences of a decrease of the inflation rate under 4 alternative scenarios (3 symmetric shocks on the inflation rate and 1 asymmetric shock):

— *Symmetric shock S1*: a transitory inflation shock (-1 the first year and -0.5 in year 2), which may result from a negative oil price shock. Due to the inflation dynamic in the model, the shock is long-lasting (see figure 17). Inflation in the euro area is reduced by 1.2 point the first two years and goes back progressively to 2% by 2022.

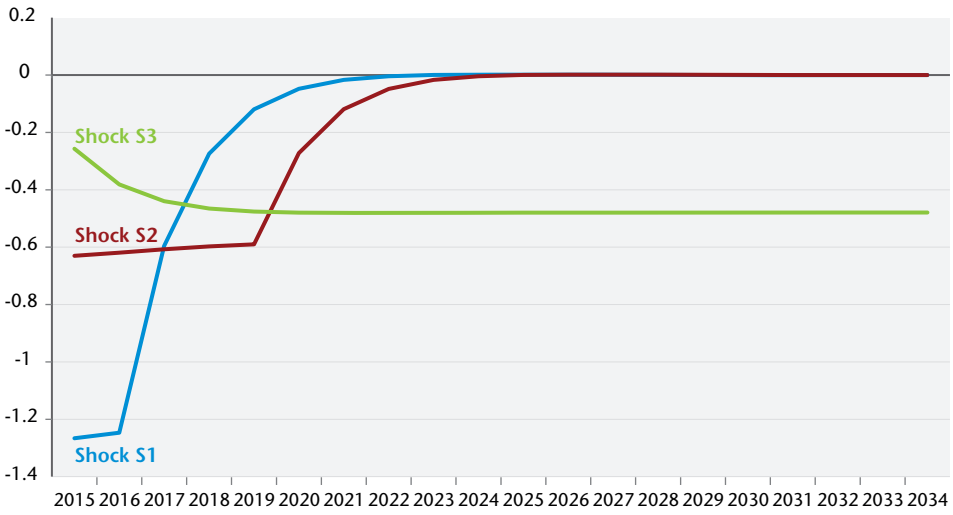
— *Symmetric shock S2*: a transitory shock on expected inflation (-1 the first 2 years and -0.5 for the 4 following years). Here, inflation in the euro area is reduced by 0.6 point for a 5-year period and goes back progressively to 2% by 2023.

— *Symmetric shock S3*: a drop in the target for inflation over all the period (2015-2034). We consider a 0.5 point decrease.

For shocks S1 and S2, even if euro area inflation reverts to the 2 % target no later than in 2023, heterogeneities remain across countries as initial values for inflation rate are different (see table 7 with the main hypotheses). Yet, all inflation rates converge to 2%. For shocks S3, there is a permanent fall in the inflation rate of each country.

— *Asymmetric shock S4*: based on Chapter 5 estimates, we have calibrated negative shocks over a 20-year period. Stabilizing external position would then imply a yearly long-lasting reduction of inflation rates, which would amount to 0.2 point in Belgium, 0.1 point in Finland, 0.9 point in France, 0.7 in Greece, 0.6 in Italy, 0.1 point Portugal and 0.4 in Spain.

Figure 17. Difference with baseline inflation rate



Source: iAGS model.

For the 3 symmetrick shocks, we illustrate the debt dynamic, the ability to reach a 60% ratio by 2034 and the additional fiscal impulse needed to reach the 60% debt ratio (Table 12). In the first scenario, it would imply additional austerity measures which would amount to 0.2 on average for the euro area. The rather limited impact results from model properties. Actually, the model would also trigger a significant reduction in the interest rate. For a symmetric shock triggering a decrease in the euro area inflation rate, the monetary policy rule implies a significant reduction in the short-term interest rate. With a standard Taylor rule, for a 1 point reduction in the inflation rate, ECB would cut the policy rate by 1.5 point, if and only if the ZLB constraint is not binding. This implies a reduction in long-term interest rates, which are forward-looking, computed as the weighted average of present and future short-term interest rate.

Therefore, the negative impact of declining inflation on debt will occur if and only if monetary policy is constrained by the ZLB. Here, ZLB constraint is binding until 2017 for these 3 shocks so that a lower inflation imply higher real short-term rate for a limited period. The critical gap between real interest rates and real GDP growth rate, does not increase permanently and significantly because monetary policy is reactive and also because expected inflations remain anchored to the 2% target. The additional efforts are generally higher in scenario S3. The highest effort should be implemented in Greece because of higher initial public debt and lower initial inflation rates. For Greece, the ZLB would be more constraining as a significant deflation would occur. For other countries, real long-term interest rate would adjust downward, limiting the debt-deflation vicious circle.

We then consider that not all euro area countries face the same risk of deflation or of a sustained period of low inflation. The risk is indeed higher for Spain and Greece than for Germany or the Netherlands. We focus here on countries for which a current account adjustment is needed (Belgium, Finland, France, Greece, Italy, Portugal and Spain). Even if current account deficits have turned to surpluses for some countries (figure 6), part of the adjustment have resulted from the fall in internal demand so that current account may revert to deficits once the output gap will be closed.

Those countries would not necessarily fall into deflation but may have lower inflation for a 20-year period, the time needed to achieve the current account adjustment. The inflation shock would be weak but sustained. It would trigger a deflation in France, Italy and Greece. Even if euro average inflation would be reduced, it would decrease less than in scenarios where shocks are applied to all countries. The reaction of monetary policy and long-term interest rates would then not fully offset the reduction in inflation rates observed in adjusting countries. The critical gap would become positive, increasing the debt-to-GPD ratio. For those countries, the 60% threshold might still be achieved but with substantial additional austerity (Table 13).

Table 12. 60% debt-to-GDP with different deflationary shocks

Difference with table 9

	CFI2015-2034			Inflation 2015-2019*		
	S1	S2	S3	S1	S2	S3
DEU	-0.1	0.0	0.0	-0.7	-0.6	-0.4
FRA	-0.2	0.0	-0.3	-0.7	-0.6	-0.4
ITA	-0.2	-0.1	-0.2	-0.7	-0.6	-0.4
ESP	-0.1	-0.1	-0.2	-0.7	-0.6	-0.4
NLD	0.0	0.1	0.0	-0.7	-0.6	-0.4
BEL	-0.1	0.0	-0.1	-0.7	-0.7	-0.4
PRT	-0.6	-0.3	-0.6	-0.9	-0.7	-0.6
IRL	-0.2	0.0	-0.1	-0.7	-0.6	-0.4
GRC	-0.5	-0.4	-0.9	-0.8	-0.6	-0.5
FIN	0.0	0.1	0.0	-0.7	-0.6	-0.4
AUT	-0.1	0.0	-0.1	-0.7	-0.6	-0.4
EUZ	**-0.2**	**0.0**	**-0.1**	**-0.7**	**-0.6**	**-0.4**

CFI: Cumulated fiscal impulse.
* Beyond 2020. inflation reverts to the target except for scenario S3 where we have implemented a permanent shock.
Source: iAGS model.

Table 13. 60% debt-to-GDP with asymmetric disinflationary shocks

In %

	Public debt			Structural balance			CFI	Average growth rate		Min-OG	Average inflation rate	
	2015	2020	2034	2015	2020	2034	2015-2034	2015-2019	2020-2034	2015-2034	2015-2019	2020-2034
DEU	73	62	60	0..5	-1.1	-2.0	3.5	1.5	1.0	0.0	1.3	2.1
FRA	98	101	60	-2.3	-0.3	2.5	-5.2	1.7	1.5	-3.9	-0.7	-0.2
ITA	134	125	60	-0.2	2.5	4.4	-1.9	0.8	0.4	-4.6	-0.4	0.6
ESP	101	98	60	-1.7	0.3	1.1	-2.4	2.0	1.5	-5.4	-0.2	0.9
NLD	76	70	60	-0.2	-1.6	-1.6	1.4	2.3	1.3	-3.5	0.5	2.1
BEL	102	93	60	-0.7	-0.5	0.3	-0.1	2.0	1.5	-1.9	0.3	1.5
PRT	131	115	60	-0.5	0.7	2.0	-0.9	1.9	1.1	-5.9	0.9	1.7
IRL	116	95	60	0.9	0.0	-0.3	3.0	3.5	1.9	-5.9	0.0	2.0
GRC	175	164	60	2.5	3.8	7.1	-3.9	1.9	1.2	-11.1	-1.2	0.2
FIN	64	61	60	-0.8	-1.5	-2.3	-1.2	2.2	1.6	-3.8	0.8	1.9
AUT	77	72	60	-1.3	-1.6	-1.4	0.7	2.1	1.4	-2.8	1.5	2.1
EUZ	**96**	**89**	**60**	**-0.6**	**-0.1**	**0.3**	**-0.5**	**1.6**	**1.2**	**-3.0**	**0.3**	**1.2**

CFI: Cumulated fiscal impulse.
Source : iAGS model

4. Conclusion

Recovery has not happened yet and deflation is still threatening eurozone countries. The impact of austerity has declined but has still a negative impact, weighing down demand. Deleveraging may also drag down private spending. There is then a real threat of a persistent stagnation trap (low growth – low inflation) in the euro area.

Moreover, fiscal consolidation is not over and will affect a number of European countries even after they exit from the EDP. This is due to the other rules in the European fiscal framework, notably the debt-rule and the need to reach a fiscal MTO (medium-term objective) in structural terms. Fiscal space is therefore limited. Required additional fiscal efforts would be significant for France, Italy, Spain, Portugal and Finland. These efforts would even be larger if some countries enter into deflation. These are the countries suffering most from depressed demand and high unemployment. A small number of countries, especially Germany, does have fiscal space. However it is only limited incentives to use it.

Without any change in the macroeconomic strategy, unemployment will be long-lasting triggering negative hysteresis effects, increasing inequalities and poverty (see chapter 2 for details).

Monetary policy has a crucial role but cannot do all the job. The effects of unconventional measures are uncertain and may be limited (see chapter 3 for details). Empirical literature emphasized the lower effectiveness of monetary policy in post-financial crisis periods, due to deleveraging. A solution might be to trigger a depreciation of the euro to foster an increase in extra-EMU demand. This is partly (and indirectly) the aim of measures taken by ECB in June 2014. To make quantitative easing more effective and achieve results rapidly, it is necessary for the ECB to widen its scope to include government bonds in its secondary-market asset purchases.

Regarding fiscal policy, the first-best solution would be to abrogate the fiscal compact. The debt rule has no strong theoretical or empirical support. It would also be appropriate to exclude productive public investment from fiscal rules as it makes economic sense, in terms of efficiency and inter-generational equity, to credit-finance projects that generate long-term returns.[22] A crucial need both to support short-term growth and to increase potential output is for countries to increase both public and private investment. The Juncker Investment Plan seems likely to deliver only a fraction of the promised €315 billion in additional investment. An alternative proposal to increase investment in the area of climate-change prevention is detailed in chapter 4.

The European Banking Union represents an important instrument helping to establish future financial market stability. However, there are challenges to take beyond the current stage: In particular, a more effective backstop mechanism has to be implemented and the too-important-to-fail problem has to addressed.

22. See Creel, Hubert and Saraceno (2013).

APPENDIX:
Country analyses

Germany: Low economic momentum

The economic situation in Germany continues to be lackluster in 2014. Strong growth in the first quarter was followed by a decline in GDP in the second quarter, and the third quarter brought little more than stagnation (0.1%). Despite the expansionary monetary environment and favourable lending conditions investment activity remains weak. This is partly the result of low global growth, especially in the other euro area countries, but also mirrors the lingering high uncertainty about economic developments in the euro area.

The robustness of the labour market in Germany continues to be a stabilizing factor. Despite the low growth rates, the level of employment has continued to expand, and wage increases remain relatively strong by historical comparison, picking up again after weakening in 2013. As a result, incomes continue to rise noticeably and private consumption contributes most to growth.

Against this backdrop, the GDP in Germany is expected to increase by 1.5% in 2014, with the number of people employed slightly higher and the number of unemployed slightly lower than in the previous year. There is no indication that the economy will shift into a phase of self-sustaining economic growth. The potential for such a shift is there, but the strain of the euro crisis in terms of depressed exports, high uncertainty and fiscal restraint is still too strong and prevents more dynamic investment.

The primary risk in the economic outlook is a deterioration of the outlook for the euro area as a whole. Should the deflationary tendencies become stronger or the euro crisis reignite, Germany could easily slide toward recession.

The depreciation of the euro, low lending rates and robust consumption demand contribute to a strengthening of economic activity in the forecast period. Exports will pick up both to the other euro area countries and to the rest of the world. Imports will increase more rapidly than exports during 2015, after slower growth in 2014, but the contribution to GDP from external trade will be slightly positive in both years. Domestic demand will remain the most important economic pillar.

Capital expenditure and investment in construction are trending upwards, albeit at relatively low rates. Private consumption remains—as in recent years—the central engine for domestic demand. Given slightly higher economic momentum as of the fourth quarter of 2014, German GDP will increase by 1.4% in 2015. The level of employment will increase slightly, with the number of unemployed dropping somewhat.

With a rate of 1.0% in 2014 and 1.2% in 2015, German inflation will be half a percentage point above the euro area average in both years but still far below the ECB's inflation target. The fiscal budget will be in surplus for the forecast period, and the gross-debt-to-GDP ratio will continue to decline.

Table 14. iAGS macroeconomic forecasts

Germany

%	2013	2014	2015	2016
GDP	0.2	1.5	1.4	1.7
Private consumption	0.9	1.1	1.7	1.9
Investment	-0.4	3.0	1.6	3.2
Public consumption	0.7	1.2	1.4	1.4
Exports	1.7	4.0	6.3	6.7
Imports	3.2	3.8	7.6	7.8
Contribution to growth				
Internal demand	0.5	1.4	1.5	1.6
External trade	-0.5	0.1	0.1	0.1
Inventories	0.1	-0.1	-0.2	0
Unemployment rate	5.3	5.0	4.9	4.7
Inflation	1.6	1.0	1.2	1.3
Public balance	0.1	0.5	0.4	0.4
Fiscal impulse	-0.4	0.2	0.1	0.1
Public debt % GDP	76.9	73.5	70.5	67.3
Current account % GDP	7.0	6.8	7.0	7.0

Source: National accounts, iAGS forecasts.

France: Duty-free growth

In early 2011, France was one of the few developed countries having fallen back to its pre-2008 level in terms of GDP. Growth recovered to 2 percent, and even 3 percent y-o-y in 2011Q1. However, these favorable developments did not persist. The recovery has stalled and growth, although slightly positive, is close to zero from 2011Q2 on average. This break in the recovery was due to four dampening factors.

First of all, fiscal consolidation conducted since 2010 severely dragged down activity, when fiscal impulses where stopped to make way for restrictive fiscal policy. Not only France but many European partners adopted the same strategy, so that the internal domestic restrictive effect of the fiscal stance has been worsened by recessionary effects resulting from the slowdown in external demand. The fiscal strategy has been the main factor explaining the downturn of the French economy. Other factors, such as the resumption in oil price, the unusual credit conditions driven by the sovereign debt crisis and the deterioration in price competitiveness from 2012 have been less crucial, although further dampening French growth.

Some see in this long period of lack of growth the result of the impact of the 2008/09 recession on potential GDP. Firm bankruptcies and low investment may have flattened the productivity trend and the rise in long term unemployment may have increased the NAIRU. As a result, both a downward shift of the potential output and a slowdown in the potential GPD growth may have occurred since 2008. However, even if such developments are likely although difficult to quantify, the capability of the French economy to rebound is not void. Many institutions, OECD, IMF, EC, French government, OFCE estimate a large negative output gap for France, lying between -4 and -2.5 percent. Business survey data support the same idea with still high production capacity margins and a majority of firms reporting demand difficulties rather than supply difficulties. At the same time, labour productivity is still lower than its trend level, suggesting that firms are constantly overstaffed.

Dampening factors will remain active in 2014. Again, the fiscal stance will be the main brake to growth, although in a lesser extent than previous years. At the same time, competitiveness of the French economy will deteriorate due to the appreciation of the euro up to mid-2013 and to higher competition from European countries where wage deflation has started. As a result, positive points of growth stemming from the weakening of the negative fiscal impulse will be offset by a weaker external demand.

By reorienting the economic strategy in favor of firms, the French government expects better supply conditions to restore the competitive position of France. While the fiscal package—"Crédit d'Impôts pour la Compétitivité et l'Emploi (CICE)"—became effective in 2014 and will be supplemented in 2015 with the "Pacte de Responsabilité et de Solidarité", full positive impacts from the lowering of firm tax burden should not be expected in 2014 and in 2015. On the contrary,

activity will suffer in the near term from increased taxation on households implemented with the view to curb the public deficit when tax revenue on firms will be lightened. Positive multipliers involved by tax incentives set up to stimulate the supply side of the economy are far lower than negative multipliers generated by higher taxes on households. The overall impact of this strategy is a lower negative fiscal impulse in 2014 and in 2015 than during the former years but with a much strong negative impact on GDP.

Furthermore, the behaviour of the firms, which will benefit from the fiscal packages, can hardly be anticipated. In the context where operating surplus ratio seriously worsened since 2008 as a result of labour hoarding and of a marked deceleration of inflation, firms will probably try to ensure better financing conditions rather than lower selling prices. A positive impact on overall employment can be expected from tax cuts, but it will probably rely on maintaining jobs rather than job creation or wage increase. Another consequence of this conservative attitude is that investment should not recover: substitution of capital for labour would result from maintaining employment which will not help investment in a context where the accelerator effect will not play its normal role as it usually did past upturns.

Private consumption will still be dampened both by a heavier tax burden in 2014—the increase in VAT and some additional taxes—and by a continued rise in unemployment up to 2015. Employment in private sectors will not fully benefit from the weak growth pattern given the need for firms to restore productivity. In 2014 and 2015, employment growth would be twice as low as it was in 2010 and 2011. Active labour market policies, including subsidized jobs in the non-profit sector, will help to job creations but it will not prevent a further rise in unemployment to 9.9 percent of the workforce.

Table 15. iAGS macroeconomic forecasts

France

In %	2013	2014	2015	2016
GDP	0.4	0.4	1.1	1.7
Private consumption	0.3	0.2	1.3	1.7
Investment	-0.8	-2.2	-1.6	0.9
Public consumption	2.0	1.8	1.1	0.8
Exports	2.4	2.5	2.6	3.3
Imports	1.9	2.4	1.2	2.0
Contribution to growth				
Internal demand	0.4	0	0.6	1.3
External trade	0.1	0	0.4	0.4
Inventories	-0.2	0.4	0.1	0.0
Unemployment rate	9.9	9.7	9.8	9.7
Inflation	0.6	0.6	0.7	0.9
Public balance	-4.1	-4.5	-4.3	-3.6
Fiscal impulse	-0.9	-0.3	-0.3	-0.5
Public debt % GDP	92.2	95.4	97.4	99.8
Current account % GDP	-1.5	-1.2	-0.8	-0.2

Source: National accounts, iAGS forecasts.

Italy: Endless quagmire

In the first half of 2014, Italy saw its GDP fall for two quarters in a row. Combined with a negative carry-over effect inherited from 2013, Italy seems unable to find its way out of the recession. Growth should remain subdued in the second half of 2014, thanks to a stabilization of private consumption. In 2015, internal demand should support a fragile recovery. After a dip into deflation territory at the end of 2014, inflation should remain at low levels in 2015 (0.3% in average), preventing real interest rates from declining. Public deficit would reach 3.0% in 2014, and 2,9% in 2015, and primary structural balance should slightly improve by 0,1 point.

Hopes for a recovery were rapidly dampened by the bad economic performance in the first half of 2014. Indeed, the downward trend in investment has been going on, and external demand has contributed to growth negatively. The only good news is that household consumption seems to stabilize at last. Compared to 2013, the year 2014 war marked by the end of austerity measures as regards tax rises and the implementation of some fiscal measures in favor of low income households: thus, in May 2014, the employees earning up to 1 500 euros saw a 80 euro increase in wages. This contributed to raising the savings rate and improving the situation of households. On the contrary, investment contracted further, and capacity utilization rate has been stagnating since 2013.

The Italian GDP will be negatively impacted by several effects in 2014. First and foremost, credit conditions would worsen, lowering growth by 0.7 point. Indeed, lower public interest rates did not lead to lower nominal interest rates for households and firms. Public rates decreased by 125 basis points between January and July 2014, versus 27 bp for household housing and 32 bp for non-financial corporations. Besides, Italy has been experiencing a fall in HIPC since the beginning of 2014, and it entered into a period of deflation in August 2014 (notably due to the strong decrease in energy prices), which triggered a rise in real interest rates. Deteriorating price competitiveness would also have a negative impact of 0.2 point on GDP growth rate. Fiscal measures would also contribute negatively to GDP growth: even though the national fiscal stimulus remains neutral (0.2 point of GDP) thanks to the payment of overdue debts by public administration, fiscal austerity in the euro area would shave 0.5 point off GDP growth in 2014.

In 2014, private consumption should remain subdued for two reasons: an increase in unemployment on the one hand, an improvement in credit conditions on the other hand. As regards investment, external demand would stagnate and internal demand would be insufficient to drive up investment. In 2015, the neutral budgetary policy should have a more positive impact on income growth. Firms could benefit from lower tax rates. Notably, the IRAP (regional tax on production) rate would decrease by 10%, financed by a tax on financial activities. The repayment of overdue debts to private companies would keep on in 2015. Even though firms mostly focus on their deleveraging process, our scenario forecasts a recovery in productive investment. Besides, the pace at which investment

will recover will be highly correlated with the transmission of monetary policy to private rates (*pass-through*). As regards the households, tax cuts of 10 billion euros have been promised by 2015, and therefore we anticipate a growth in demand for durable goods. Yet, recovery will be fragile because households fall prey to a high level of unemployment, a persistency of wage freeze in the public sector, a weak inflation forecast, and a rising savings rate.

Unemployment should remain at its record level, around 12.6% because of a stagnating labor force, and partial unemployment disposals which remain at a high level. Employment per head should increase slightly in 2015.

Non-performing loans (NPL) are on the rise: in Italy, they account for 10.9% of outstanding loans in June 2014, among which 70% are due to non-financial corporations. NPL rate increased most for non-financial firms (with a 55 bp increase between January and June 2014), compared to a 3 bp rise for individual firms and 2 bp for households. This highlights the fact that firms are still in poor financial health. Moreover, while waiting for the results of the Asset Quality Review, Italian banks had been cautious and selective, and had curbed the access to credit, notably to SMEs. Given the failure of nine Italian banks to pass the stress tests designed by the ECB in October 2014, banks are likely to give the priority to the restoration of profit margins rather than credit distribution. Hence, the pass-through of monetary policy towards private rates could be very incomplete.

The warning of the European Commission, which urged Italy to reconsider its draft budget for 2015 and to speed up the pace of structural deficit reduction, we make the hypothesis that Italy will reduce its structural deficit only by 0.1 point in 2015. Indeed, Italy can claim exceptional circumstances due to the long-lasting recession and pending structural reforms.

Table 16. iAGS macroeconomic forecasts

Italy

In %	2013	2014	2015	2016
GDP	-1.8	-0.2	0.5	0.7
Private consumption	-2.6	0.1	0.6	0.6
Investment	-4.6	-1.8	0.4	1.3
Public consumption	-0.8	0.5	0.3	0.0
Exports	0.0	1.6	0.6	1.3
Imports	-2.9	1.3	0.9	1.2
Contribution to growth				
Internal demand	-2.5	-0.1	0.5	0.6
External trade	0.8	0.1	-0.1	0.1
Inventories	-0.1	-0.2	0.0	0.0
Unemployment rate	12.2	12.6	12.6	12.4
Inflation	1.3	0.2	0.3	0.5
Public balance	-3.0	-3.0	-2.9	-2.7
Fiscal impulse	-0.5	0.2	0.0	0.0
Public debt % GDP	127.9	131.6	134.1	133.6
Current account % GDP	1.0	-0.1	1.0	1.2

Source: National accounts, iAGS forecasts.

Spain: The end of the slump

In Spain, the worst seems definitely over. After 6-year recession, growth is positive again. In the third quarter of 2014, GDP has increased by 1.6% in annual change. On the whole year, we foresee a 1.3% growth, after a drop of 1.2% in 2013. In 2015 and 2016, growth is expected to accelerate at 2.1% and 2.3% respectively. The recovery is largely supported by the strengthening of the domestic demand, in a context of loosening financial conditions.

This recovery is allowed by the reversal on the labor market. After a fall of 19% of the full time equivalent employment on a 5.5-year period, employment picked up in the beginning of 2014 and the move is projected to keep on. In this context, unemployment has continued to decline. After a peak at 26.3% in the first quarter of 2013, the unemployment rate declined to 24.2% this summer and is projected to around 20% in 2016. Despite the fall, it still remains very high, and put strong downward pressures on wages. As employment begins to recover, wage moderation is very anchored. Wages are progressing at a very low path and are even decreasing in the third quarter 2014. Nevertheless, despite this slow-down, the gross income of households has progressed again. Moreover, helped by the very low or negative inflation in the last months (-0.5% in November), the real income has been allowed to progress faster. That should consolidate household consumption in the next years to increase at a path expected at around 2%.

The other support to Spanish recovery is the easing financing conditions. Since the middle of 2012, public long term interest rate has decreased by more than 4 points. They finish the year under 2%, which has never been seen in Spain. This decrease will be transmitted to households which are Indebted in variable rates and facilitate their financial adjustment. In this positive context, prospects are improving and companies have restored their margins and can finance their expenditures. Productive investment can stay dynamic.

But some problems remain present. Debt of households is high and some imbalances on the real estate sector still goes on, although the adjustment in construction is close to its end. The house prices stopped to decline and are barely stabilizing. Investment in residential sector was still decreasing in the second quarter 2014. But the drop could stop in the second half of 2014. We foresee an modest increase of 0.8% in 2015.

In spite of certain progress, banking sector is fragile because of the importance of the doubtful loans. Bankruptcy have decreased rapidly in 2014 but are still at around 2000 proceedings on an annual base. That exert a strong constraint on the credit activity.

External sector will stop supporting the activity. Net exports contribution could be slightly negative in 2014 and almost neutral in 2015 and 2016 because of the acceleration of imports. Unit labor cost could cease to decrease from 2015 but some further gains in competitiveness are still expected. After a poor performance in the first half of 2014, exports could gain momentum from the second half of the year. Fiscal consolidation will continue. In 2014, the fiscal impulse is

expected to be of 1 point negative. In 2015 and 2016, the adjustment effort should be weaker (-0.4 point and -0.6 point). Public deficit could be just above 3% of GDP in 2016. But this sizable budget deficit combined with a still low nominal GDP growth could push the public debt ratio to around 101% in 2015.

In this context of slackened growth, high output gap and high unemployment, the growth is not exempted of risks. The wage moderation could get into a deflationary process and made more difficult the economic recovery, particularly because the real adjustment become more difficult.

Table 17. iAGS macroeconomic forecasts

Spain

In %	2013	2014	2015	2016
GDP	-1.2	1.3	2.1	2.3
Private consumption	-2.1	2.0	1.5	2.1
Investment	-5.1	0.6	2.8	2.9
Public consumption	-2.3	1.5	0.4	0.9
Exports	4.9	3.3	4.1	3.5
Imports	0.4	4.5	2.4	2.9
Contribution to growth				
Internal demand	-2.7	1.5	1.5	1.9
External trade	1.4	-0.3	0.6	0.3
Inventories	0.0	0.0	0.0	0.0
Unemployment rate	26.1	24.5	22.8	20.2
Inflation	1.5	0.1	0.2	0.6
Public balance	-7.1	-5.5	-4.2	-3.3
Fiscal impulse	-1.6	-1.0	-0.4	-0.6
Public debt % GDP	93.9	98.4	100.4	101.1
Current account % GDP	0.8	0.0	0.8	0.7

Source: National accounts iAGS forecasts.

RISING INEQUALITY IN THE EU
THE ELEPHANT IN THE ROOM

Rising inequality is the elephant in the European room: everybody knows it is there and that it is an obvious problem, but no one wants to either discuss the problem or address it. Macroeconomic issues have taken the front seat, and inequality might be dropped in the conversation when it has relevance from a macroeconomic perspective: maybe we should reduce inequality to fight secular stagnation (Fitoussi and Saraceno, 2011), especially because inequality can be self-reinforcing through secular stagnation; maybe we should reduce inequality to enhance growth in a world of credit-constraint households, because growth is the final goal of our policies (Birdsall *et al.* 1996). That, maybe, we should aim for socio-economic equality for itself and not for some other macroeconomic objective seems to have disappeared in the presence of other urgencies. Paradoxically, Thomas Piketty's *Capital in the 21st Century* has spurred a global debate, but not a European one. The *Capital* is on everybody's lips from New-York to Hong-Kong through Rio, but not in Brussels—although it is in everybody's mind, hence the Elephant in the Room. But, perhaps it is so because Piketty has placed attention on high and very high income, which is less of a subject in stagnating economies.

Important questions are not being raised, or are not heard enough: what does socio-economic equality even means in a European perspective? Should we worry about regional convergence as we traditionally do in Europe? We see in the present chapter that European regional convergence stopped with the crisis. Should we worry about household income inequality at the national level? The situation is more ambiguous, some countries are experiencing a decrease in inequality while others are experiencing an increase. In many countries, social transfers have so far mitigated the rise in market income inequality. Should we worry about absolute or relative poverty? We show that absolute poverty, measured by material deprivation has risen a lot in recent years. Or, should we worry about household income inequality at the *European* level? Eurostat does not follow the path of Milanovic (2012), formerly at the World Bank, who advocates the use of a Global Income Gini which analyses the distribution of individual income around the world regardless of national residence. The only EU Income Gini calculated by Eurostat is the average of national Gini coefficients. National and regional convergence are also analyzed but both approaches (between-groups and within-groups inequality) are never combined. Household inequalities are always measured at the national level, and not at the European level. It has been argued it is legitimate because it is the level of the political community, at which public policies are implemented. But what are the European Union and the euro area if not political communities of some sort? Aren't public policies implemented as well throughout the European Union and the Eurozone? When 18 nations share a common currency and pursue fiscal consolidation in the name of a common public good, isn't it time for them to think of a way to consider the question of justice, at least in its economic dimension?

Ironically, the euro area crisis, which arguably is fundamentally due to a deliberate choice of an absence of between-states solidarity, has not really spurred the

global debate over euro area or EU Economic justice, even though there are some partial debates, notably over the Banking Union, and a European Unemployment Insurance Scheme (Jara and Sutherland, 2013). The analysis included in this chapter show an increase in European inequality and poverty following the crisis, in part due to rising unemployment. If on average, national Gini coefficients are fairly stable over time, the global European Gini is up since 2009, 97% of the increase being the consequence of the rise of inequality between countries.

In his book, Piketty argues for the implementation of a Wealth Tax at the European Level, at first at very low rates. One point is that with taxation comes knowledge. Indeed, it's very difficult to know today the level of concentration of wealth in Europe: as discussed in the chapter, surveys of wealth have considerable flaws. Our knowledge of the distribution of income is due to the implementation of income tax. Income tax data are a lot more reliable than declarative survey data. Taxing wealth even at very low rates would therefore improve our knowledge of the world. It would not be absurd to do it among the countries which form the banking union. Definitely, a banking union implies some solidarity. From an individual perspective, there is a Deposit Guarantee Scheme (harmonized but left to national responsibility) that covers deposits up to €100.000. However, in the absence of wealth consolidation across banks, the protection ceiling must be understood per depositor per bank, meaning the same depositor can be covered up to €1.000.000 if she deposits in 10 different banks. This seems neither equitable nor efficient. Individual wealth taxation, and therefore wealth tax returns, would give knowledge of whom, individually, is actually rescued when the banks are rescued or deposits guaranteed, a first small step towards European economic justice. Cyprus has proven that the worst case scenario can happen and that justice is then a primary concern: perceived injustice might hinder a swift response in case of emergency.

With better knowledge, we believe there will come better deliberation and therefore better policies. But knowledge comes first, which is one reason we do not engage in a detailed policy agenda at this point. Europe is in a unique situation because nation-states have not given up sovereignty but shared it with a higher level. The European Union is not one single nation, like the United States, and it probably never will be. We probably need to adopt a *cosmopolitical* perspective with several levels of interaction: within nations, between nations, but also between individuals across the European political community. European institutions are needed to animate this public debate (Parodi, 2013). European economic justice is a missing part in Piketty's *Capital in the 21st Century,* which might also explain why inequalities are like an elephant in the European room.

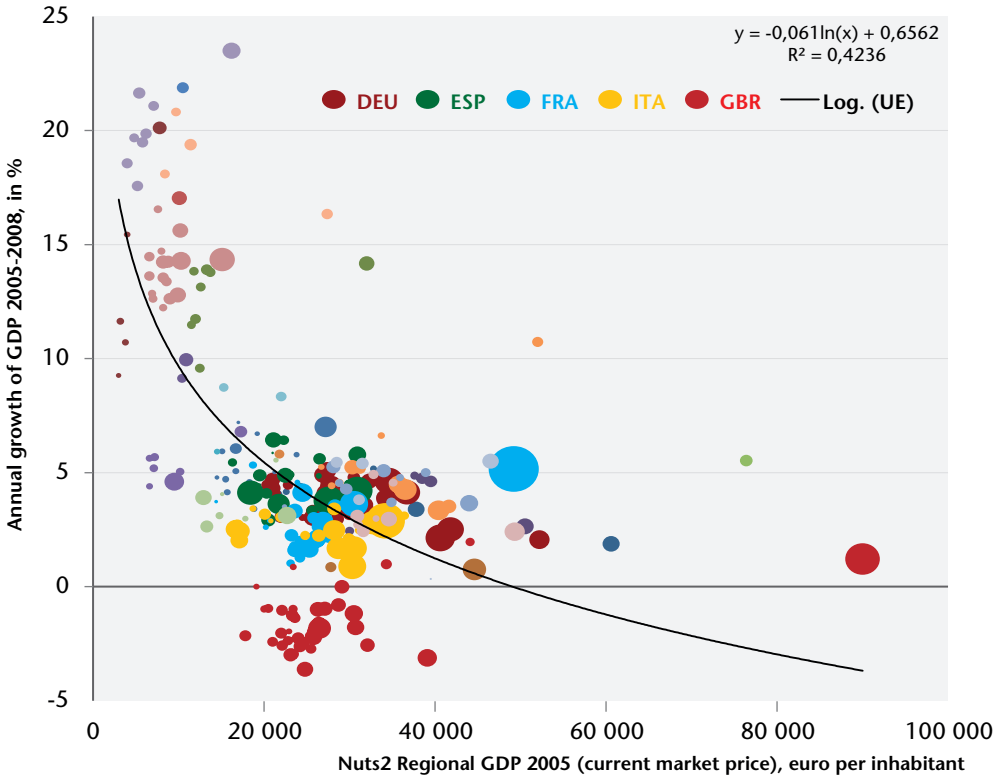
1. From regional convergence to regional divergence

Regional convergence is the traditional way to assess inequality *across* the European Union. The European Regional Development Fund (ERDF), established in 1975 is the first, and still main policy instrument aimed at reducing inequality across Europe. Prior to the crisis, a regional convergence could be observed. Figure 1 shows that between 2005 and 2008, the Nuts 2 regions which enjoyed the greatest average annual growth are also the ones with the lowest initial level of GDP, which implies convergence between European regions. It can be argued that this convergence was obtained at the cost of an unsustainable dynamic (like

Greece was). This point is rather difficult to prove or to dismiss, and can be made as a general caveat to all kind of convergence processes. Nevertheless, by itself convergence is not unexpected from a theoretical point of view, and it seems that the burden of the proof should be on the doubters.

The great recession has not been felt equally in Europe. Obviously, some regions have been hurt more than others. Figure 2 shows a different picture from figure 1, consistent with divergence, although the correlation is very weak. It can however be said that the crisis has stopped regional convergence in the EU.

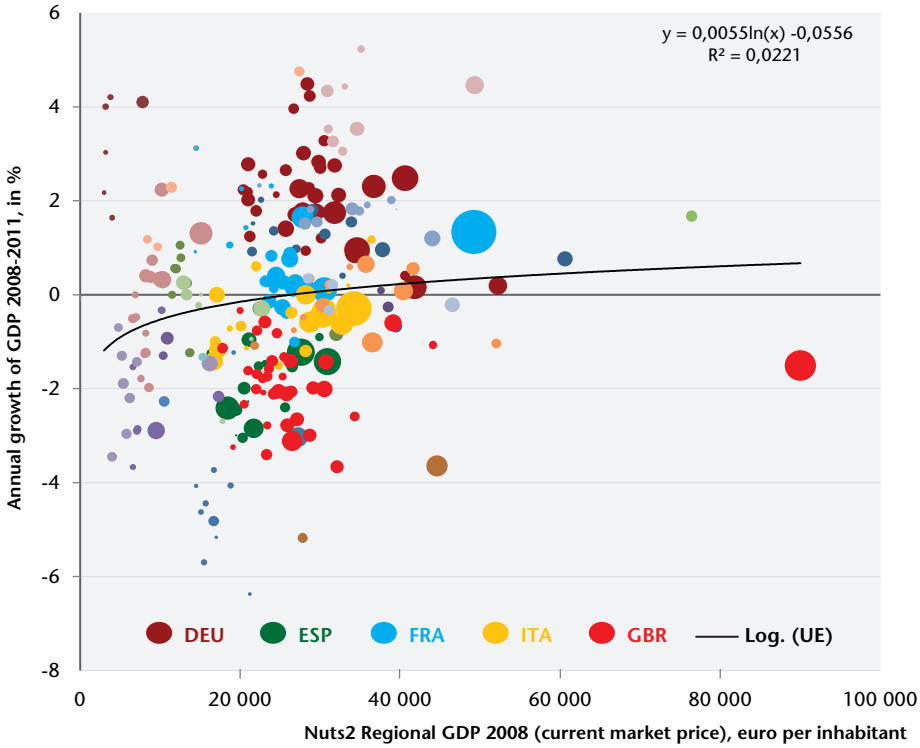
Figure 1. 2005-2008: Regional convergence in the EU



Sources: Eurostat, iAGS calculations.

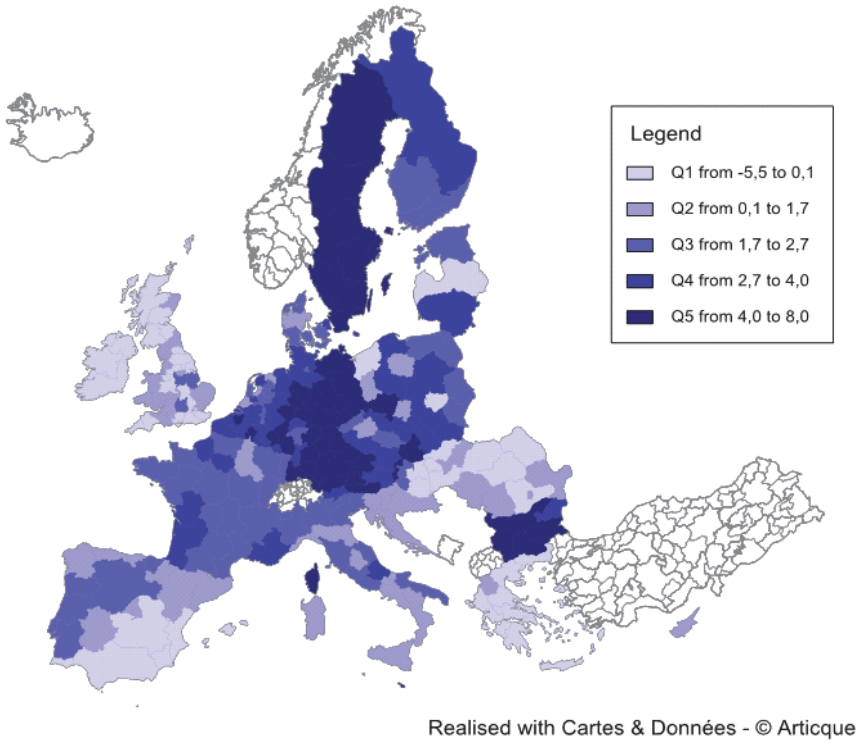
Map 1 shows which regions benefited from the highest growth between 2008 and 2011. It is clear that national borders keep their importance: regions which enjoy lower growth are found mostly in Greece, Spain, United Kingdom, while German, Swedish and Bulgarian regions enjoy higher growth. Despite that observation, regions of a given country do not share a common evolution. Regions of Italy, Spain or UK are decidedly heterogeneous in their fate.

Figure 2. 2008-2011:The end of Regional convergence in the EU



Sources: Eurostat, iAGScalculations.

Map 1. Change of GDP per inhabitant by NUTS 2 Regions, 2008-2011 (In %)



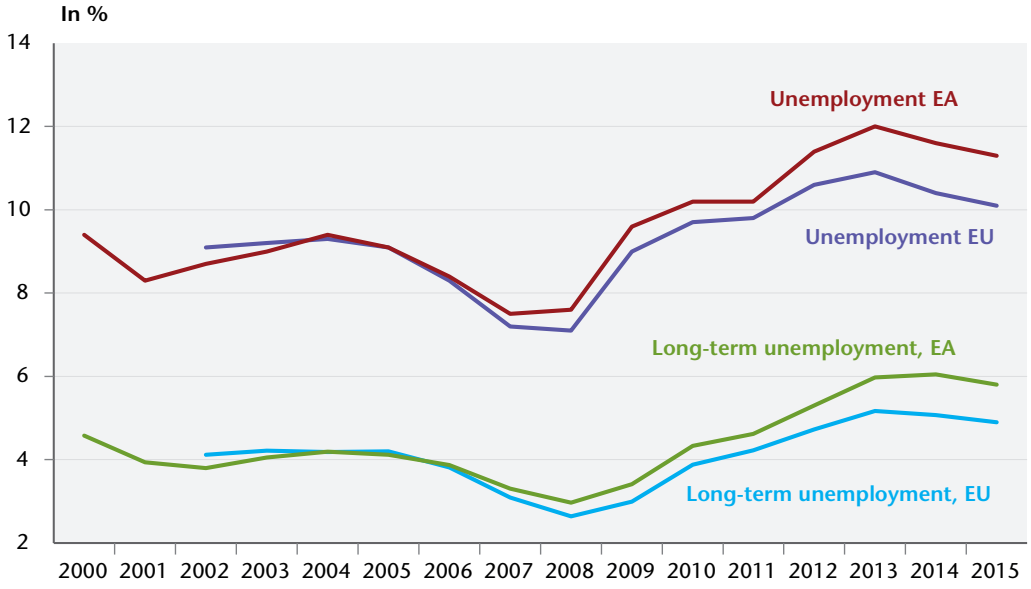
Source: Eurostat.

2. European labour market still suffers

Six years after the economic crisis, European labour markets still suffer in the wake. Although it seems that the tide is turning, the unemployment rates are still sky high in many countries. The employment, depressed by the crisis, in Europe continued to decrease after the European countries took austerity measures in 2011, but has finally begun to increase since 2013, since when employment is up by 2 million people. Combined with a shrinking labor force, partly, this has caused a turnaround in the unemployment rate in 2014. But the recovery is still very slow.

The level of long-term unemployment is still dangerously high. Figure 3 shows that long-term unemployment in EU28 is slowly decreasing, but the level is still very high with just over 5 percent of the labor force, corresponding to some 12 million people, having been unemployed for a year or more. After a rapid rise in the Euro zone since 2011, long-term unemployment seems to have stabilized during the last year, but with more than 6 percent of the labor force corresponding to some 9½ million people, who have been without work for more than 12 months, long-term unemployment within the Euro zone remains at its highest level since the outbreak of the crisis.

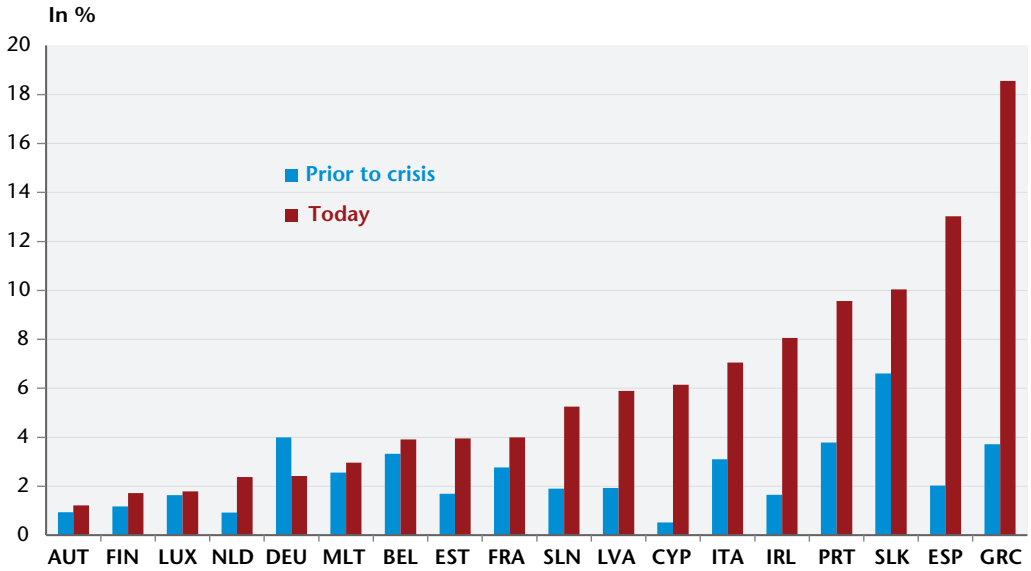
Figure 3. Unemployment



Note: 2015 iAGS forecast.
Source: Eurostat.

The effect of increasing unemployment has affected each member state differently. Figure 4 shows the long-term unemployment rate before and after the crisis. Germany is the only country that has a lower rate of long-term unemployment today compared to before the crisis broke out in 2008. The countries with increases below one percentage points are Luxembourg, Malta, Austria, Finland and Belgium. In the other end of the scale Spain has had an increase of 11 percentage points and Greece of almost 15 percentage points.

Figure 4. Long term unemployment



Note: Prior to crisis is 2008 and today is 2013.
Source: Eurostat.

Long-term unemployment is only expected to drop slowly in the course of 2015. In 2015 long-term unemployment could well be around 11½ million people in the EU-28 and around 9 million in the Euro zone. From a historical point of view these are still alarming levels of long-term unemployment.

The slow speed of the economic recovery in Europe may marginalize people in even longer-term unemployment. Even though long-term unemployment and unemployment in general is decreasing in EU28, the number of people being unemployed for more than 48 months is still increasing. This suggests that long-term unemployed bear a high risk of being marginalized and have a harder time finding a job after being away from employment. In EU28 the number of people being unemployed for more than 48 months has increased from 1.8 million people before the crisis to 3.1 million people in the second quarter of 2014. For the euro area the number has increased from 1.5 million people to 2.6 million people in the same period. This means that one in four long-term unemployed have been away from employment more than 48 months. There is an imminent risk of long-term unemployment becoming structural and there is therefore need for more active labor market policy and economic growth to reverse the trend in order to prevent hysteresis effects.

Young people have struggled to find work during the crisis. The level of youth unemployment remains high. In the EU28, 5 million people between 15-24 years are unemployed, while the number is 3.3 million people in the euro area. Of the 5 million unemployed young people in EU28 more than 1.8 million, or more than one in three, have been unemployed for more than 12 months. In the euro area the number is more than 1.3 million people which correspond to around 40 percent of youth unemployment also being long-term unemployment.

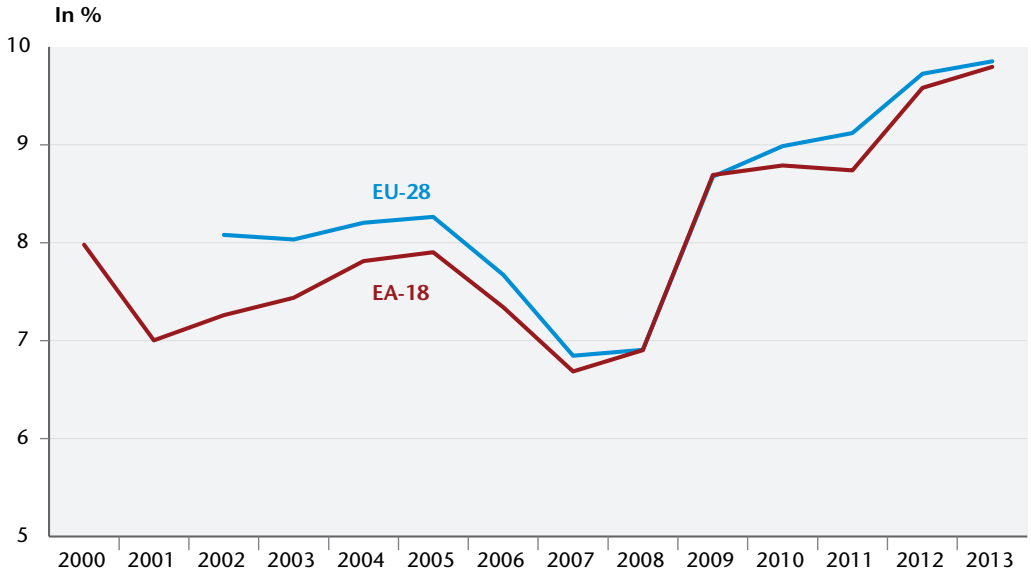
In some countries the youth unemployment rate has gone through the roof with unemployment rates exceeding 50 percent. Many young people are however not an active part of the labor market and instead of looking at the tradi-

tional youth unemployment rates it is also useful to look at unemployment ratios, i.e. the number of young unemployed as a share of the population (Figure 5 and Figure 6).

The unemployment ratio for the 15-24 year olds is around 10 percent in both the EU and the Euro zone which from a historical perspective is a very high level.

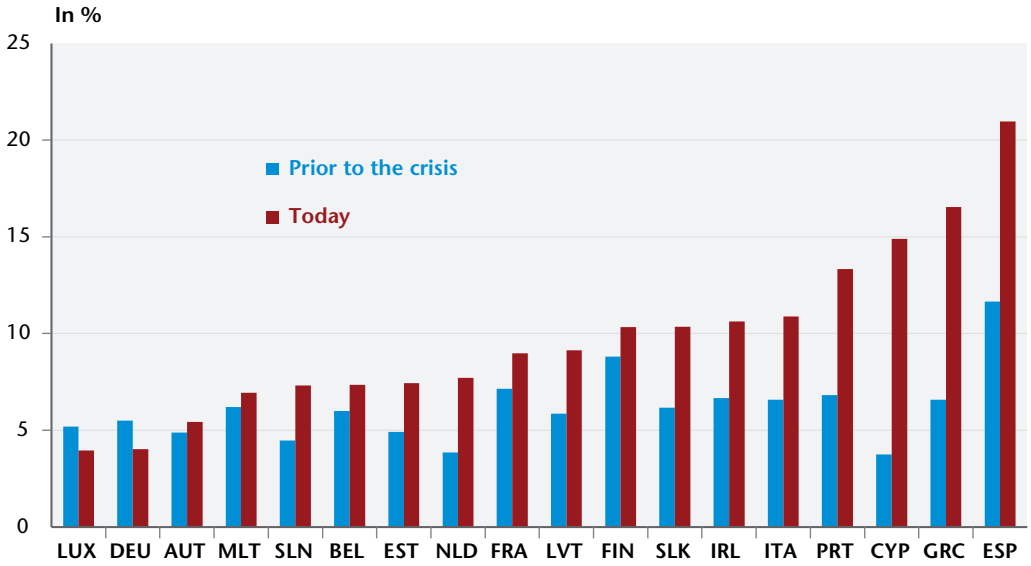
Youth unemployment ratios are very high in the troubled countries in southern Europe. Thus in Spain and Greece 16.5 percent and 21 percent of the youths are unemployed while it is only around 5 percent of the youths in Luxembourg, Germany and Austria.

Figure 5. Youth unemployment ratio



Source: Eurostat.

Figure 6. Youth unemployment ratios, selected countries

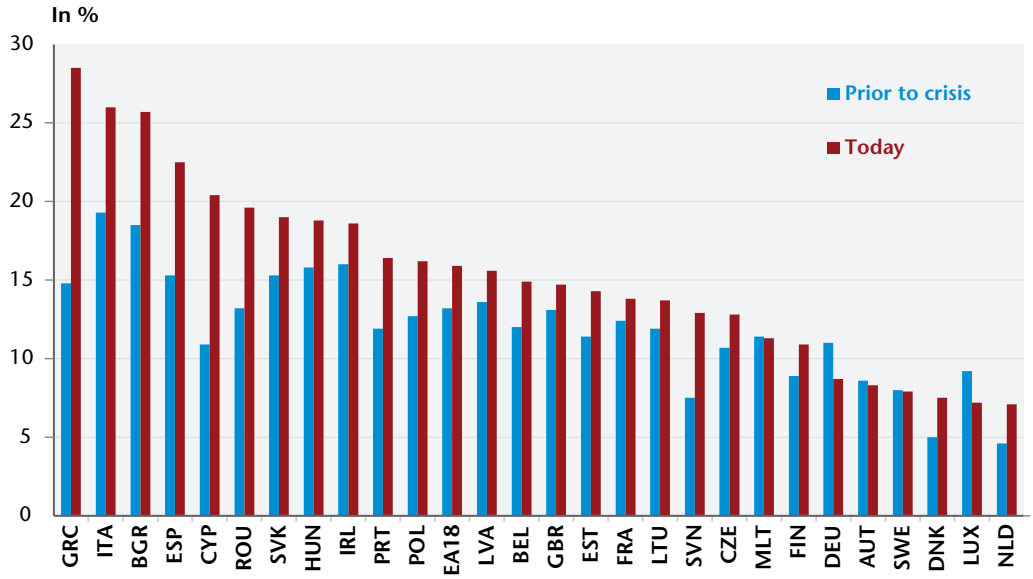


Note: seasonally adjusted data. Prior to crisis is 2008 and today is 2013.
Source: Eurostat.

Instead of looking at unemployment among youths which can also include young people who no longer at school but can't find a job one can also look at NEET-rates that measure the share of young people active or not active who are Not in Employment nor in Education or Training (hence, NEET).

Figure 7 shows the NEET-rates in the individual EU-countries for the 15-29 year olds. As one can see many of the countries that experience the highest unemployment rates among young people are also among the countries that have the highest NEET-rates.

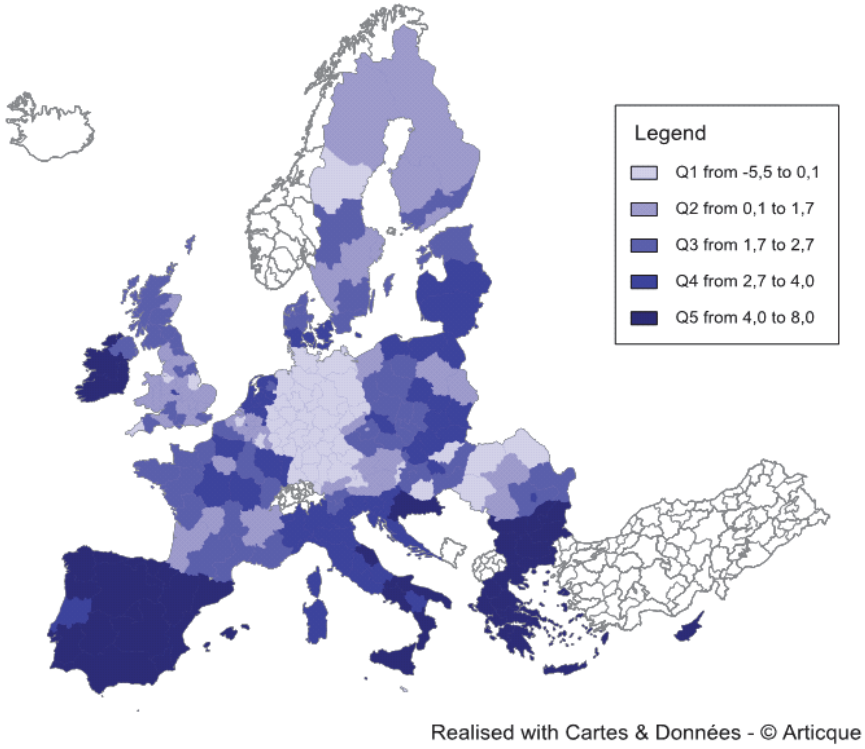
Figure 7. NEET-rates (young people not employed nor in education or training)



Source: Eurostat.

Map 2 shows the regional evolution of unemployment between 2008 and 2011. We can see that regions in Southern Europe and Ireland clearly suffered the sharpest increases. It is especially striking to see how easily recognisable national borders are. For example, German territories are not easily mixed up with French territories and French territories are not mixed up with Spanish ones.

Map 2. Change in unemployment by NUTS 2 Regions, 2008-2011 (In %)



Source: Eurostat.

Box 1. Recession and austerity: Gender equality jeopardized [1]

The crisis that began in 2008 has hit European countries diversely, causing economic and labour market disequilibria of greater or smaller magnitude. As with past global crises, the current one has gendered implications. While women's employment is said to be preserved relative to men's in the early stage of a recession, austerity plans implemented in several countries to limit public deficits and debts are deemed to affect female workers more deeply. A special issue of the *Revue de l'OFCE* (Eydoux *et al.*, 2014) sheds light on the gendered dimensions of the current crisis and related policies' impacts on European labour markets. It notably points out the (temporary) protective role of the gendered segregation of labour markets (i.e. the fact that women and men do not work in the same sectors or occupations): male-dominated sectors (construction, industry, etc.) are generally first hit in recession, while female-dominated sectors (services and the public sector) remain quite sheltered from a quick drop in the demand for labour—but are exposed to job losses at a later stage. This special issue explores the relevance of common hypothesis about the gender impact of recession and austerity: the segregation and buffer effects on the demand side and the discouraged-worker or added-worker effects on the supply side of the labour market. The timing of recessions also differs across

1. This box is a contribution from Anne Eydoux (CEE), Antoine Math (IRES) and Hélène Périvier (OFCE)

countries. Several phases with different gender implications often alternate: the recession, the austerity phases, and an intermediate phase of recovery. When it comes to the analysis of crisis related policies, the phases may however be overlapping instead of alternating, for instance when austerity measures are implemented prior to the crisis—eventually in line with European economic governance rules or with a previous downturn.

In Germany, female employment has apparently been spared the effects of recession in quantitative terms, the focus is on the low quality of women's jobs. In central and eastern Europe, as well as in southern countries such as Greece, Portugal and Spain, male and female employment has been so deeply affected that poverty and material deprivation have increased for all. In the UK, the impact of the recession and austerity has been selective, increasing existing inequalities by gender and by ethnicity, as well as within each category. In Sweden, where the public sector is widespread and female-dominated, the impact of recessions on women's employment has been delayed, occurring in austerity phases through the downsizing of the local government sector.

Finally, the long-term changes in labour market or public policies induced by the recession and austerity affect the trends in female and male employment. In many European countries, changes in public policies are liable to jeopardize the progresses towards gender equality.

3. Rising poverty and material deprivation

Many Europeans have experienced decreases in living standards during the crisis, resulting in increases in poverty rates. The anchored risk-of-poverty rate is the preferred measure when analyzing changes in poverty over time, as the median income is anchored in a specific year, in this case 2008. See chapter 2 in the iAGS 2014 for an elaboration on the difference between different poverty measures and the difference between anchored and un-anchored poverty rates.

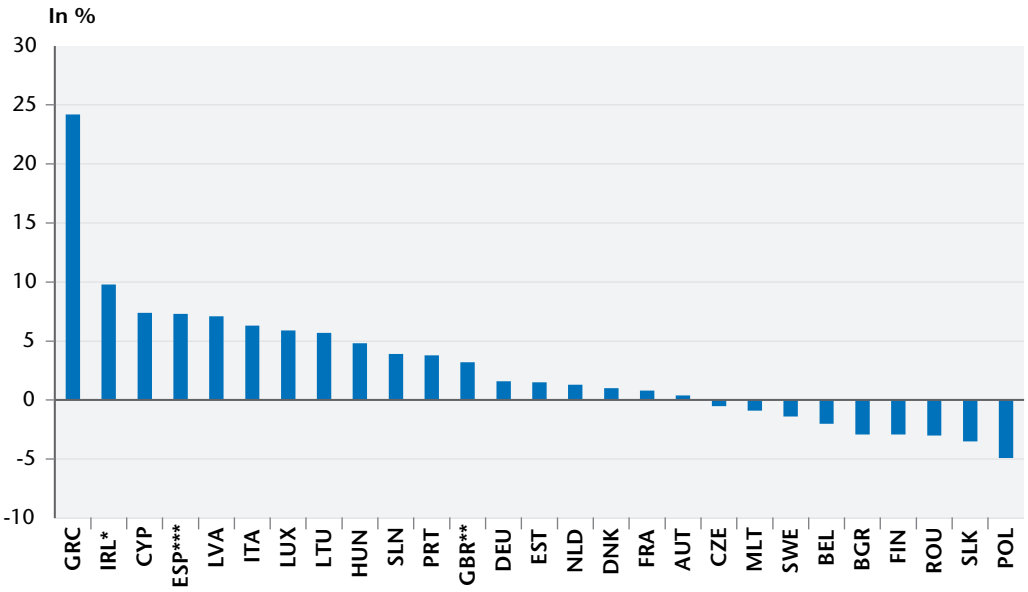
An increase in the anchored poverty risk over time indicates that the living standards of low-income households are worsening compared to the base year (2008), and a decrease indicates that living standards are improving. The risk of poverty has increased mostly in a number of southern and eastern European countries (Figure 8). Greece stands out with an increase in the risk of poverty of nearly 25 percentage points, and this from one of the highest starting points: the risk of poverty has increased from 20 pct. to nearly 45 pct. (with respect to 2008 median income), with the largest increases in the last two years. On the other hand the risk of poverty has decreased in eastern European countries like Poland, Slovakia and Romania.

The change in the anchored poverty rate since 2008 is highly correlated with the change in GDP, confirming that the countries that have been hit the hardest during the crisis are also the countries that have experienced the highest increase in poverty (relative to 2008 income) (See Figure 9).

The severe material deprivation rate is another poverty indicator. Instead of looking at income, the severe material deprivation rate shows how individuals experience inadequate access to basic amenities. Severe material deprivation is a more narrow indicator than the at-risk-of-poverty rate. Other measures such as

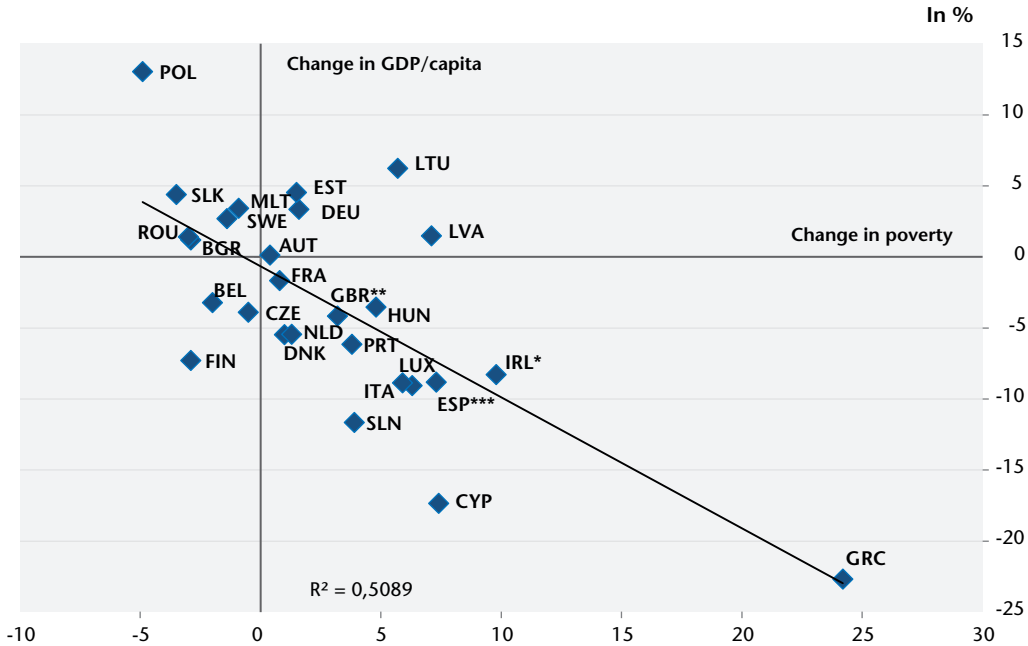
the poverty rate and Gini-coefficient of income can be difficult to compare between countries and over time because they measure relative inequality. The severe material deprivation rate is defined as the declared inability to pay for a certain number of necessary items (see box 2 for a more detailed description of the severe material deprivation rate).

Figure 8. Change in the risk of anchored poverty 2008-2013



Note: (*) latest data from 2012. (**) latest data from 2011 due to breaks in time series. (***) latest data from 2012 due to breaks in time series.
Source: Eurostat.

Figure 9. Correlation between change in GDP/capita and change in anchored poverty 2008-2013



Note: (*) latest data from 2012. (**) latest data from 2011 due to break in time series.
Source: Eurostat.

Box 2. Definition of severe material deprivation rate

The severe material deprivation rate is an EU-SILC indicator based on the affordability of a selection of items (goods or services) considered to be necessary or desirable for people to have an 'acceptable' standard of living in the country where they live. The indicator distinguishes between individuals who cannot afford a certain good or service, and those who do not have this good or service for another reason, e.g. because they do not want or do not need it. The severe material deprivation rate is defined as the enforced inability to pay for at least four of the below-mentioned items.

1. to pay their rent, mortgage or utility bills;
2. to keep their home adequately warm;
3. to face unexpected expenses;
4. to eat meat or proteins regularly;
5. to go on holiday;
6. a television set;
7. a washing machine;
8. a car;
9. a telephone.

Souce: EU-SILC (Eurostat).

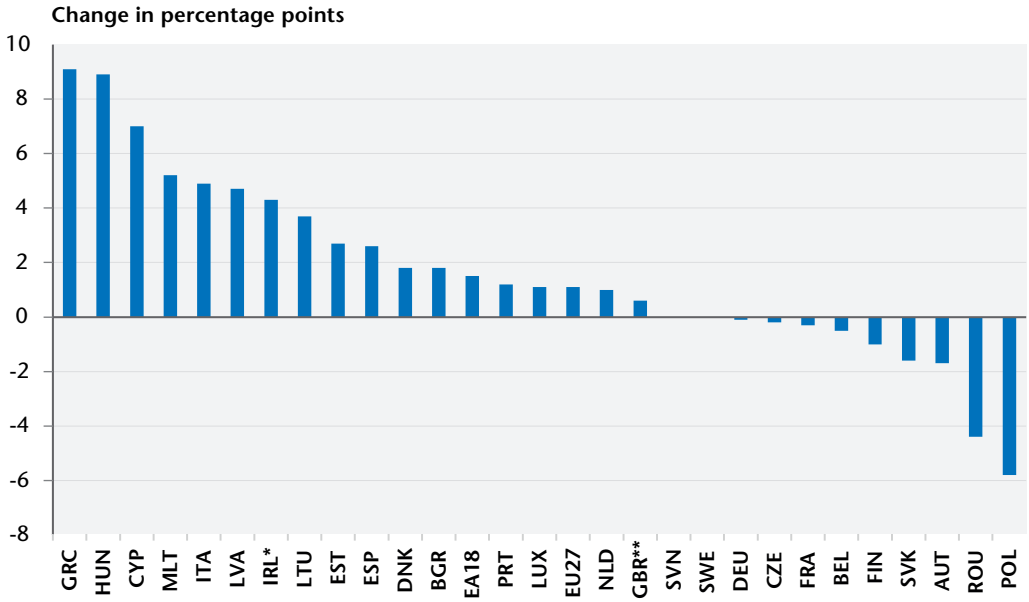
Figure 10 shows the change in the severe material deprivation rate since 2008. Greece and Hungary, followed by a number of southern and eastern European countries, have experienced the highest increases in severe material deprivation.

Figure 11 shows the change in the severe deprivation rate for children. The ranking among the countries mirrors to a large extent the ranking for the overall severe deprivation rate. In Hungary and Greece severe material deprivation has increased by 13 percent or more since 2008. There is a tendency that the rate among children has increased more than the average rate, indicating that children are hit harder by material deprivation than other age groups. Growing deprivation among children is very concerning since lack of opportunities during childhood is likely to have long-term consequences for the concerned individuals as well as for society as a whole.

As shown in Figure 12, the increase in the severe material deprivation rate is mainly driven by an increase for the unemployed and other inactive persons (i.e. not retired). In other words, the rate has increased much more for people outside the labour market than for employed and retired individuals, resulting in close to one out of four unemployed experiencing material deprivations.

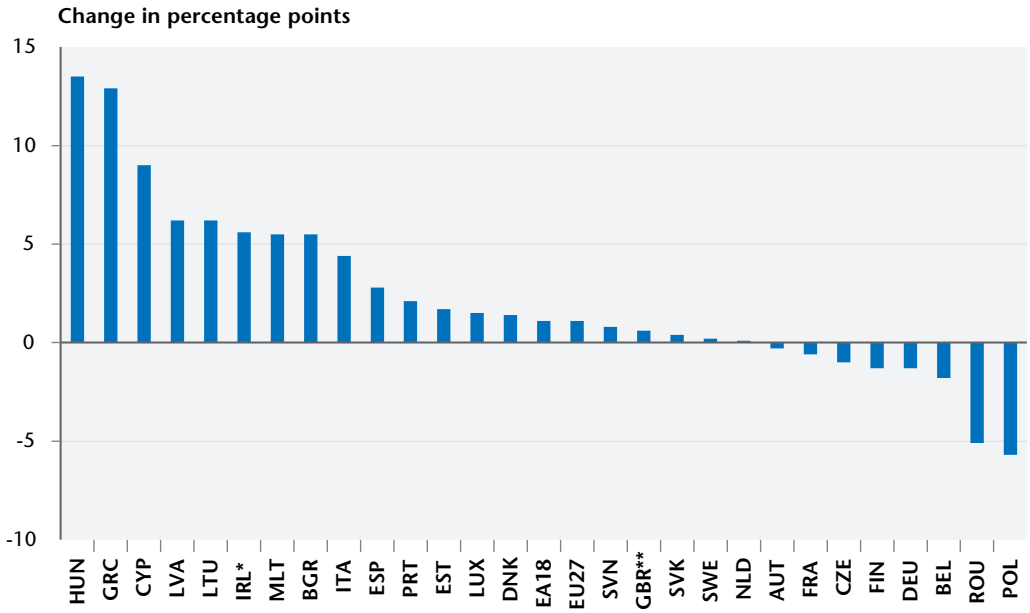
Figure 13 shows the correlation between change in GDP and the changes in severe material deprivation from 2008-2013. There is a clear negative relationship, meaning that the countries whose economies where hit the hardest during the crisis are also the countries that have experienced the highest increases in severe material deprivation.

Figure 10. Change in severe material deprivation rate 2008-2013



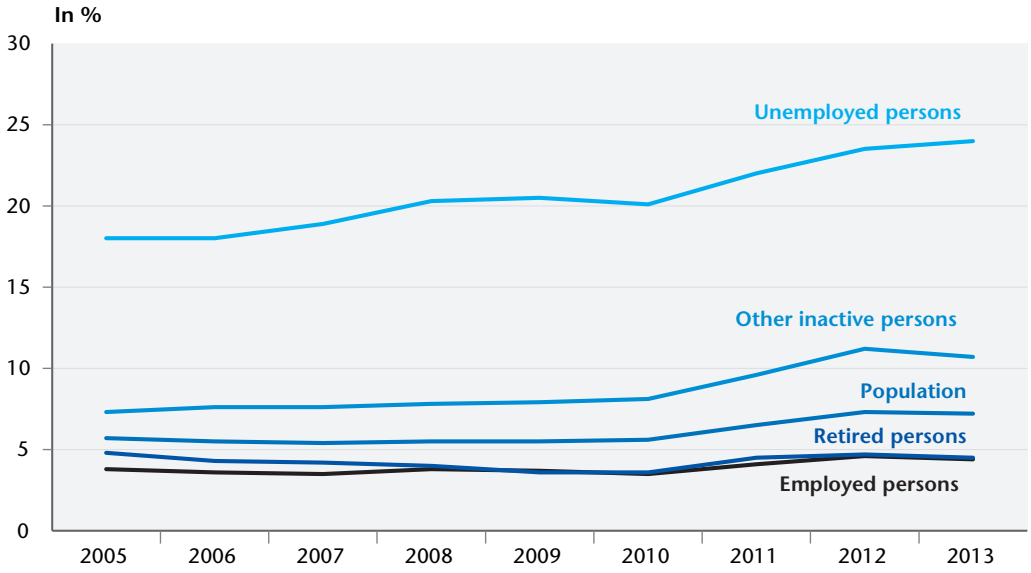
Note: (*) latest data from 2012. (**) latest data from 2011 due to break in time series.
Source: Eurostat

Figure 11. Change in severe material deprivation among children (0-18 years) 2008-2013



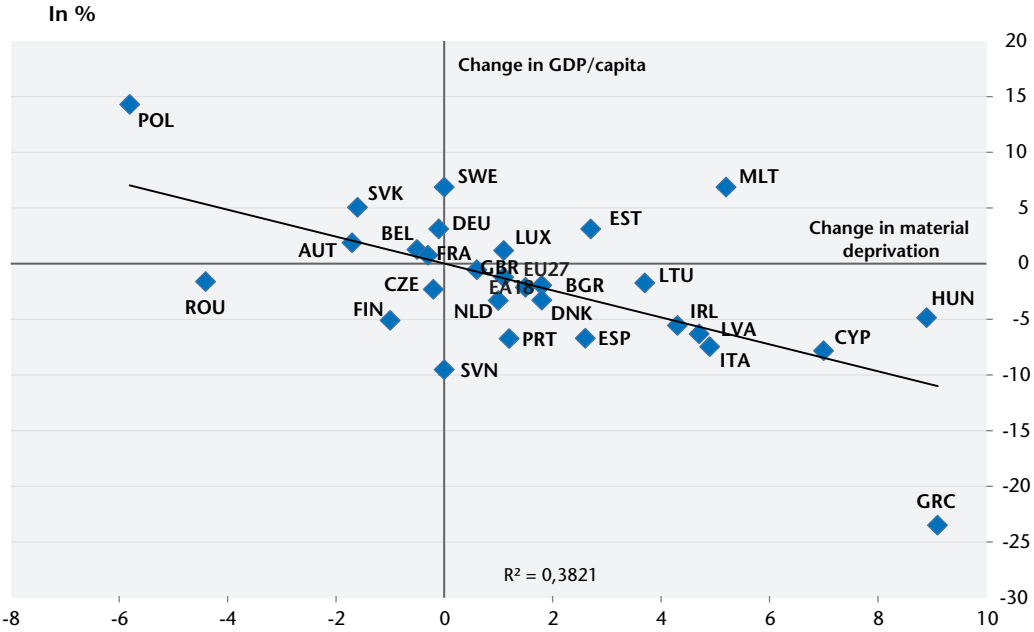
Note: (*) latest data from 2012. (**) latest data from 2011 due to break in time series.
Source: Eurostat.

Figure 12. Development in severe material deprivation by activity status in the euro area



Source: Eurostat.

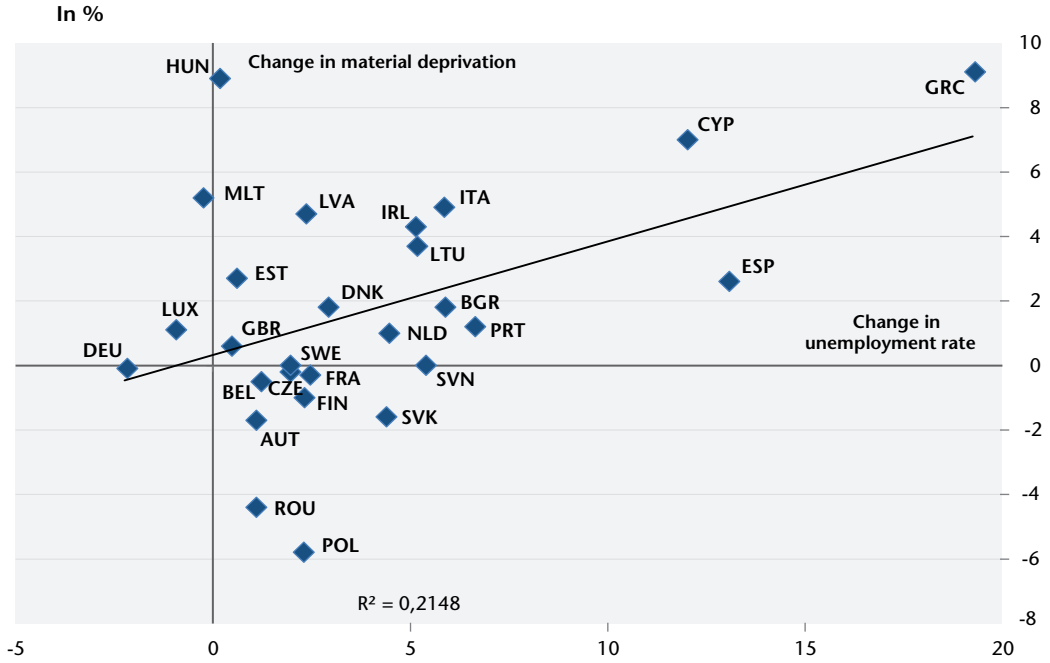
Figure 13. Correlation between change in SMD and change in GDP/capita 2008-2013



Note: (*) last data from 2012. (**) last data from 2011 due to break in time series.
Source: Eurostat.

The same picture is shown when looking at changes in unemployment and changes in severe material deprivation. There is a clear positive correlation between the two, indicating that a large increase in unemployment results in a large increase in severe material deprivation.

Figure 14. Correlation between change in unemployment and change in SMD 2008-2013



Note: (*) last data from 2012. (**) last data from 2011 due to break in time series.
Source: Eurostat.

4. The drivers of material deprivation

The descriptive analysis above clearly suggests that there has been some correlation between the changes in GDP, unemployment, social protection expenditures the severe material deprivation across Europe.

In the following we have taken an econometric approach in looking at the drivers of material deprivation. By panel data estimation we have estimated the following equation:

$$\Delta SMD = \alpha \Delta GDP + \beta \Delta GDP_{-1} + \gamma \Delta LTUNR_{-1} + \delta \Delta SPE_{-1} + C + \mu$$

where the dependent variable is:

ΔSMD, the change in the severe material deprivation rate

and the explanatory variables are:

ΔGDP_{-1}, the lagged growth rate in GDP per capita

$\Delta LTUNR_{-1}$, the lagged change in the long term unemployment rate

ΔSPE_{-1}, the lagged percentage change in social protection expenditure (SPE) volumes (euroes/inhabitant)

C, a constant term

and μ,the error term

Table 1. Effects on the change in severe material deprivation (ΔSMD)

	Coefficient	Std	T-value
Growth rate in GDP/per capita (α)	**-0.115**	0.032	-3.65
Lagged growth rate in GDP/per capita (β)	**-0.113**	0.040	-2.79
Lagged change in the long term unemp.rate (γ)	**0.313**	0.117	2.68
Lagged percentage change in SPE (δ)	**-0.039**	0.013	-3.06
Constant	**0.102**	0.113	0.90
R^2 = **42**			
Number of countries : 27			
Number of observations : 185			
Wald (joint): $Chi^{2(4)}$ = **48,46 [0.000]**			

Note: We tested for both autocorrelation and unit root and neither are found in the data.
Sources: Eurostat and iAGS calculations.

As seen from the regression results in Table 1, all the variables are significant. The change in GDP/per capita both in the same as well as in the year before has a very significant negative influence on the change in material deprivation, meaning that negative growth in GDP/per capita tends to increase the severe material deprivation rate both in the current year and the year after. If GDP/per capita (in volumes) shrinks by 1 percent it will on average pull up the severe material deprivation rate by 0.1 percentage points in the current year and in the year after.

Also, long-term unemployment is an important driver for material deprivation. If long-term unemployment increases by one percentage point the severe material deprivation rate will follow in the year after with an increase corresponding to 0.3 percentage points. When determining some of the drivers of material deprivation, we also tried including the change in unemployment in the equation, but the change in unemployment turned out to have a less significant influence on material deprivation compared to long-term unemployment. This result confirms the expectation that unemployment in itself does not necessarily lead to material deprivation, as people tend to start using their savings when they get unemployed. Ones they have been unemployed for a while the savings run out, however, and the unemployment leads to material deprivation. Long-term unemployment (but not necessarily short-term unemployment) is therefore an important source of poverty and material deprivation.

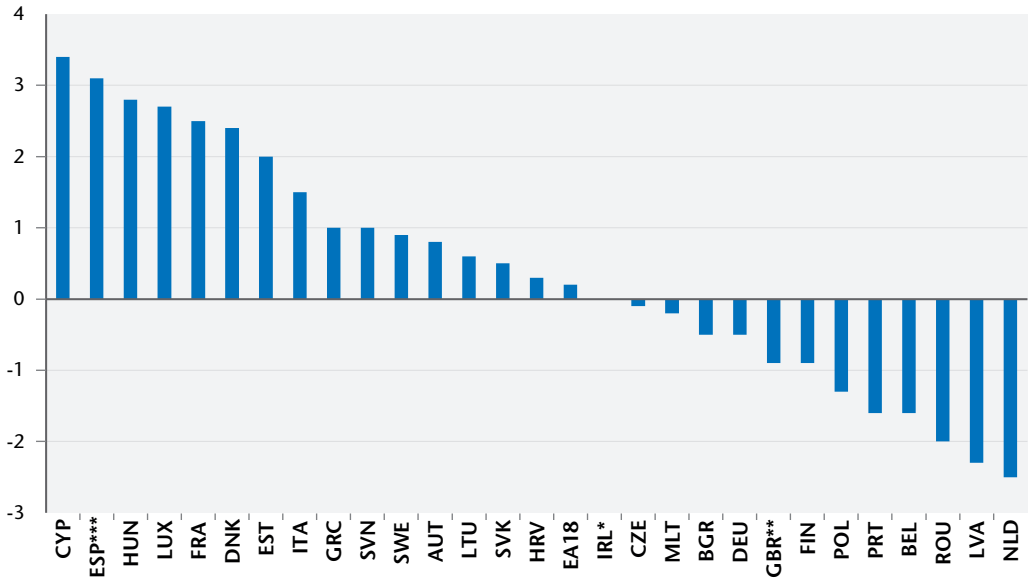
Finally we find a significant negative effect from the change in the expenditures on social protection. This indicates that austerity is also a leading driver increases in material deprivation. The estimates suggest that that the more a country has tightened its fiscal policy, in the form of decreasing social protection expenditures, the larger the increases in material deprivation. If social protection expenditures (in volumes euros per inhabitant) decrease by one percent then it will lead to an increase in the severe material deprivation rate of 0.04 percentage points in the year after.

The regression results supports the idea that poverty and material deprivation are closely connected to not only the economic cycle and the development on the labour market, but also to policies influencing social protection.

5. Rising European inequality of income

When it comes to measuring income distribution and relative inequalities, the Gini coefficient of equivalised disposable income is the main indicator. The Gini coefficient ranges from 0 till 1, where the GINI is zero in a country where all people have the same equalized disposable income (perfect equality), and 1 in the case where one person has all the income (perfect inequality). Gini is an indicator of relative inequality in the sense that if all income increases or decreases by the same percentage the Gini will not change. For the last 5 years, since the crisis broke out, there is large spread in the variation of the Gini coefficient throughout Europe. There are large increases in some countries, notably southern European countries such as Cyprus, Spain, Italy and Greece. On the other hand income inequality has decreased in the Netherlands and Portugal (Figure 15). In Portugal this is explained by the fact that top income were hurt even more than low-income.

Figure 15. Change in Gini coefficient 2008-2013

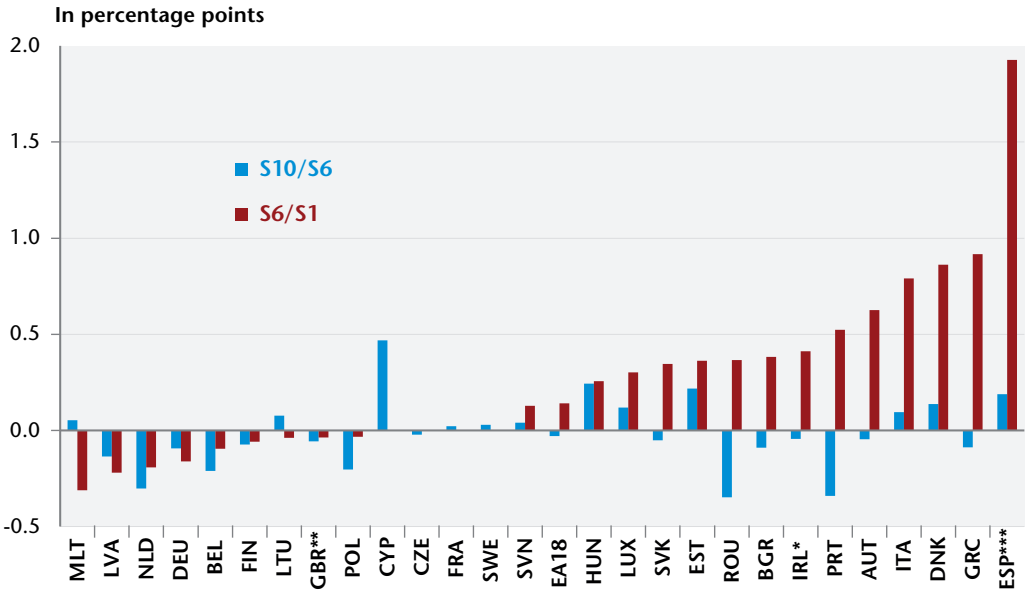


Note: (*) last data from 2012. (**) last data from 2011 due to break in time series. (***) last data from 2012 due to break in time series.
Source: Eurostat

Another way to measure income inequality is through income decile shares. This allows us to decompose inequality change into what is driven by the bottom and what is driven by the top of the income ladder. Figure 16 shows the evolution of inequality in the top of the income scale (S10/S6) as well as the evolution in the bottom (S6/S1). S10/S6 is the ratio of the share of income earned by the richest 10 pct. (S10) to the share of income earned by the 6th decile of equalized income (S6). An increase in S6/S1 indicates an increase in inequality in the bottom part of the income ladder since the income earned by the poorest has decreased relatively to the income received by the 6th decile. We can see in Figure 16 that the rise in inequality in Spain, Greece, and Italy is mainly driven by a rise in inequality in the bottom part of the distribution. In Portugal and in Romania, the rise in

inequality in the bottom part of the distribution is offset by a decrease in inequality in the top part of the distribution. Between 2008 and 2013, most countries that experience a decrease in the Gini coefficient have seen a fall of inequality in the top of the distribution.

Figure 16. Evolution between 2008 and 2013 of share of national equivalised income



Note: (*) last data from 2012. (**) last data from 2011 due to break in time series. (***) last data from 2012 due to break in time series.
Source: Eurostat.

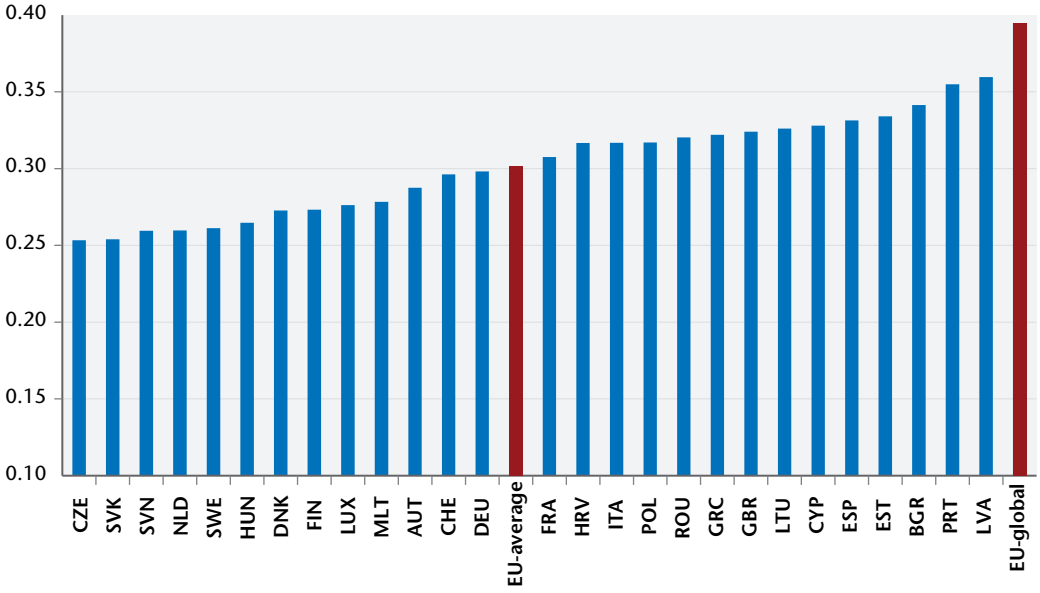
Concerning regional inequality of disposable income, we can see the same convergence/divergence trend as with GDP (Figures 1 and 2): the convergence that was occurring before the crisis stopped after 2008.

Figure 17 compares the global European Gini of household equivalised disposable income to the level of national Gini coefficients. The global European Gini compares household income regardless of national residence. Eurostat does not calculate a European Gini: we used microdata (EU-SILC) to do it. There might be some small differences with the Gini coefficients calculated by Eurostat, partly explained by the treatment of negative income (we exclude them).

The Figure shows that Europe as a whole is more unequal than any other country in the union. Inequality in the European Union is in fact comparable to that prevailing in the United States.

Figure 18 shows the evolution of European global inequality, which compares all households regardless of residence. In the European Union as a whole, while inequality was rapidly falling between 2008 and 2009, it has been rising since 2009. In 2012, global inequality is slightly higher in the European Union than in the United States. Global inequality is much lower in the Eurozone but it is also rising since 2010. The Gini in the EU27, as calculated by Eurostat is also shown in the figure. It is much lower than the global European Gini. It is also stable between 2009 and 2012 whereas global Gini is strongly increasing. Eurostat's statistics on inequality do not reflect the divergence between countries since 2009.

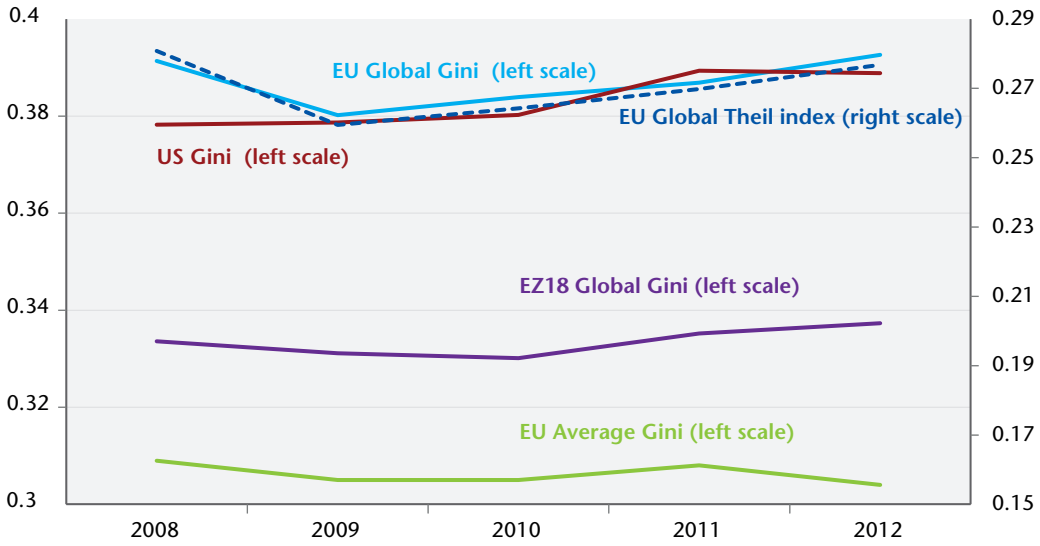
Figure 17. Gini of household equivalised disposable income across Europe and European global Gini



Sources: EU-SILC, iAGS calculations.

For the EU, the Figure uses both the Gini and the Theil index. The Theil index is another statistic used to measure economic inequality. It is very comparable to the Gini coefficient. As the Figure 18 shows, the differences in the evolution of the two measures are fairly small.

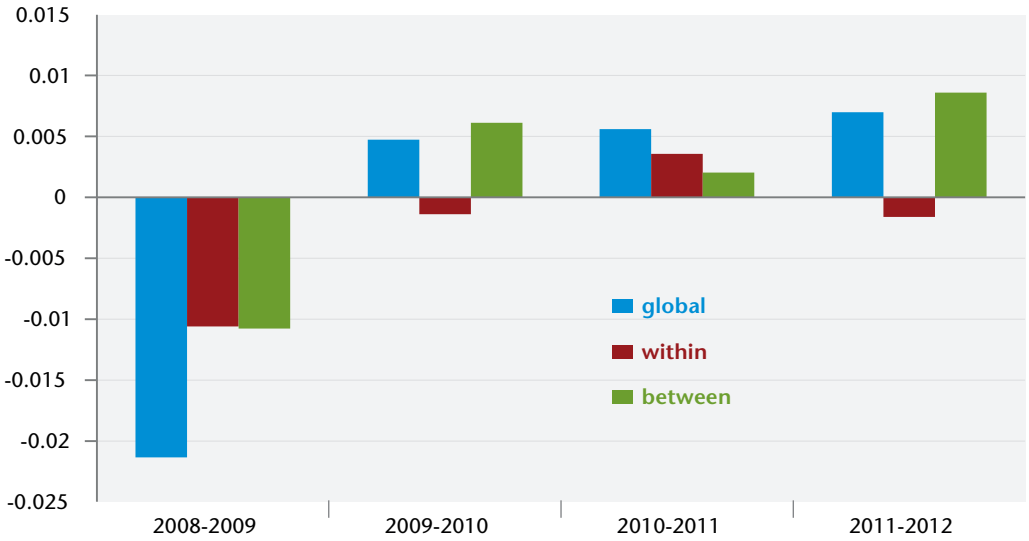
Figure 18. Evolution of inequality in EU, Eurozone and United States



Sources: EU-SILC, OECD, iAGS calculations.

Unlike Gini, Theil index can be decomposed into between-groups inequality and within-groups inequality. The decomposition allows us to distinguish what part of inequality is due to inequality within the groups, here within member states (MS), and what is due to inequality between MS. The within-group inequality is just the weighted average of the Theil index within each nation. The between-group inequality is the inequality that would prevail if individuals (here, households) within each MS earned the average national income, i.e. if there were no inequality within each nation. Figure 19 shows that the increase in inequality since 2009 is mainly due to an increase in between-countries inequality. In fact, 97% of the increase in global European inequalities since 2009 is due to the divergence between countries.

Figure 19. Within/between-country decomposition of the evolution of the Theil index



Sources: EU-SILC, iAGS calculations.

6. High concentration of wealth in the Eurozone[2]

Since the onset of the economic and financial crisis, there is a growing interest in assessing the financial stability of the household sector. This is closely linked to the distribution of wealth in private households in the Eurozone. Against this background, the European Central Bank collected data on private wealth with the Household Finance and Consumption Survey (HFCS) for the first time in 2010. This survey provides a unique opportunity to analyse harmonised information on household wealth in 17 Eurozone countries. Even though the development over time will only be visible after the second wave of the survey in 2014, the HFCS provides the best prospects for future research on wealth inequality in Europe.

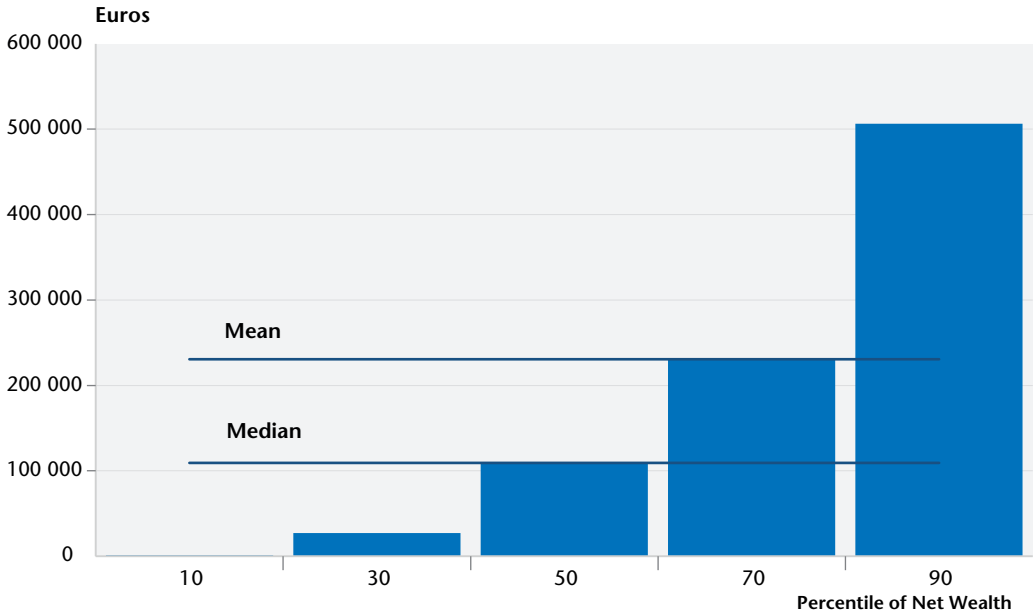
The HFCS uses a rather narrow, "accounting-style" definition of wealth. Wealth, according to this definition, consists of economic assets which can yield

2. This section is a contribution from the Austrian Institute AK Wien.

returns. It must be possible to valuate and sell them, to use them as collateral for loans, and to attribute them to persons. This means that a number of wealth categories are excluded, such as social assets (e.g., pay-as-you-go pension systems, unemployment insurance, health insurance), environmental assets (e.g., clean water, clean air, a lack of noise pollution), and human capital (i.e., the human capacity to produce returns). The household balance includes assets and liabilities. Assets include real assets (such as the main residence, additional real estate, vehicles, and company shares) and financial assets (such as checking and savings accounts, funds, stocks, and bonds). Liabilities include secured and unsecured debts. The result of assets minus debts is net wealth.

Figure 20 shows the distribution of net wealth across the Eurozone. The median household, which marks the line between the richest and the poorest half of the population, has a net wealth of around 109.000 euros. However, the mean net wealth of households is roughly 231.000 euros and hence lies significantly above the median. This big difference is a first sign of an unequal distribution, since some rich households pull up the mean. For the poorest 10 per cent of households, assets just barely exceed liabilities; their nearly zero net wealth of about 1,000 euros is not even visible in the graph. The net wealth of the bottom 5 per cent is actually negative, that is, they are in debt. At the other end of the distribution, the bottom household of the top 10 per cent has a net wealth of ca. 506.000 euros (ECB 2013).

Figure 20. Net wealth of selected percentiles



Source: ECB 2013, p. 75, authors' illustration.

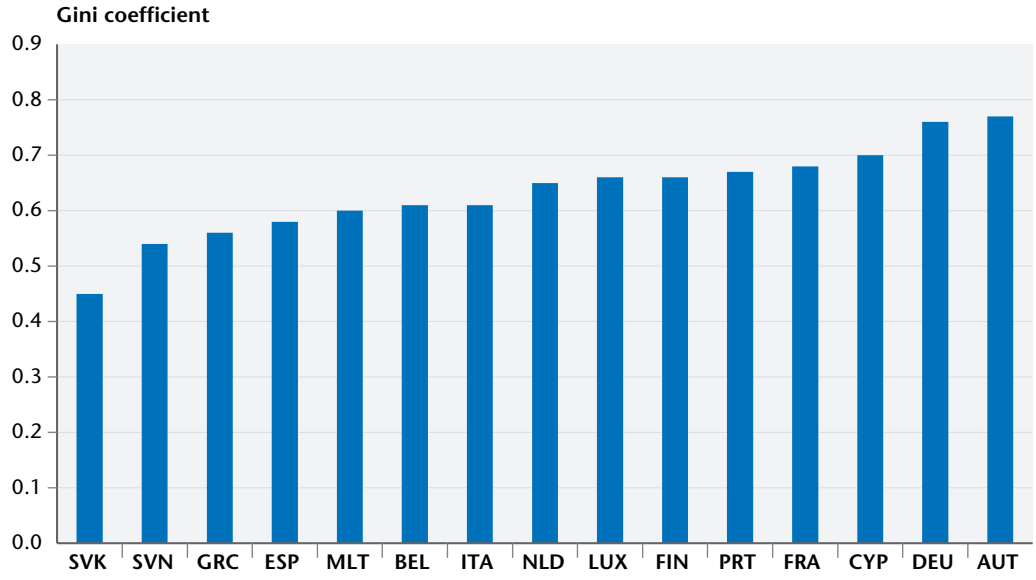
Thanks to an ex-ante harmonisation of the survey design and the methods used, the data is comparable across the Eurozone. However, it is important to note that a comparison of absolute wealth levels, both of means but especially of medians, is not a very useful undertaking. Since the data covers only private household wealth, demographic and differing institutional and political set-ups between countries are likely to lead to varying levels of private wealth. For

instance, it is to be expected that countries with well-developed public housing or pension systems reduce the need for private households to accumulate assets. For example, far more than half the households in Spain, Portugal, Cyprus, or Slovakia own their primary residence, while the majority of households in Germany and Austria rent their home and consequently do not own any real estate.

Comparisons of absolute levels of private household wealth across Eurozone countries are thus not likely to yield meaningful results. In contrast, the data is well-suited to investigate the distribution of wealth between private households. Figure 21 ranks countries by their Gini-coefficient for net wealth of private households. Comparing countries across Europe, Austria has the highest wealth inequality, followed by Germany, Cyprus, and France, which also have a rather unequal distribution of wealth. Slovakia has the lowest Gini of 0.45 index points, but even there the distribution is skewed: the top 10 per cent own about a third of the wealth.

Another approach is to look at the contribution of different wealth categories to the total inequality of wealth. In Belgium, unequal distribution of financial assets is the main reason for wealth inequality. In countries such as Luxemburg, Greece, or Slovakia it is real estate. In Germany, Austria, France, or Portugal, the unequal distribution of business assets contributes the most to wealth inequality (Sierminska and Medgyesi 2013).

Figure 21. Gini-coefficients of net wealth of private households, 2010



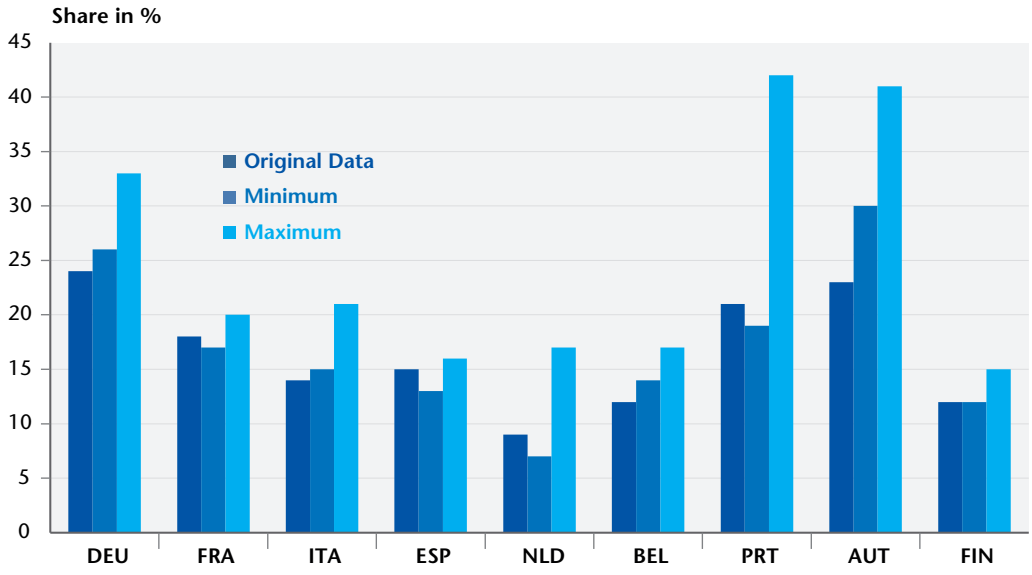
Source: Sierminska and Medgyesi 2013, p. 10.

An important aspect that needs to be considered in wealth surveys is the potential under-reporting of wealth. The question is how well surveys with voluntary participation—as well designed as they may be—can cover the actual wealth spectrum. For some countries, for example, administrative data is available from wealth and inheritance taxes. For these cases, the hope is that state authorities have consistently enforced the obligation to report and the full spectrum of transferred assets is recorded. In wealth surveys based on voluntary participation, researchers must be conscious of the fact that different positions in the distribu-

tions come with different probabilities to participate and reply. While experience shows that this is also true for the bottom of the distribution, household non-response is a much bigger problem at the top end. In addition, the probability of a rich household to be drawn in a sample of a few thousand is extremely low, which further exacerbates the underestimation of total wealth and of wealth inequality.

This weakness becomes tangible when comparing of HFCS data with information from the Forbes Rich List (Vermeulen, 2014). The richest household in the German part of the HFCS owns 76 million euros, while the "poorest" person of the 52 Germans on the Forbes list has a wealth of 818 million euros. The data for Austria shows an even more dramatic gap of 22 million (HFCS) and 1,560 million euros (Forbes). These examples show that the super-rich are not represented in the data, which inevitably leads to distorted results. One possibility to close this gap is to carefully estimate missing assets at the top end of the distribution. The starting point for such an estimate is the so-called Pareto distribution, which academic studies show describes the missing top of the wealth distribution very well.

Figure 22. Share of the richest 1% in the total net wealth of private households, 2010



Source: Vermeulen 2014, p. 29.

Vermeulen (2014) has done such estimations for a number of Eurozone countries. These provide lower and upper bounds for the bias due to under-reporting of the largest fortunes, which are used to calculate corrected estimates (Figure 22). According to HFCS data, the richest per cent in Germany owns a share of 24 per cent of the total private wealth. After correcting for under-reporting, this share is between 26 and 33 per cent. For other countries, the correction shows that the concentration of wealth is probably significantly higher than indicated by the HFCS data, as well.

It needs to be emphasised that the HFCS was carefully prepared and implemented both in terms of content and design, while drawing on many years of experience of the US Survey of Consumer Finances (SCF). This included, for

instance, a comprehensive collection of metadata beyond personal interviews as well as a thorough training of interviewers. Still, due to the difficulties in capturing the high wealth households described above, results based on the HFCS represent the lower limit of the actual concentration of wealth – but this lower level alone already points to a concerning level of inequality.

The high Gini-values of up to 0.77 in figure 21 show that inequality of wealth is much higher than that of incomes. In all countries examined, the Gini-coefficients of household wealth are higher than those of household incomes. ECB calculations also provide evidence for this fact. The richest 10 per cent of households own more than 50 per cent of the total net wealth in the covered Eurozone countries. This concentration is much lower for household incomes, where the 10 per cent of households with the highest incomes earn about 31 per cent of the total income (ECB, 2013, p. 96).

As mentioned earlier, since the HFCS has only been conducted once so far, it is not possible to assess the development of concentration of wealth over time. However, in his book Capital in the Twenty-First Century, the French economist Thomas Piketty has presented data on the distribution of wealth in Europe. His calculations are based on long time series for France, Great Britain, Germany, and Sweden. Piketty shows that in Europe the share of wealth owned by the top 1 per cent has been growing slowly but steadily since the 1970s; he also warns that the concentration of wealth might further exacerbate in the future (Piketty, 2014).

The HFCS wealth survey shows that, so far, only little was known about wealth in the Eurozone. While the distribution of income from employment is well researched in many countries, until recently, researchers were rather in the dark when it came to wealth. The reason for this is that tax authorities record incomes, but the only source of information about wealth are surveys on a voluntary basis – with all their advantages and disadvantages. Given how willingness of rich households to participate in surveys as HFCS is lacking, one partial solution would be to make participation mandatory in future HFCS waves.

7. The fight against inequality and poverty

The analysis above shows an overall picture of a Europe that is not converging but diverging, and the main driver for income divergence is not divergence within countries but between countries. And while income is unequally distributed, but inequality in wealth is much larger.

The European labour market still suffers, with high levels of long-term unemployment and a large share of young people that are unable to find a job. There is a risk that the development will become structural, creating scars for a long time. Poverty and material deprivation is rising, but more in some countries than others. The divergence is therefore not only seen on a macroeconomic scale, but also the living standards of Europeans are diverging. Some might argue that the rising poverty and material deprivation is just driven by the cycle, but our analysis has shown that austerity and changes in social protection expenditure have a significant effect on severe material deprivation.

In the chapter above our main focus has been on income and wealth inequalities, inequalities on the labour marked, poverty and material deprivation. But there

are many other kinds of inequalities—such as inequality in education, health, gender, race discrimination, crime exposure etc.—that are just as problematic.

Within a few years we could easily end up in a situation where large inequality increases have occurred right in front of our noses, knowing that it could have been prevented, if we had implemented decisive action. Knowledge is power, ignorance is defeat. To reverse the trend in poverty, inequality and the divergence between countries, we need to put the fight against poverty and inequality firmly on the agenda.

One of the main ideas behind the European Union was to enhance the convergence among member states. The more divided the countries are, the harder it is to create a common direction for the EU. Policy coordination, not least in the fiscal area, becomes more difficult. Inequality should be fought not only from a distributional perspective but also for the future of the European Union. A union, particularly one that shares the same currency, has to serve equality and cannot be maintained at the expense of rising inequality. The risk is a withdrawal on national level, ending in breaking up the euro.

Creating jobs through investment

European investment has fallen more than 400 billion euros since its 2007 peak, leaving Europe caught in an investment trap. Therefore, we urgently need to stimulate investment for the purpose of job creation both in the short run as well as in the long run. As shown above, poverty and material deprivation is closely linked to economic growth, unemployment and especially long-term unemployment. It is therefore crucial that we manage to create more European jobs in order to avoid a structural worsening of the labour market, though hysteresis effects, with continuing divergence and poverty increase as a consequence.

The European commission has just presented an investment plan for Europe, the so-called Juncker-plan. The plan is a step in the right direction, but is likely to fail to deliver on its promises (see chapter 1 and 4). More still needs to be done in order to prevent more people from being long term unemployed ending in poverty and material deprivation. As outlined in chapters 1 and 4, there are still several channels within the EU fiscal framework that can increase investment and in this way boost growth and create jobs. Economic policy should address austerity and deflation by the usual tools but the diverging underlying dynamic requires much more. A coordinated wage policy would be an important counterweight (see chapter 5 of this report and iAGS 2014) and transition toward a low-carbon economy could be a way to reignite prosperity in Europe (chapter 4 of this report). Ultimately, public investment financed by money creation may be resorted to (a scheme is proposed in chapter 3 of this report).

Active labour marked policies and increased education level

Increasing expenditures and effort on active labour market programs will also reduce inequality and poverty. Passive labour market programs are traditionally unemployment insurance schemes, whereas active labour market programs are training activities and other reintegration policies targeted at the unemployed (as opposed to a general training or education subsidy). Active programs may include education aiming at upgrading the skills of unemployed workers or employment programs intended to prevent skill losses during the period of

unemployment. In other words, active labour market programs aim at securing the employability of the unemployed in order to avoid scarring effects of long-term unemployment.

As already stated above child poverty is especially concerning. Ensuring that parents are employed is therefore a crucial mechanism to reduce the risk of child poverty. Policies that improve the conditions for low income families with children will reduce child poverty. This could be seen in the form of higher labour participation among parents, including improved parental leave arrangements, which makes it easier to return to work after maternity leave. Increasing the female participation rate is also likely to reduce the risk of poverty for children. By increasing the female participation we can increase employment and create more equal opportunities for men and women. One way to make it more likely for women to participate in the labour force is to develop the public childcare system.

By increasing the educational level for the weakest we can lift low-incomes and in this way reduce inequality. The supply of unskilled labour is reduced relative to that of skilled labour. In this way it is possible to fight social inequality by getting weaker groups employed and supporting their bargaining power on the labour market. Increasing the education level will also benefit the large group of unskilled or low skilled young people in Europe. More young people should have at least an upper secondary education and more adults, especially those without training, should have better opportunities to upgrade their skills through adult and continuing education.

In chapter 1 we argued that the present European fiscal rules are putting pressure on expenditure such as investments in education and active labour market policies. These kind of social investments are investments that are changing the long-term because they are investments in the future of Europe. Downgrading social investments will therefore have long-lasting consequences for Europe (Palier *et al.*, 2011). One of the problems with the recently presented Junker-plan is that it does not rely on such investment, despite the fact that such social investments are clearly priorities in the Commission. Since the Junker-plan relies heavily on a leverage effect (or multiplier effect) from private investments, by construction it could not have included social investments. This underlines the limitation of these hybrid (public-private) plans.

Making Europe more equal by reforming the tax system

When it comes to poverty reduction and creating a more equal Europe, looking at how we tax people is also important. Reforming the tax system in Europe in order to make it fairer and more progressive, will not only have a direct effect, it can also finance investments such as education or active labour market policy, that will benefit lower-income groups.

Kindermann *et al.* (2014) finds in a very recent study on US data that increasing tax rates at the very top of the income distribution, for instance among the top one percent earners, can both reduce tax burdens for the rest of the population as well as increase social welfare, and reduce both income and wealth inequality. Because tax burdens are increased for the top one percent earners and decreased for the "bottom" 99 percent, the average consumption will increase, and inequality will decrease compared to a situation with no tax change. Wealth inequality will also decrease. By taxing extraordinary high

income at a high rate, the source of the wealth concentration is being taxed at a high rate, which will result in a significant decline in wealth inequality over time (Kindermann *et al.* 2014).

Reforming income taxation is not the only way to go; other tax sources should also be considered. An increase in property taxes should be considered. First of all property is immobile, meaning that it is not the target of tax evasion. Secondly the value of real estate is highly correlated with wealth, meaning that higher taxes on property, means higher taxes in the top of the distribution. In light of the dramatic inequality of wealth in Europe, an obvious demand is also to raise wealth-related taxes in coordination. Apart from fairness considerations, other aspects necessitating such a move are tight public budgets and the relatively high tax burden on labour. Wealth-related taxes are also considered a source of income for the funding of public services that has little or adverse impact on economic growth, especially if raised EU-wide at low rates. The EU should implement a common Financial Transaction Tax. Ten European countries have already agreed on implementing the tax from 2014, but other European countries should join the initiative.

Finally the effort to combat tax evasion and tax havens should be strengthened. The European Commission has estimated that European countries annually lose in the area of 1 trillion euros because of tax evasion EU-COM (2012). But tax avoidance is not only a problem related to money transferred out of the EU. This stresses that there is an urgent need for greater coordination of the European tax systems. A lot can be done in order to unify taxation rules, creating common legislation, a common tax base and creating transparency in the tax system. An important first step in this direction is an automatic exchange of information to combat tax evasion which is supported by the OECD (2014) and being implemented in the EU. The goal must now be the consistent implementation of the OECD agreement, which was signed by 51 states in October 2014, together with the abolition of banking secrecy, at least in the EU.

But unhealthy tax competition in the EU is already a reality, where corporate tax cuts in one country makes other countries follow, making it a 'race to the bottom'. The result is a negative spiral with no winners, as countries follow each other down, in an attempt to lure investments and businesses from each other. The OECD has denounced “harmful Tax Competition” since 1998. Tax practices that were defined as harmful were: “no or low effective tax rates”; “ring fencing of regimes” (preferential tax regimes are partly or fully insulated from the domestic markets to protect own economy); “lack of transparency”; “lack of effective exchange of information” (OECD, 1998). It is therefore important to build a political consensus on a higher degree of policy coordination for corporate taxation. This could for done by implementing an EU wide strong inventory of income, wealth and tax regimes (including advance tax ruling), with shared information among member states. Disseminating anonymized comprehensive information (like it has been seen in ECB’s recent wealth survey) is useful in order to strengthen the public and scientific debate. Based on that, a framework proposition could be developed, where residents are taxed according to national law avoiding double taxation and double no taxation. Wealth in one country would be known to fiscal administration in the country of residence and taxed according to prevailing fiscal rules. Multiple residency would not be allowed. Such a framework would provide full transferability of social rights as these would be given as a

joint benefit of such common framework. Fiscal havens would be eradicated. Minimum taxation levels could be secured, and the same could apply to firm taxation. Another approach could be only to engage willing countries, in the enhanced cooperation procedure, in fiscal convergence. Residency would not be an issue and common law would apply. Harmful fiscal competition could be dealt between the core of common fiscal law countries and remaining countries.

One thing is for sure; the current challenges with the ongoing economic crisis, the unhealthy corporate tax competition and tax evasion are best solved by international cooperation, and the EU can play a central role in doing so.

COPING WITH THE FRAGMENTATION OF THE EURO AREA BANKING SYSTEM AND THE REAL CRISIS
THE IMPOSSIBLE CHALLENGE OF THE ECB ALONE

The financial turmoil resulting from the subprime crisis and then the European sovereign debt crisis have weakened the euro zone's banks and the state of the public finances, creating a vicious circle in which the banking and debt crises have been mutually reinforcing (Shambaugh, 2012). This was followed by an unprecedented loss of confidence that caused a double liquidity crisis: in September 2008, following the fall of Lehman Brothers, and then at end 2011 due to the European crisis. Despite the many common rules[1] applied by the Member States on financial regulation and a common framework for competition and freedom of establishment, the banking and financial system, which seemed to be increasingly integrated[2], has fragmented.

Fragmentation of the European banking system has had strong consequences. First, beyond the European deposit guarantee, one euro in a Portuguese bank could not be substituted with one euro in a German bank, for Portuguese and German banks did not support the same default risk. It led to a **reduction in the optimality of the euro zone**. Second, fragmentation meant increased spreads between European domestic interest rates, which paved the way for a modification in the transmission of the European central bank (ECB) single monetary policy. The pass-through of conventional monetary policies no longer worked in distressed economies where monetary conditions were increasingly influenced by the level of debts, public and private, or by the market perception of unsustainability. **The single monetary policy then aggravated divergences between the core and periphery**: low main refinancing operations rates reduced core countries's rates, but not the periphery's. Consequently the ECB tried to counter this phenomenon by repeatedly proposing various unconventional measures, prioritizing support for the banking system due to the key role it plays in financing non-financial agents in the Eurozone. In addition, a large-scale institutional deepening has started taking place with the on-going establishment of a banking union designed to supervise the euro zone's systemic banks and to propose resolution mechanisms to cope with future bank failures.

This chapter provides an overview of the fragmentation of banking system in the euro zone. It discusses the measures taken by the ECB to deal with this, including the banking union. **The chapter highlights the shortcomings of a European strategy which would exclusively rely on the ECB to save the euro.** A stronger coordination, first between the ECB and national bank supervisors and, second between the ECB and national governments, is called for in order not only

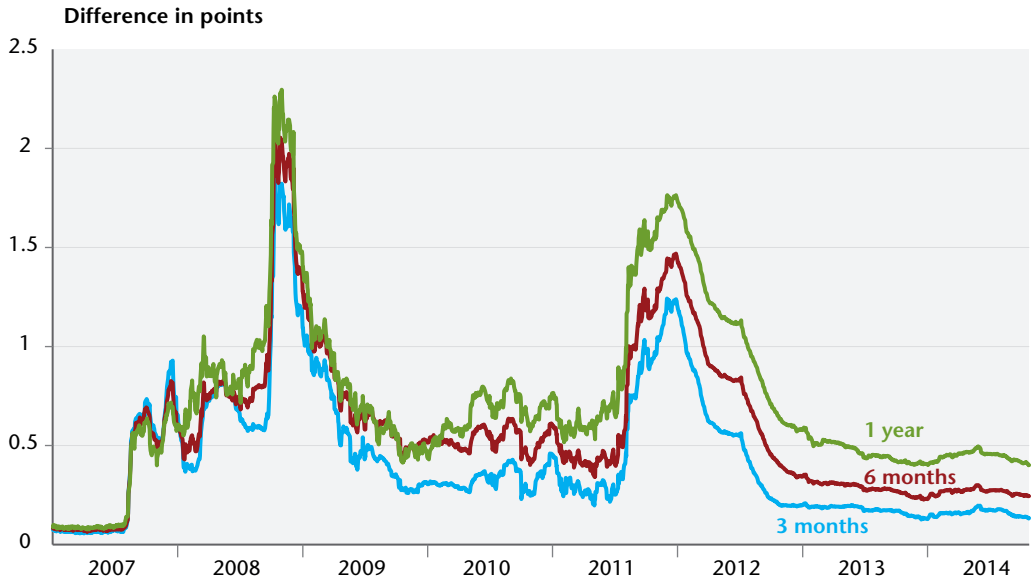
1. Rules resulting from the transposition of European directives, themselves usually inspired by the recommendations of the Basel Committee.
2. The numerous reports written on European financial integration indeed showed that while the interbank markets were highly integrated, this was not the case of retail banking (see for example Jappelli and Pagano, 2008).

to escape a new range of bank failures but also the *current* economic crisis. Consequently, **two proposals are made: first, a special banking fund is discussed to address the too-important-to-fail (TITF) banks which, under the on-going banking union, will draw on national backstops, hence on bail-outs; second, the launch of policy mix is advocated, with a fiscal investment package financed by European Investment Bank (EIB) bond issuance *and* ECB purchases.**

1. The fragmentation of the Eurozone banking system

The banking system in the euro zone has been hit hard by the dual crisis that has afflicted Europe since 2007: first, the subprime crisis and then the sovereign debt crisis. The first caused heavy losses related to the holding of toxic assets. This forced the central banks to take exceptional measures (see below) and governments to set up plans to bail out their banking systems in late 2008. Tensions on the interbank markets significantly eased, as was seen in changes in the difference between the Euribor and Eurepo[3] interbank rates (Figure 1). However, **the interbank market never returned to the way it functioned before the crisis**, and tensions peaked anew in mid-2011 in conjunction with the sovereign debt crisis in the euro zone. Indeed, the banks' exposure to sovereign risk threatened their solvency and plunged the euro zone into a vicious circle in which banking and fiscal problems became mutually reinforcing in some countries. It remains that since the sovereign debt crisis was mainly confined to Greece, spreads in the interbank market remained well below the peak seen during the fall of Lehman

Figure 1. Difference between the Euribor rate and the Eurepo rate



Source: Datastream.

3. The Euribor rate represents the price of an interbank loan without collateral for a given term. The Eurepo rate is the price of an interbank loan with collateral for the same term.

Brothers. The gradual decline in the prices of Italian and Spanish bonds nevertheless increased the risk of a new systemic crisis, engendering further tensions on the interbank markets from mid-2011. In order to ensure that these tensions did not give rise to a major systemic crisis, the ECB decided to intervene again and granted financing for an exceptional period of three years. The ECB thus covered most of the financing needs of the Spanish and Italian banks, which were no longer able to raise funds on the interbank market or the bond market.

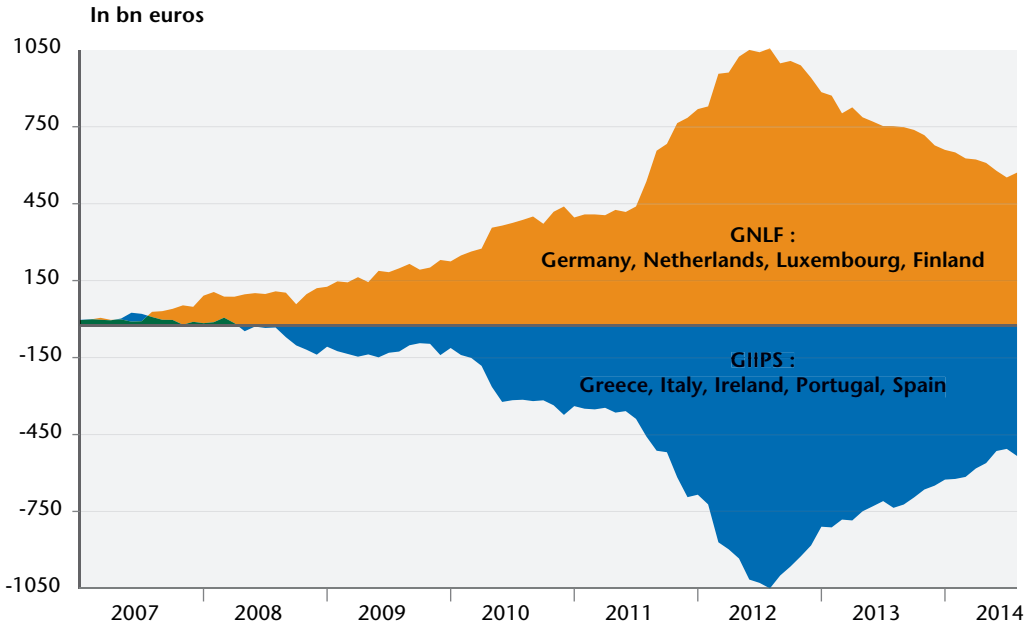
While this meant that the banking crisis was contained, it was certainly not resolved. Indeed, a dichotomy has emerged between the countries at the heart of the European Union (Germany, France[4], Netherlands, Belgium and Finland) and those experiencing a crisis in their public finances (Greece, Portugal, Ireland, Spain and Italy). In the bond markets, this has resulted in a reallocation of investor portfolios to the detriment of the countries at risk. The purchase of government bonds issued by countries considered safer has been favoured, which has had the effect of causing significant losses for banks exposed to sovereign risk, *i.e.* mainly those from the countries in crisis. Their increasingly fragile situation led to them being deprived of liquidity in the interbank market. Banks in the core countries possessed cash and preferred to leave it on deposit with the ECB. Without market financing, the banks in the crisis countries turned to the ECB *via* its various monetary policy operations. Consequently **the ECB has replaced the market and has been implicitly taking on the risk that interbank market players no longer wish to bear**. This has resulted in a very significant increase in TARGET balances (Figure 2), which measure the debtor or creditor positions of the national central banks, and thus the commercial banks vis-à-vis the ECB.

The crisis has in fact severely disrupted the functioning of the interbank market, which had previously appeared highly integrated. Credit flows and cross-border deposits between monetary and financial institutions (MFIs) in the euro zone contracted sharply. As far as banks' bilateral consolidated foreign claims are concerned, Bouvatier and Delatte (2014) show that banking integration has reversed in the euro zone, in contrast with what happened in non euro zone banks where banking integration has strengthened since the financial crisis.

The change in credit conditions as measured by the ECB's Bank Lending Survey (BLS) clearly reflects the tightening of credit conditions in Spain at the beginning of the crisis, in line with the crash in the real estate market, as well as in Italy, where restrictions on the supply of credit to households and businesses peaked in late 2011 and early 2012 (Figures 3 and 4). These observations are in line with the influential work of Jiménez, Ongena, Peydro and Saurina (2012). Using a microeconomic database on bank behaviour, these authors show that the probability that a Spanish bank will refuse credit to non-financial corporations increases in a deteriorating economic environment (tightening of monetary policy or reduced growth) and that this effect is even stronger when the banks are weakly capitalized or not very liquid.

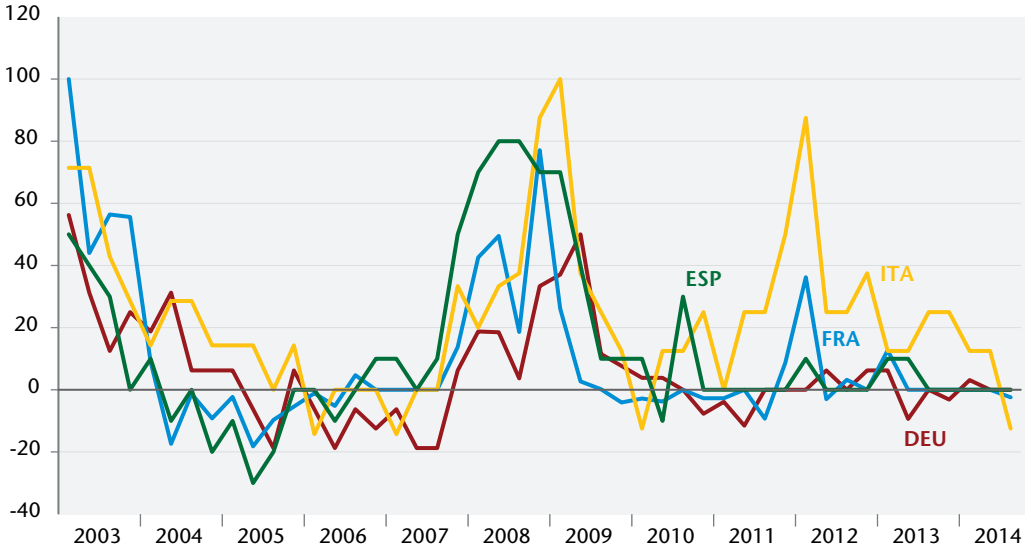
4. France can be considered one of the Union's core countries. Nevertheless, with regard to the TARGET balances, French banks are slightly in debt, but not at all on the same scale as the Spanish and Italian banks.

Figure 2. TARGET balances



Source: Eurocrisis monitor, Osnabrück Universität.

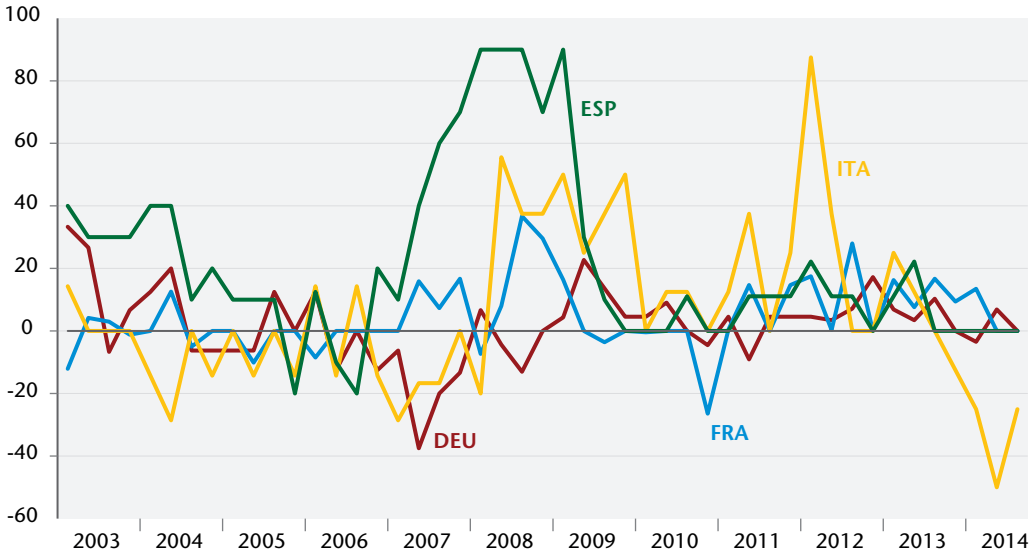
Figure 3. Credit conditions applied to enterprises



Note: The curves for each country represent the difference between establishments reporting that they have tightened their credit conditions and those reporting that they have been eased. Therefore a rise reflects tighter credit conditions.
Source: ECB (Bank Lending Survey).

Another dimension of fragmentation involves the sharp increase in the dispersion of bank rates in the euro zone since 2007. This can be seen in the changes in interest rates on loans to non-financial corporations (Figure 5) in the euro zone

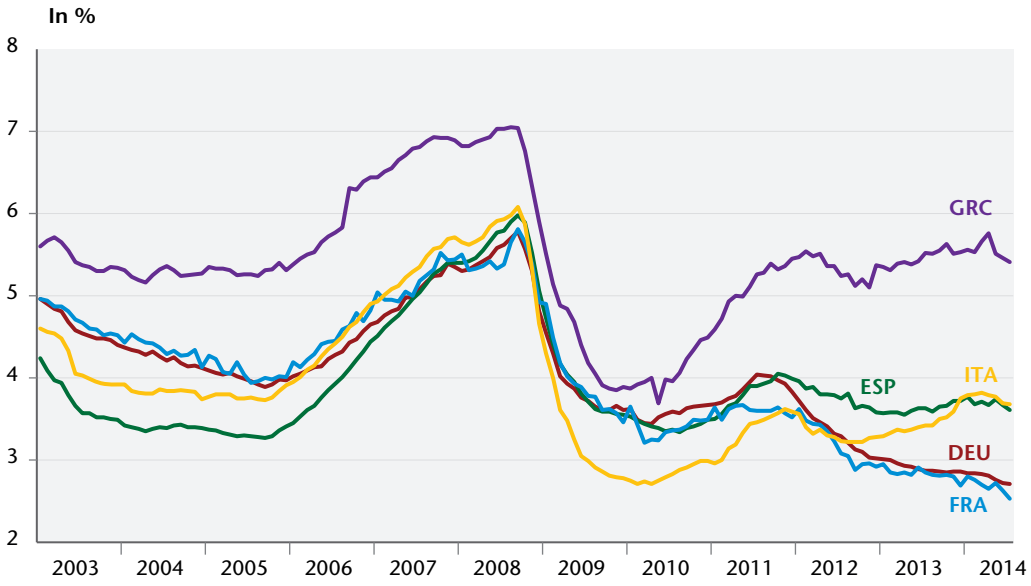
Figure 4. Credit conditions applied to households (for house purchase)



Note: The curves for each country represent the difference between establishments reporting that they have tightened their credit conditions and those reporting that they have been eased. Therefore a rise reflects tighter credit conditions.
Source: ECB (Bank Lending Survey).

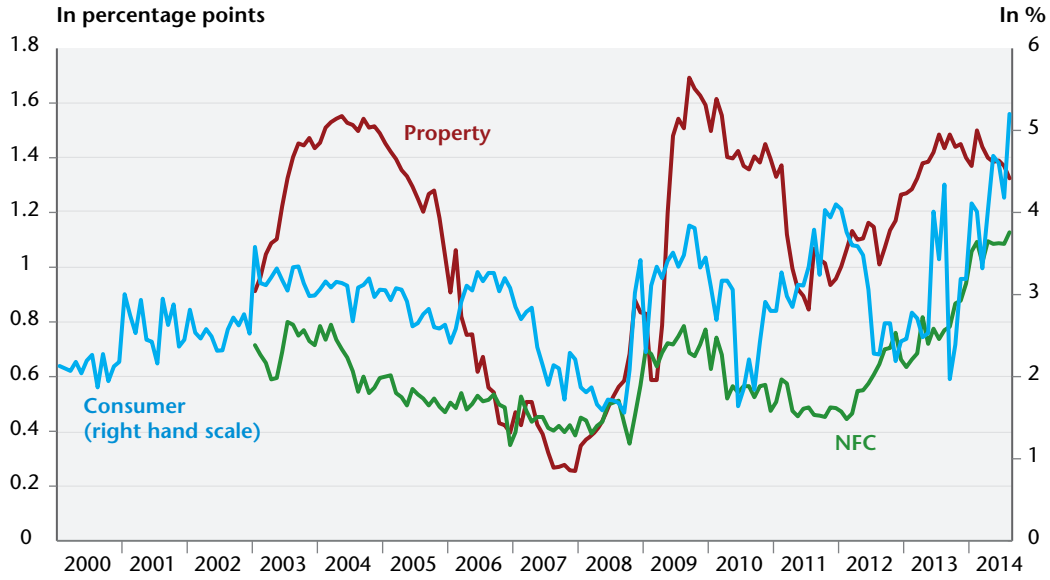
countries since the crisis, as well as in the interquartile differences calculated for the rates charged on loans (to euro zone households or non-financials, see Figure 6) and deposits (Figure 7).

Figure 5. Interest rates on new lending to non-financial corporations (1 to 5 year term)



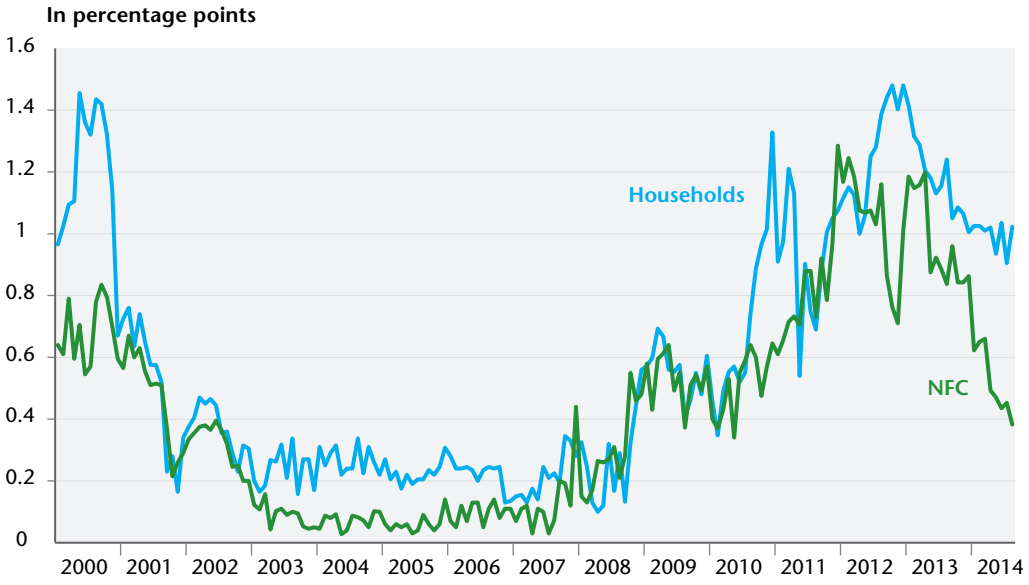
Source: ECB.

Figure 6. Dispersion of interest rates on bank credits



Source: ECB. Interquartile difference.

Figure 7. Dispersion of interest rates on bank deposits



Source: ECB. Interquartile difference.

A heterogeneity that impacts transmission of monetary policy

Achieving uniformity in the transmission of the ECB's monetary policy in all the Member States is central to ensuring the viability of the monetary union. There were already significant differences in the transmission of monetary policy prior to the crisis (Arnold & van Ewijk, 2014; Sorensen & Werner, 2006), although a trend toward greater uniformity had been observed (Vajanne 2007; Blot & Labondance, 2013). Note, however, that this conclusion depends heavily on the markets surveyed and their level of legal integration and competition (de Graeve, de Jonghe, & van der Vennet, 2007). Homogenization appears clearly in the transmission of monetary policy on the rates charged to business. Transmission is more heterogeneous on other markets where national characteristics associated with legal systems and popular customs are still essential to setting bank rates (Mojon, 2000; Giuliodori, 2005), like markets for mortgage and consumer loans.

The trend towards uniformity in the transmission of monetary policy throughout the euro zone came to a halt with the crisis, and the convergence of bank interest rates has even reversed [(Arnold & van Ewijk, 2014),(Belke, Beckmann, & Verbeyen, 2013),(Karagianis, Panagopoulos, and Vlamis, 2010), (Rughoo & Sarantis, 2014)].

The fragmenting transmission of monetary policy is weakening the euro zone because it reduces the effectiveness of the ECB's single monetary policy if it leads to strengthening economic divergences, when, for instance, expansionary monetary policy does not produce lower interest rates on the loans of the peripheral countries. In the following, we intend to show that fragmentation is not only due to economic fundamentals but also to heterogeneous self-sustaining dynamics. To explore this point, we propose estimating the following equation in an effort to explain the nominal interest rates applied by the banks $rb_{i,t}$ in each Member State i at time t. Here we present the results for interest rates on 1 to 5-year loans to non-financial corporations (NFCs) and for two types of loans to households: real estate loans and consumer loans.

$$rb_{i,t} = \alpha_i + \beta.time_i + \gamma.prime_{i,t} + \delta.rm_t + \rho.CISS_t + \varepsilon_t$$

These interest rates are explained by the money market rates rm_t which reflect the ECB's conventional monetary policy. Here we take the overnight rate (Eonia). In addition, we include a variable reflecting the risk premium associated with each Member State ($prime_{i,t}$), calculated as the difference between the long-term rates on government bonds and the money market rates. To take account of the exacerbation of risk aversion since the crisis, we also include an indicator of financial stress: the Composite Indicator of Systemic Stress (CISS) developed by the ECB (Hollo *et al.*, 2012).

Panel estimates are implemented on two sub-samples of the euro zone: one for the core countries (Austria, Belgium, Finland, Germany, France and the Netherlands) and the other for those in the periphery (Spain, Greece, Ireland, Italy and Portugal). We include country fixed effects, and we include a time trend $time_i$ that measures the temporal effect that is not related to the fundamentals included in the model. Finally, we estimate these panels for two sub-periods: before and after the crisis.

Results are reported in table 1. Looking at the rates for NFCs, we find that before the crisis the determinants of these rates were relatively similar in the countries of the core and the periphery. Monetary policy was a little more influential in the peripheral countries, but for the rest, the coefficients were very close. Note in particular the downward trend in rates for both groups of countries identified by the $time_i$ variable. This result indicates that, independently of the model's fundamentals, there is a trend for bank rates to fall in the euro zone. **Before the crisis, there was a trend towards setting relatively homogeneous interest rates for loans to NFCs in the euro zone**.

The results since the crisis point towards a different dynamic, with increasingly clear fragmentation. While the transmission of monetary policy remains at an equivalent level in the core countries, it diminishes sharply for countries in the periphery. Furthermore, while the variable that takes into account the risk premium applied to each Member State is no longer significant for the core countries, it still is for the periphery countries. However, this is a period during which rate spreads are increasing for these countries, indicating that tensions on the bond markets are affecting the rates charged by banks. Likewise, the financial stress indicator still has a positive, significant effect, but the coefficient is twice as high for the countries of the periphery. Finally, it is interesting to note the results of the time variable. For the core countries, this variable has not been significant since the crisis, indicating that the establishment of bank rates does reflect the fundamentals included in the estimates. For the periphery, this variable has become positive since the crisis: in addition to the other determinants included in the equation, an upward trend in bank rates can be seen in the peripheral countries. This result highlights the process of divergence between the two groups of countries. The peripheral countries have suffered a hike in bank rates independently of the fundamentals, a situation that is not seen in the core countries. This post-crisis trend towards differentiation can also be seen when looking at the establishment of bank rates for households, whether for real estate loans or consumer loans. This observation is confirmed (Table 2) by taking into account non-conventional measures where, rather than the EONIA we introduce an implicit monetary policy rate[5] (or "shadow rate"). Since the crisis, there has been noticeable fragmentation between the core and the periphery.

The ECB is thus facing a dual challenge. First, it has to bring inflation back to its target. The fight against the risk of deflation is thus becoming central to the implementation of monetary policy. Second, the measures taken by the ECB also has to aim to reduce the fragmentation of the European banking system so as to restore homogeneity in the transmission of monetary policy within the euro zone (Cour-Thimman & Winkler, 2013).

5. The calculation of an implicit monetary policy rate can be used to translate the unconventional measures taken by the central banks. The implicit rate can thus be negative. See Wu and Xia (2014) for an illustration.

Table 1. Determinants of bank interest rates before and after the crisis

	NFC				Property				Consumer			
	Pre-crisis		Crisis		Pre-crisis		Crisis		Pre-crisis		Crisis	
	Core	Periph	Core	Periph	Core	Periph	Core	Periph	Core	Periph	Core	Periph
Eonia	0.74***	0.88***	0.72***	0.39***	0.43***	0.87***	0.15***	0.49***	0.68***	0.28***	0.01	-0.50**
	[0.03]	[0.02]	[0.04]	[0.09]	[0.05]	[0.03]	[0.05]	[0.09]	[0.06]	[0.09]	[0.17]	[0.22]
Prime	0.21***	0.16***	0.00	0.07***	0.20***	0.13***	0.11***	-0.03**	0.31***	0.01	-0.13	0.04
	[0.03]	[0.03]	[0.03]	[0.01]	[0.06]	[0.04]	[0.03]	[0.01]	[0.07]	[0.13]	[0.12]	[0.03]
Ciss	0.33***	0.35***	0.15***	0.27***	0.24***	0.35***	0.15***	0.30***	0.28***	0.30***	0.19***	0.43***
	[0.01]	[0.01]	[0.01]	[0.03]	[0.02]	[0.02]	[0.02]	[0.03]	[0.03]	[0.06]	[0.06]	[0.08]
Time	-0.01***	-0.01***	0.00	0.02***	-0.02***	-0.01***	-0.01***	-0.00	-0.01***	0.00	0.00	0.02***
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.01]	[0.00]
Constant	3.30***	2.51***	2.61***	-0.13	5.04***	3.07***	4.39***	2.88***	4.58***	8.36***	5.44***	6.64***
	[0.14]	[0.13]	[0.24]	[0.30]	[0.27]	[0.17]	[0.30]	[0.29]	[0.33]	[0.60]	[1.07]	[0.75]
N	387	288	402	268	432	288	402	268	459	288	335	201
r2	0.89	0.97	0.80	0.46	0.35	0.93	0.73	0.64	0.69	0.28	0.05	0.16

Data source: ECB & Eurostat, authors' estimates.

Table 2. Determinants of bank interest rates before and after the crisis

	NFC				Property				Consumer			
	Pre-crisis		Crisis		Pre-crisis		Crisis		Pre-crisis		Crisis	
	Core	Periph	Core	Periph	Core	Periph	Core	Periph	Core	Periph	Core	Periph
Shadow	0.52***	0.62***	0.24***	0.11***	0.29***	0.60***	0.02	0.10**	0.52***	0.19**	-0.12	-0.47***
	[0.03]	[0.03]	[0.02]	[0.04]	[0.04]	[0.04]	[0.02]	[0.04]	[0.05]	[0.09]	[0.08]	[0.10]
Prime	0.07	0.01	-0.06	0.08***	0.12	-0.03	0.09***	-0.01	0.16**	-0.08	-0.14	0.01
	[0.04]	[0.05]	[0.03]	[0.01]	[0.06]	[0.05]	[0.03]	[0.01]	[0.07]	[0.13]	[0.12]	[0.03]
Ciss	0.42***	0.47***	0.27***	0.33***	0.30***	0.47***	0.17***	0.37***	0.38***	0.35***	0.16**	0.29***
	[0.02]	[0.02]	[0.02]	[0.03]	[0.03]	[0.02]	[0.02]	[0.03]	[0.03]	[0.06]	[0.06]	[0.08]
Time	-0.01***	-0.00***	-0.00	0.02***	-0.02***	-0.01***	-0.01***	-0.00	-0.01***	-0.00	-0.00	0.01**
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.01]	[0.00]
Constant	4.04***	3.35***	3.13***	-0.05	5.48***	3.92***	4.61***	3.13***	5.48***	8.85***	5.96***	7.57***
	[0.17]	[0.18]	[0.30]	[0.32]	[0.26]	[0.21]	[0.31]	[0.32]	[0.30]	[0.54]	[1.06]	[0.75]
N	387	288	402	268	432	288	402	268	459	288	335	201
r2	0.83	0.93	0.70	0.44	0.31	0.87	0.72	0.61	0.67	0.27	0.06	0.23

Data source: ECB & Eurostat, authors' estimates.

2. The ECB and unconventional monetary policy measures as a last resort?

The results reported in the previous section have shown that monetary policy does not share the same degree of effectiveness in the core and the peripheral countries: it may still be effective in the first but not in the latter. It thus questions the ability of the ECB to manage the euro area crisis on its own.

The gloomy economic situation in the euro zone, with its deflationary risks, brought the European Central Bank (ECB) to undertake a round of quantitative easing. These measures, some of which may demand that the ECB take on risk – *via* the acquisition of securitization products, *i.e.* Asset Backed Securities (ABS) – are controversial. Some economists, such as Hans-Werner Sinn, criticize the ECB: in their view, it is exceeding its mandate for price stability by subjecting the European economies to a risk of inflation due to excess liquidity that it has put into circulation. Other economists, such as Michel Aglietta, believe instead that the ECB is providing an appropriate response to Europe's economic situation within the given institutional framework. They even regret the slowness of its response and are pushing for an institutional change to give the ECB a plurality of objectives, including price stability, growth and financial stability (Blot *et al.*, 2014) or price stability, financial stability and a sustainable public debt (Aglietta, 2014).

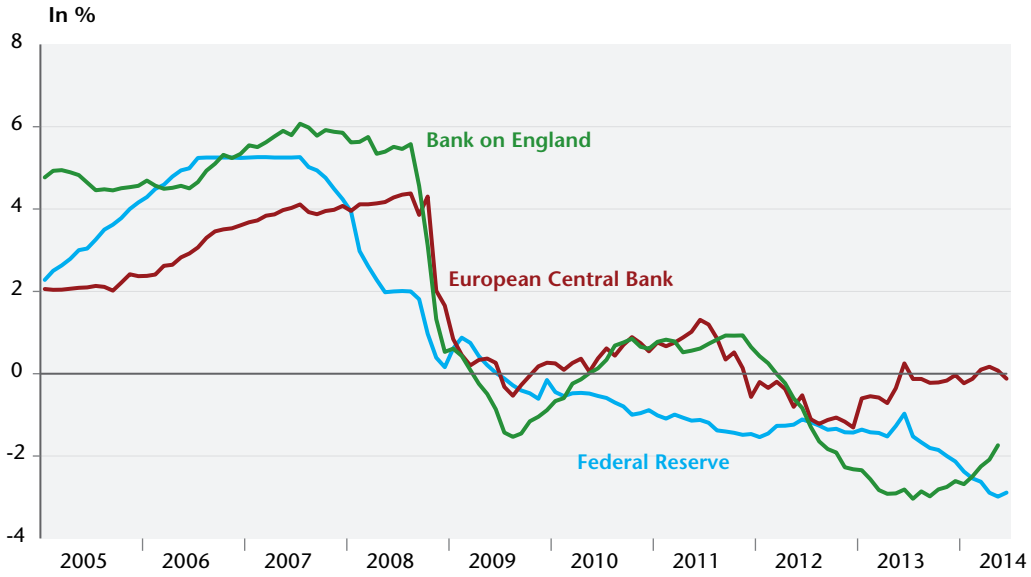
After having reviewed the recent unconventional measures implemented by the ECB, we review the effectiveness of these measures. We conclude on the challenges of ECB policies in the longer run and discuss the usefulness of a change in the statutes of the ECB.

Comparison of the monetary policy measures taken by the ECB, the Bank of England and the Fed

The major central banks have resorted to various, conventional and unconventional, measures that have resulted in increasing and / or changing the size and composition of their balance sheets. There are nevertheless important differences in the nature of the measures preferred by the ECB, the Federal Reserve and the Bank of England. These differences result in large part from the financial structure of the economies in question. The ECB has for instance focused on supporting the banking system because of its major role in financing non-financial agents. In the United States, where market financing is predominant, the Federal Reserve has instead sought to influence market prices through the purchase of securities. The fact remains that increasing the size of the balance sheet is still an imperfect way to take account of the additional monetary stimulus resulting from the unconventional measures implemented. There have been recent efforts to determine an equivalent of these actions in terms of key interest rates, called an implicit rate or shadow rate. Wu and Xia (2014) propose an approach that is based on the rate curve and thus calculate the implicit rate of the monetary policy of the ECB, the Federal Reserve and the Bank of England. Doing this shows that the ECB has indeed conducted a more expansionary monetary policy (Figure 8) through unconventional measures than what the main refinancing operations rate shows, as the implicit rate is negative. However, **the**

ECB's policy has been relatively less expansionary than that of the Bank of England and the US Federal Reserve.

Figure 8. Shadow rates of monetary policy



Source: Wu & Xia (2014), http://faculty.chicagobooth.edu/jing.wu/research/data/WX.html.

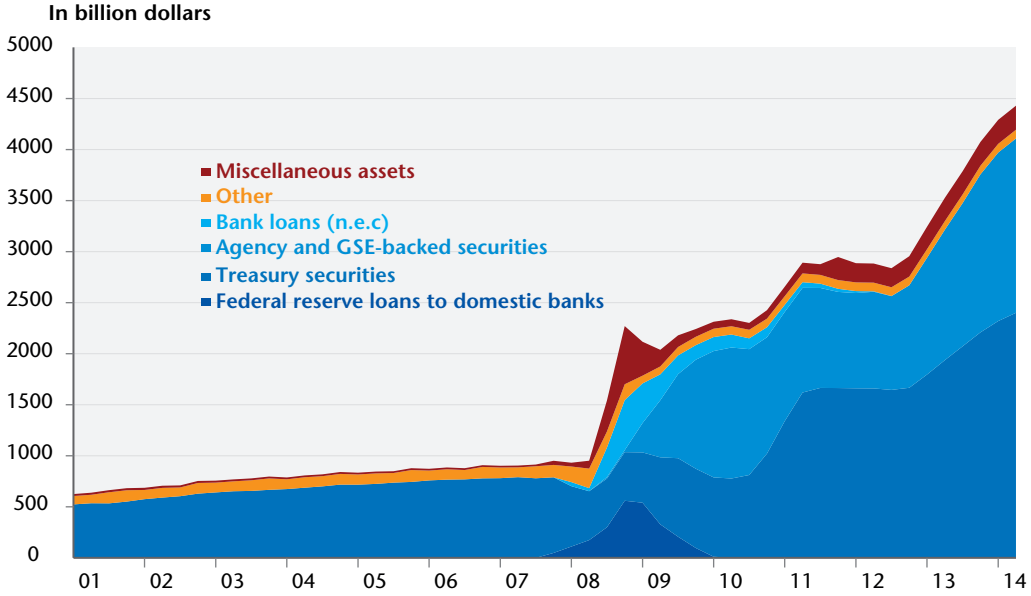
The monetary policies of the major central banks have consisted of lending directly to the banks (against high-quality collateral) and intervening in the financial markets (mainly government securities but also securities backed by real estate assets, and the commercial paper of non-financial companies). Several types of interventions have been endorsed:

- On the one hand, the Fed and the Bank of England decided to intervene, as a first step, mainly through – conventional – loans to banks facing liquidity problems. In a second step, these central banks engaged in purchases of securities on the markets to lower long-term interest rates and stimulate the economy. For example, the Federal Reserve established programmes for purchasing US government debt (the first was launched in March 2009) and mortgage-backed securities. In June 2014, the securities portfolio of the Federal Reserve came to about 4000 billion dollars, or about 90% of its balance sheet (Figure 9). Likewise, in January 2009 the Bank of England set up the Asset Purchase Facility, a very large-scale programme to purchase British government securities and to a lesser extent Treasury bills and corporate bonds. In July 2012, this had reached a level of GBP 375 billion, or 90% of the BoE's assets (Figure 10).

- On the other hand, for most of its efforts the ECB has relied on collateralized loans (*i.e.* against guarantees) to the banking sector. Since October 2008, auctions for monetary policy transactions have been conducted at fixed rates with full allocation for demands for bank refinancing. In other words, so long as sufficient collateral is provided, any demand for bank liquidity is met. This policy is thus entirely dependent on the demand for liquidity coming from commercial banks, and thereby ruptures with the previous policy of a limited supply of liquidity to banks. Though new, this policy is not quite unconventional, insofar as

it does not increase the size of the commercial banks' excess reserves, or the risk borne by the ECB.[6] Furthermore, the ECB implemented unconventional measures when it decided to increase the maximum maturity of its loans (initially 3 months), with one-year operations carried out in June, September and December 2009 (LTRO) and three-year operations in December 2011 and February 2012 (VLTRO). The ECB has also created programmes to purchase securities: (i) secured bank bond purchases (called "covered bond purchase programmes", CBPP) in June 2009 and CBPP2 in November 2011 were designed as a further way of dealing with banks' financing costs, which were considered too high and thus incompatible with the orientation of monetary policy; (ii) the Securities Markets Programme (SMP) was launched in May 2010 to engage in limited buying of government debt on secondary markets, sums that were supposedly sterilized by the ECB; the SMP was designed as a response to the pressure on sovereign debt markets, which called into question the smooth transmission of monetary policy in the euro zone; (iii) Outright Monetary Transactions (OMT), a new programme of buying sovereign bonds, starting in August and September 2012, which is intended to limit what are considered excessive risk premiums on certain sovereign debt bonds; (iv) finally, faced with the growing risk of deflation in the euro zone, the ECB decided on 4 September 2014 to implement a new programme to purchase the debt securities of European companies and residential real estate loans (Asset-Backed Securities Purchase Programme, ABSPP) and a new programme for purchasing secured bank bonds (CBPP3), with the aim of freeing commercial bank balance sheets of these debts and thereby encouraging them to lend to businesses, in particular SMEs.

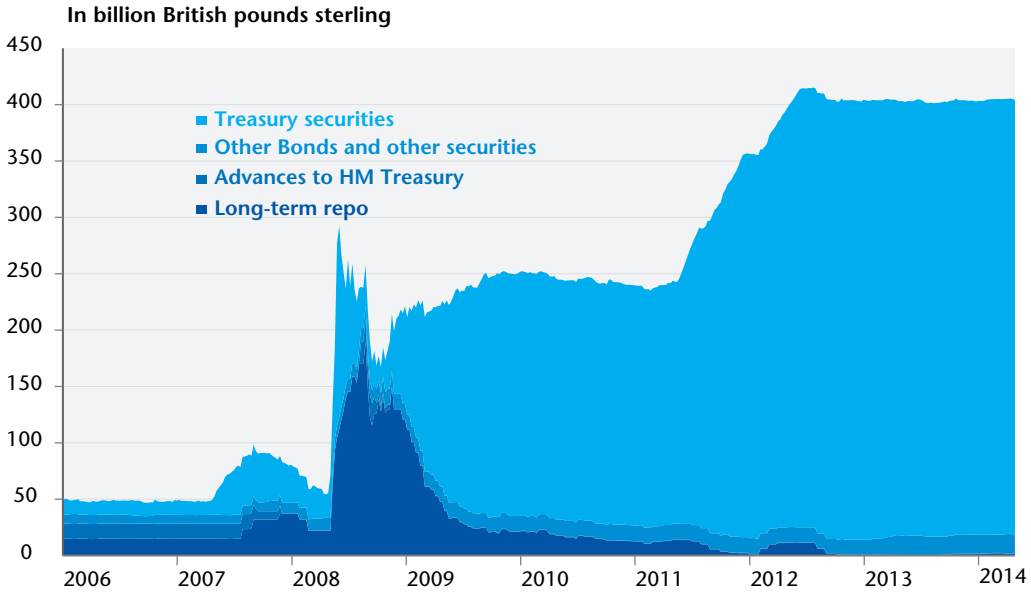
Figure 9. Composition of the Federal Reserve's balance sheet assets



Source: Federal Reserve (Flow of Funds).

6. It must be acknowledged that risk has somewhat increased to the extent that collateral eligibility requirements are reduced.

Figure 10. Composition of the Bank of England's balance sheet assets



Source: Bank of England.

The multiplicity of the ECB's purchasing interventions should not obscure the fact that its programmes remained limited in scale: 50 billion euros for the CBPP and CBPP2, 162,5 billion euros for the SMP (as stated in the initial announcement)[7], an unlimited but unused amount for OMTs and unspecified amounts for ABSPP and CBPP3, compared with about 1 trillion euros for the two long-term lending operations (LTRO), which contributed greatly to increasing the size of the ECB's balance sheet (Figure 11). It follows that the ECB has done more to relieve the commercial banks than to directly support or revive financial market activities.

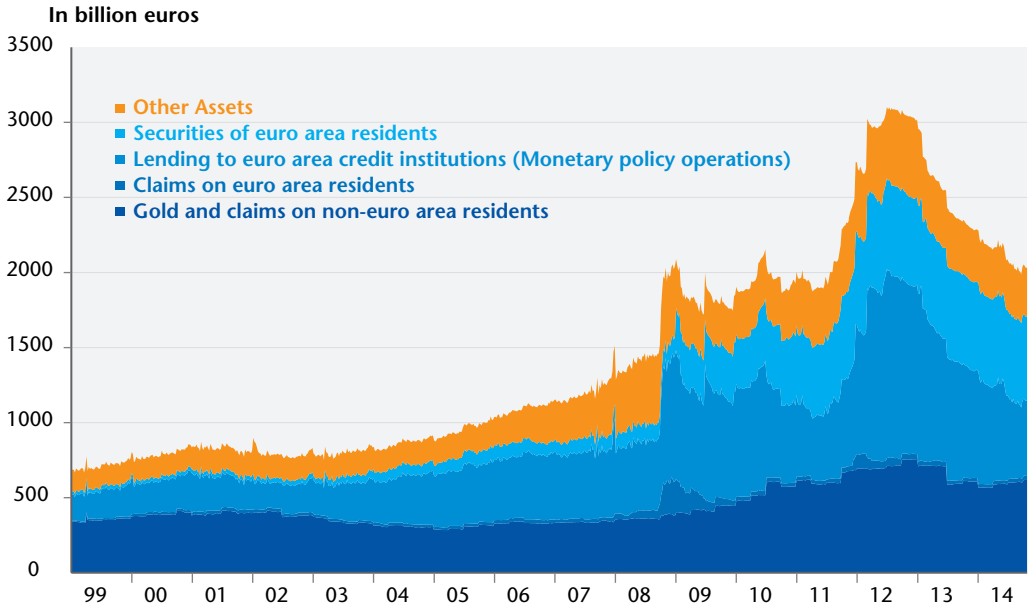
The differences in technique between the central bank interventions reflect particular legal and economic factors—legal, because EU treaties prohibit the ECB from buying sovereign bonds on the primary market, and economic, as central banks seek to affect financing conditions as efficiently as possible. In the euro zone, banks provide the bulk of financing for private sector activity, which is why the ECB intervenes mainly by lending to the banking sector. Conversely, finance for the US economy is more disintermediated, which explains the scale of the Fed's securities purchases.

A pretty-much discussed unconventional monetary policy involves influencing expectations by preliminary announcements of policy (conventional or conventional). This policy of "forward guidance" (formerly called "open-mouth operations") consists of announcing that the central bank benchmark rate will not be cut until the unemployment rate falls below 7% of the working population (as did the Bank of England from the summer of 2013) or of announcing an unlimited conditional buyback of sovereign debt (up to a maturity of 3 years) to contain the upward pressure on the yields on government bonds (this was the case of the

7. The maximum amount allocated to SMP was 219 billion euros in January-February 2012.

ECB's Outright Monetary Transactions programme, launched in the summer of 2012, and up to now never used).

Figure 11. Composition of the ECB's balance sheet assets



Source: ECB.

On the effectiveness of ECB unconventional monetary policy

The ECB objectives are easily circumscribed within the European framework. The Treaty on the European Union requires that the ECB prioritizes the pursuit of price stability. In addition, without prejudice to this objective, the ECB shall support pursue policies that are consistent with the objectives of the European Union, which include in particular the search for high growth that does not generate inflationary pressures. The effectiveness of the ECB's monetary policy can thus be judged by these two objectives: price stability and, once that is achieved, economic growth. To achieve these objectives, the ECB must ensure that the channels for transmitting its policy towards the banks and financial markets function properly.

Hitherto, unconventional measures were introduced officially in order to restore the channels for transmitting the ECB's monetary policy to the real economy, channels that in some euro zone countries had been scrambled by the financial crisis and the euro crisis.

Numerous articles have dealt with the ECB's monetary policy since the start of the crisis. Creel, Hubert and Viennot (2013) offer a summary (see the Table on p. 26 of their paper), which concludes that in general the interest rate channel worked, whereas the credit channel did not have the expected effects of transmission. The recent results of Altavilla, Giannone and Lenza (2014) nuance these findings to some extent, by showing that the announcement of the OMT programme led to lowering the two-year sovereign rates of Italy and Spain, without any effect on German and French sovereign yields. Using a multi-country VAR model linking the macroeconomic and financial variables, they show that

these OMT announcements may have had a significant impact on the level of economic activity, lending and prices in Spain and Italy: for instance, the simple announcement of the unconventional policy could have improved the transmission of conventional monetary policy to the macroeconomic and financial variables.

On the heels of this work, Creel, Hubert and Viennot (2013) examined the effectiveness of the ECB's conventional and unconventional policies during the financial crisis in four countries (France, Germany, Italy and Spain). They estimated the impact of the conventional instrument and the purchases of securities under the ECB's unconventional policies (those classified as "Securities held for monetary policy purposes") on interest rates and on the volume of new loans made in different markets: loans to non-financial corporations, to households, the sovereign debt market, and the money market. They show (see table 3) that unconventional policies have led to lowering interest rates on the money market, on government securities and on loans to non-financial corporations. These policies, however, have had no effect on the volume of lending. At the same time, it turns out that the conventional instrument, whose lack of effectiveness was one of the justifications for the use of unconventional measures, had the expected effect on virtually all the markets surveyed, and more so in the South of the euro zone than in the North on the market for six-month sovereign bonds.

It seems therefore that unconventional policies have had a direct impact on the sovereign bond market as well as indirect effects, by helping to restore the effectiveness of the conventional instrument on other markets. One of the reasons explaining the weak impact of the two monetary instruments, conventional and unconventional, on the volume of loans granted concerns the need for commercial banks to deleverage and to reduce the size of their balance sheet by adjusting their portfolio of risk-weighted assets, which has pushed them to increase their reserves rather than to play their intermediation role and to demand a relatively higher return for each exposure granted. **Bank practices, though legitimate, hurt the transmission of monetary policy: rates fall, but credit fails to take off.** It is thus important for monetary policy not to be based exclusively on the banking sector.

In view of these results, **it is interesting to note that the new wave of unconventional operations discussed by the ECB since June 2014 has focused more directly on the possible acquisition of sovereign bonds and the acquisition of corporate securities, which means bypassing the banking sector**. This workaround should hopefully strengthen the transmission of monetary policy to the real economy, a result that would obviously be welcome to avoid the risk of deflation in the euro zone.

As a matter of fact, on 5 June 2014, the ECB announced a series of measures, including rate cuts and measures to boost the supply of loans. It is difficult to estimate the direct impact on economic activity in the euro zone. It is also possible that the signalling effect (indirect) of these measures can generate an improvement in market conditions and confidence.

Table 3. Panel data estimation of ECB monetary policies on interest rates and volumes

	Money market		Sovereign bond mkts, maturity 6 mth		Sovereign bond mkts, maturity 5 yr		Sovereign bond mkts, maturity 10 yr		NFC loans, inf to 1 m€		NFC loans, sup to 1 m€	
	rate	volume	rate	volume	rate	volume	rate	volume	rate	volume	rate	volume
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Conventional MP	**0.33*** **	2,16	0,02	**-0.05***	0,21	0,06	-0,14	0,02	**0.23*** **	-0,03	**0.27*** **	**-0.37***
	[0.06]	[3.41]	[0.29]	[0.03]	[0.47]	[0.04]	[0.42]	[0.04]	[0.06]	[0.07]	[0.10]	[0.21]
Unconventional	**-0.01*** **	0,15	-0,02	0,00	**-0.03***	0,00	0,01	0,00	**-0.01** **	-0.01***	**-0.02*** **	-0.01*
MP	[0.00]	[0.13]	[0.01]	[0.00]	[0.02]	[0.00]	[0.02]	[0.00]	[0.00]	[0.00]	[0.00]	[0.01]
Lag rate	-0,04		-0.51***		-0.48***		-0.50***		0.13**		-0.30***	
	[0.06]		[0.04]		[0.04]		[0.03]		[0.06]		[0.06]	
Lag volume		0.88***		0.31***		-0.19***		0.24***		0.40***		0.42***
		[0.03]		[0.06]		[0.05]		[0.06]		[0.05]		[0.06]
Volume	0,00		-0,66		0,06		1.13*		0,04		0.06**	
	[0.00]		[0.66]		[0.70]		[0.63]		[0.04]		[0.03]	
Rate		-1,20		0,01		-0,01		0.01***		0,04		0.35***
		[3.42]		[0.01]		[0.00]		[0.00]		[0.07]		[0.12]
CPI	0,02	0,87	0,00	-0.01**	0,05	-0.03***	0,07	-0.02**	0,01	0.04***	0,02	0.09***
	[0.01]	[0.56]	[0.05]	[0.00]	[0.07]	[0.01]	[0.07]	[0.01]	[0.01]	[0.01]	[0.02]	[0.04]
IP	0,00	0,12	0,00	0,00	0,01	0,00	0,01	0,00	0,00	0,00	0.01***	-0.01**
	[0.00]	[0.08]	[0.01]	[0.00]	[0.01]	[0.00]	[0.01]	[0.00]	[0.00]	[0.00]	[0.00]	[0.01]
CISS	-0.50***	4,46	-0,64	0,00	1.19**	0,02	0,24	-0.11*	-0.20**	0.33***	-0.46***	0.99***
	[0.09]	[4.78]	[0.41]	[0.04]	[0.60]	[0.07]	[0.59]	[0.06]	[0.09]	[0.11]	[0.16]	[0.32]
Oil Price	0.00*	0,05	0,00	0,00	0.01**	0,00	0,01	0,00	-0.00*	0.00*	0,00	0,00
	[0.00]	[0.04]	[0.00]	[0.00]	[0.01]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
STOXX	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Const.	0.06**	-1,94	0.41**	0.13***	-0,15	0.31***	-0,07	0.14***	-0,01	0.24***	-0,04	0.66***
	[0.03]	[1.48]	[0.17]	[0.02]	[0.28]	[0.02]	[0.22]	[0.02]	[0.05]	[0.04]	[0.07]	[0.13]
N	256	260	256	260	256	260	256	260	256	260	256	260

Standard errors in brackets. * p < 0.10, ** p < 0.05, *** p < 0.01. The model is estimated with time and country fixed-effects robust to an AR(1) disturbance term.
Source: Creel, Hubert and Viennot (2013).

- The ECB lowered the rates on its main refinancing operations (MRO) and the deposit rate to 0.15% and -0.10% respectively. The marginal lending rate was reduced to 0.40%.
- A certain number of measures to strengthen liquidity have been announced: the sterilization of the Securities Market Programme (SMP), which currently takes up to 165 billion euros, will end; the fixed-rate financing operations with full allotment[8] ("fixed rate full allotment") will be extended for at least 18 months, until the end of 2016; and the ECB will carry out a series of targeted LTROs (TLTROs) on a horizon of over 2 years starting September 2014.
- The TLTROs will have a maturity of less than 4 years, and the initial allocation will be 7% of outstanding private sector loans, with access to additional funds based on improvement in actual lending. This could increase access to the liquidity of banks in the peripheral countries that are currently deleveraging.
- The cost of these loans will be set at the rate of the MRO at the time of purchase plus 0.10 points. By making available financing over 4 years at the MRO + 0.10 point rate, the ECB is strengthening its forward guidance policy by ensuring that rates will remain low for an extended period.
- In addition, Mr. Draghi has reported "an intensification of preparatory work related to ABS purchases" to encourage the development of the market.

On 4 September 2014, slowing growth and the increasing risk of de-anchoring inflationary expectations and drifting into deflation prompted the ECB to lower its benchmark interest rate by 10 basis points and to announce the purchase of private sector assets starting in October. The announcement reinforced the package of measures announced in June.

- The ECB cut its key interest rate by 0.10 point. The rate on the main refinancing operations (MRO) is now 0.05% and the rate on deposit facilities -0.20%. Mario Draghi noted that this reduction would make the upcoming TLTRO operations more attractive.
- The ECB also announced a programme to purchase ABS (ABSPP) to stimulate new credit flows to the real economy. The ABS programme will include "simple and transparent" ABS purchases backed by underlying assets consisting of claims on the non-financial private sector in the euro zone. The programme will include residential mortgage-backed securities (RMBS).
- In parallel, a covered bond purchase programme (CBPP3) was announced that will target purchases of covered bonds issued by euro zone monetary financial institutions.
- Mario Draghi also stated that a quantitative easing programme (referring to purchases of sovereign bonds) was discussed.

These measures can be broken down into three groups based on their respective objectives:

1. Implicit tightening[9] of the monetary policy stance, inducing as a reaction:

8. The ECB meets all the demands for liquidity made by the banking system.
9. Linked firstly to the reduction in the inflation rate, which is pushing up the real interest rate, and secondly to the reduction in the size of bank balance sheets.

   i. Rate reductions

   ii. Injections of liquidity (end of SMP sterilization, LTRO, FRFA extension)

2. Deterioration of the mechanisms for the transmission of monetary policy ("*via* the channel of bank credit"), inducing as a reaction:

   i. Targeted LTROs

   ii. Purchases of ABS and CBPP3

3. Increasing gap between inflation and the ECB target and the medium-term economic outlook, inducing as a reaction:

   i. Broad-based asset purchases

What impact these measures are likely to have?

Rate reductions

These measures operate through various channels, and their impact will depend, in part, on the demand for credit. **We believe that the direct impact of these rate cuts will be relatively weak**. The standard multipliers suggest an impact of less than 0.1% on the euro zone's GDP, although the signalling effect of a negative deposit rate could have a slightly higher impact.

Injections of liquidity

The impact of the end of the SMP sterilization operation (which increases the reserves of the central bank) will increase liquidity and thus could push the EONIA rate towards the bottom of the interest rate corridor. But the effect is likely to be limited, because the excess liquidity will decline if the banks continue to repay the 450 billion euros from the existing very long-term refinancing operations (VLTROs). As the banks already have access to virtually unlimited ECB financing and reimbursement, **it is not very likely that new liquidity injections will have a significant impact on the economy**, in the context of the current corridor.

Targeted LTROs

The TLTROs could have a potentially significant effect. The TLTROs are supposed to reduce banks' financing costs significantly. Indeed, on average, 4-year financing on the markets currently costs euro zone banks around 150 basis points. It can be expected that the TLTROs will reduce this cost. However, **even if the banks use the TLTRO programme, it may not have the desired effect on the mechanism for transmitting monetary policy, as the banks may use the money to buy government bonds or other assets rather than stimulating the supply of loans to households and businesses**. The fact that banks in the euro zone are currently reimbursing the 2011 and 2012 VLTROs suggests that there are barriers to lending today (mainly low demand for loans), even when financing costs are low. The main difference between the VLTRO and TLTRO though involves conditioning the provision of liquidity in the latter on an amount of outstanding loans to the non-financial private sector (excluding mortgages), based on what the Bank of England did with its Funding for Lending Scheme (FLS) set up in summer 2012.

ABS purchases and CBPP3

These new measures supplement the TLTRO programme, as these purchases should allow substitution in the banks' balance sheets in favour of lending to the real economy. However, **it is impossible at this stage to quantify the impact of these announcements**. The purchases of covered bonds began in October 2014, while the ABS purchases will begin before the end of the year. The covered bond spreads have narrowed in response to these announcements. The purchases will continue for at least two years, but no details on their size have been given.

Estimates of the current size of the ABS market vary, but are around the 1,000 billion euro mark, about half of which is traded on the financial markets. A note by Bruegel[10] suggests that about 60% of the market is made up of RMBS. The quality of outstanding ABS securities varies, and not all will be eligible for ECB purchases. In addition, a large part of the existing shares are already used as collateral with the ECB.

More specifically, Mario Draghi announced on 4 September 2014 that the objective could be to raise the ECB's balance sheet to its level of early 2012. To do this would require increasing it from its current level by 1,000 billion euros. He did not provide an estimate of the size of the two purchasing programmes. A recent survey by Bloomberg estimated the TLTRO programme at 500 billion euros. But an important part of the TLTRO could simply replace the financing for the refinancing operations conducted in 2011-2012. This suggests that **an asset purchase programme of an additional 500 billion euros would be needed to reach the target announced for the size of the ECB balance sheet**.

"Broad-based asset purchases" (in the ECB's language: QE and the purchase of sovereign bonds)

It seems doubtful that the combination of TLTRO programmes and purchases of ABS and covered bonds would enable the ECB to achieve half or more of the 1,000 billion euros of net expansion in the size of its balance sheet. The first tranche of the TLTRO programme has been disappointing (the ECB allotted 82.6 billion euros on 18 September 2014, and the second tranche will be announced on 9 December 2014 and allocated on 11 December). The continuing deterioration of the macroeconomic environment will give investors reason to hold their assets until the ECB's policy goes even further. To achieve a one trillion euro expansion of its balance sheet, the ECB needs to move to the next step of the plan set out by Mario Draghi in the Spring, *i.e.* "Broad-based asset purchases" (BBAP), and to reach the target size, they should include purchases of sovereign bonds in the euro zone.

In December 2014, the ECB will publish its new economic forecasts, including the first for up to 2017. It seems that this would be the first date that new monetary stimulus measures could be announced if the economic outlook for the euro zone still shows no sign of improvement, or if fears of a de-anchoring of inflation expectations gain more ground. In this case, there is a good chance that the ECB will use unconventional monetary policy, as it sees fit, that is to say, the purchase

10. *Asset-backed securities: The key to unlocking Europe's credit markets?*, by Carlo Altomonte and Patrizia Bussoli, 24 July 2014.

of sovereign bonds, to try to prevent a further deterioration in the economic outlook, which could lead to the break-up of the euro zone.

All in all, two main conclusions emerge from the study of ECB monetary policies: **First, the monetary programmes implemented by the ECB have remained limited in scale, in contrast with other central banks like the Fed and the Bank of England; second, monetary policy measures have not produced a rise in bank loans, despite an improvement in the interest rate channel; consequently, monetary policy measures have neither be sufficient to produce a recovery in the euro zone nor to achieve the inflation target at 2%. Fragmentation remains.**

3. Banking Europe: In unity strength?

The banking union, which has been phased in from November 2014, is part of a slow process of European financial integration. The premises of a banking and financial Europe already figure in the Treaty of Rome (1957). In addition to the free movement of goods, the Treaty provided for the freedoms of establishment, of the provision of services and of the movement of people and capital (Article 67). These fundamental freedoms provided fertile ground for the emergence of a European banking and financial market. It was nevertheless not until the Single European Act in 1986, followed by the 1988 Directive, that Article 67 came into force, on 1 July 1990. Meanwhile, in 1974, the Basel Committee defined the basis for international prudential banking regulations, which were gradually adopted at the European level with the Basel I standards in 1988 (some countries), Basel II in 2004 (standard adopted in the form of an EU directive) and then Basel III in 2010 (adoption of a European directive and a European regulation with implementation starting on 1 January 2014).

A fruit of the crisis, the banking union is organized around three pillars. It harmonizes supervision (and thereby abolishes unnecessary opportunities for regulatory arbitrage), creates bank resolution mechanisms in the euro zone and adopts the logic of a "bail-in" of the banks. In this sense, it offers new solutions. However, it leaves grey areas, and **the European solidarity created by the banking union could be insufficient to deal with major shocks. A specific banking fund may thus be needed**.

The banking union: A solution with three pillars

At the EU summit in June 2012, the heads of State announced plans to create a European banking union. The idea of the banking union was born from a threefold need: to break the link between the sovereign debt crisis and the banking crisis by creating a Single Resolution Fund and at an ultimate stage by allowing the direct recapitalization of troubled banks by the European Stability Mechanism;[11] to prevent runs on banks; and to avoid the fragmentation of the euro zone's banking markets.

11. In this ultimate case, the approval of national parliaments may be necessary. For instance, according to the decision of the German parliament on 6 November 2014, the approval to ESM funds for direct recapitalization are currently limited up to an amount of 60 bn. euros, while the Single Resolution Fund shall have a total volume of 55 bn. euros in 2023.

Pillar 1

The first pillar is the Single Supervisory Mechanism (SSM): its implementation is based on three texts.[12] The Regulation of 3 November 2013 entrusts prudential supervision of the banking system to the European Central Bank as of 4 November 2014. Article 6 of the Regulation states that the nature of this supervision depends on the size of the bank, its importance to the economy of the participating State, and the scale of its cross-border activities. The following are therefore distinguished:

- "Important" banks, directly supervised by the ECB

Institutions considered "important" are those that comply with at least one of these four conditions: 1) hold total assets exceeding 30 billion euros; 2) hold total assets of over 20% of the Member State's GDP; 3) are considered significant by the competent national authority; or 4) are considered significant by cross-border activity.[13]

Regardless of these criteria, the SSM will cover at least three banks per country and those that have claimed or receive direct financial assistance through the EFSF or the ESM. 130 banking groups throughout the euro zone will be affected, *i.e.* almost 85% of all banking assets in the euro zone, but in different proportions in different countries.

- The "less important" banks are those whose supervision continues to be ensured by the national authorities, but under the control and within the framework defined by the ECB.

Banks that do not meet the above criteria will still come under the supervision of their respective national supervisors; they may be subjected to the direct responsibility of the ECB if their situation deteriorates and if warranted by the risks that they could pose to financial stability.

In order to have a good estimate of the state of health of Europe's banking system, in late 2013 the ECB joined with the European Banking Authority (EBA) to initiate stress tests and an asset quality review (AQR). The results were published on 26 October 2014. The stress tests are designed to assess the resilience of banks in the event of a major crisis (recession with a 1.7% fall in Europe's GDP, rising interest rates, falling property prices, etc.). The AQR aims to verify the quality of internal valuations of risky assets. These internal valuations play a key role since they are used to calculate risk-weighted assets (RWA). The equity ratio (as defined in Common Equity Tier 1, called CET1[14]) divided by the RWA then defines the Basel risk-based capital ratio, one of the solvency ratios used in the new Basel 3 prudential regulations. As of 2015, this must be greater than 4.5%. Basel 3 also provides for adding a capital conservation buffer[15]. By 2019 this capital must represent at least 2.5% of the RWA, and the sum of Common Tier 1 and conserva-

12. The Agreement of 6 November 2013; Regulation No 1022/2013 establishing a European supervisory authority (European Banking Authority); and Regulation No 1024/2013 of 15 October 2013 giving the ECB specific tasks on policies relating to the prudential supervision of credit institutions.

13. At least, this includes banks whose cross-border assets or liabilities make up a significant part (>10%) of its total assets or liabilities.

14. Equity capital according to CET1 criteria consist of common shares, retained earnings, and a portion of the minority interests of bank subsidiaries.

tion buffer capital must be above 7% by 2019.[16] For its evaluation exercise, the ECB has retained a minimum threshold of 5.5% in the stress scenario and 8% in the baseline scenario. On this basis, only 25 of the 130 banks evaluated had a lack of equity capital. A total recapitalization on the order of 25 billion euros is thus necessary. This mainly concerned banks from the peripheral countries: Cyprus (Bank of Cyprus), Greece (Hellenic Bank, National Bank of Greece, Eurobank), Italy (Banco Popolare, Banca Popolare di Milano, Banca Popolare di Vicenza, Monte dei Paschi di Siena, Banca Carrige, etc.) and Portugal (Banco Comercial Portugues). Twelve banks have in fact already carried out capital increases since 1 January 2014, so only thirteen banks need to increase their capital. **These seemingly good results for the health check on Europe's banks mean that the ECB can begin its new single supervisor mission in serenity. There have nevertheless been a number of criticisms of its method of assessing bank fragility, through stress tests, so Europe's optimism should be taken with caution**.

Indeed, there are pros and cons to bank stress tests. Among the pros, Petrella and Resti (2013) show that empirically the stress tests, corrected for the economic environment in which they were made public, had the expected market effects. They support the argument that the publication of these results constitutes information that is likely to influence the price of bank stocks. Schuermann (2014) also justifies the bank stress tests based on their ability to generate a return of confidence in the banks. Among the cons, Borio *et al.* (2014) point out the several shortcomings of these tests. First, they are based on a partial equilibrium approach that does not take into account the feedback effects of bank fragility on macroeconomic risks (also see Galati and Moessner, 2013). The risks estimated are only due to the first round effects of strictly exogenous shocks. Second, the underlying econometric model is linear, which is contradictory to the goal of the stress tests, which is precisely to detect a breakdown in banks' balance sheets following a macroeconomic shock. Third, the stress test models are "the antithesis of what financial instability corresponds to" (Borio *et al.*, 2014). Financial instability is not set off after a major macroeconomic shock (a 1.7% fall in euro zone GDP!), but after a "normal" shock, that is to say, a small-scale shock. If GDP tumbles 1.7%, and the financial system is swept away in the storm, it cannot be concluded that the financial system was already fragile. Conversely, if there is only a small shake then it is easier to blame the fragility of the financial system if it fails to withstand this. Fourth, financial and banking crises are not normally triggered after GDP falls, but before it has substantially declined.

Pillar 2

The second pillar provides for a Single Resolution Mechanism (SRM), which is to handle the resolution of bank failures. It is based on two Community texts[17] and an Inter-Governmental Agreement of the Council of the European Union (21 May 2014) covering certain specific aspects of the establishment of a Resolution

15. This capital could consist of a compulsory retention from earnings when the solvency ratio is insufficient.

16. The total Basel risk-based capital ratio can significantly exceed that number, if, depending on the institute and economic activity, systemic or countercyclical buffers are activated by the regulatory authorities. However, it is critized that the introduction of an obligatory absolute leverage-ratio in addition to the risk-weighted approach has been postponed until 2016.

Fund. A Single Resolution Board will be created and will decide, centrally, to recapitalize an institution or to liquidate it. The regulation establishing the SRM (No. 806/2014) governs the creation of the Single Resolution Fund and its compartments, as well as the conditions for deciding on its use, while the Inter-Governmental Agreement deals with the transfer of national funds into the Single Resolution Fund and on proceeding with the mutualization of its compartments. The SRM will apply only to banks participating in the SSM.

First, the principle of "bail-in" is enacted as follows: starting in January 2015, the EU Recovery and resolution of banks Directive is to come into effect, which provides, when a bank is in difficulty, for a "bail-in" of the bank, rather than an external "bail-out" by the government. The first to pay would be the shareholders and creditors in order of seniority – bondholders, then depositors whose deposits exceed 100.000 euros. The bail-in will apply to at least 8% of the bank's liabilities before the Single Resolution Fund can be used. As a rule, the Fund may not recapitalize more than 5% of the bank's liabilities.

Second, unlike the rest of the resolution mechanism, which is Community level, the establishment of the resolution fund will be based on the Inter-Governmental Agreement. After a period of eight years (2016-2023), the Fund, which will be funded by the banks, will have 55 billion euros and be mutualized[18]. The pooling of these funds will take place gradually, with 40% of funds to be shared during the first year, 60% the second year, and the rest being included progressively over the following six years.

Pillar 3

The third pillar is to harmonize the already existing national deposit guarantee schemes. Directive 2014/59/EU[19] on the strengthening of deposit guarantee mechanisms reaffirms the protection of guarantees on deposits of up to 100,000 euros. It provides, after a transition period of 10 years, quicker reimbursement (7 days) in the event of a bank failure and more solid financing for national guarantee mechanisms (0.8% of deposits covered against about 0.1% in France in 2014) via a tax levy on banks.

Numerous grey areas

While many experts agree that the banking union is a big step in "deepening" Europe, a number of grey areas undoubtedly remain. First, **the process of unifying the banking systems will be slow**. The mutualization established in the second and third pillars will take place later. If a State's banks need to be bailed out during the transition period, then it is the State in question that would continue to borrow in its own name from the ESM. Furthermore, the methods for

17. Directive 2014/59/EU of 15 May 2014 establishing a framework for the resolution and recovery of credit institutions and investment firms, and Regulation 806/2014 of 15 July 2014 on the Single Resolution Mechanism, which essentially governs how the mechanism functions.
18. The agreement provides that, upon a plenary decision of the Resolution Board, the Fund may borrow on the financial markets to strengthen its capacity for intervention. The target amount is also raised to at least 1% of all covered bank deposits at the end of the transition period (2016-2013).
19. Directive 2014/49/EU on deposit guarantee schemes was published in the *OJEU* on 12 June 2014; it must be transposed by the Member States before 31 May 2016.

the transfer and mutualization of contributions to the Single Resolution Fund (second pillar) are based on an intergovernmental treaty, potentially giving countries a veto.

The fragmentation of banking between countries is likely to increase, for three reasons. First, because, as Basel 3 comes on line, banks, especially in troubled countries, will be subject to more stringent requirements and so will have to rein in their credit distribution and strengthen their liquidity with the ECB (Couppey-Soubeyran *et al.*, 2012). Second, while other countries, including France, wanted all 6.000 banks in the euro zone to be subject to the ECB's new supervisory regulations, Germany managed for its regional banks (*Sparkassen*) to avoid the ECB's single supervision by making a distinction between major banks and smaller banks. The argument put forward is that in the case of small regional banks a central supervisor does not have any informational advantage over a local supervisor (Quignon, 2013). Between 25% and 35% of the German banking system is thus still directly supervised by the national authorities (against only 5% for France, where the banking system is highly concentrated). Yet the small regional banks may also pose a systemic risk (Speyer, 2012; Quignon, 2013), as is evidenced by the difficulties Spain's savings banks have encountered and the resulting impact on the country's banking system. There is a risk of fragmentation between a well-capitalized conglomerate of big banks and a weakened periphery of small undercapitalized banks. Third, the fragmentation will increase most, if ever one of the Global Systemically Important Banks (GSIBs) has to go through resolution at public expense of the member state, in which it is seated. These interconnected institutes incorporate the largest part of the systemic risk. So far, the too-important-to-fail (TITF) problem has not been addressed sufficiently within the Banking Union. In particular, European megabanks still take benefits from the implicit subsidy based on the fact that in case of difficulties a government bail-out will be necessary to guarantee the stability of the financial system (IMF 2014). If one of these banks has to be resoluted, the Single Resolution Fund will not yet be large enough to provide 5% of the bank's total liabilities (Lindner *et al.*, 2013). Indeed, this makes the TITF problem one of the central challenges beyond the current state of the European Banking Union.

The shift from a bail-out logic to a bail-in logic is similar to a return to market discipline where investors, being aware of a reduction in the State's implicit support, will demand higher returns based on the risk profile of the issuing bank. This **revaluation of bank risk may weigh on the banks' refinancing costs and the allocation of credit to business**.

The new financial products being purchased and issued by financial institutions are spurring the emergence of a system of credit that parallels the traditional banking system and avoids prudential regulation. This parallel system of "shadow banking" facilitates access to liquidity, which could be beneficial to the financing of the real economy, but it is also conducive to the development of leverage effects that can in turn encourage speculative abuse. This parallel system is ignored by the proposed banking union. In an ACPR note, D. Nouy (2013) mentions several possibilities, including expanding the supervisor's role, or separation. However, the article warns against the risk of regulations that would lead to reducing access to liquidity.

More specifically, on the issue of separation, **the banking union will require a broader harmonization of national regulations**. Indeed, following the recom-

mendations by Volker (2010), Vickers (2011) and Liikanen (2012), several countries have adopted national measures on the separation of banking activities aimed at securing deposits: the United Kingdom, France, Germany and Belgium. These uncoordinated national choices are questionable and constitute a new source of divergence. The adoption of common regulations for banks' financial activities could be a fourth major pillar of the banking union (Antonin *et al.*, 2014). The separation advocated by the Barnier proposal lends credibility to the banking union and its three pillars (SSM, SRM and deposit insurance). The establishment of a consistent framework simplifies the control of the European supervisor within the SSM process (the ECB will check banks' normal activities and ensure that they are not disturbed by speculative activity) and reduces distortions in competition. The separation advocated by the Barnier project also lends credibility to the SRM, as it becomes more difficult for banks to attain systemic size (too-big-to-fail), and losses by market banks will not be reflected (directly) in the lending activities of deposit banks. By reducing the risk that commercial banks will fail, it reduces the risk that a costly bailout for savers (bail-in) will be needed, such as activating the deposit guarantee.

There has been criticism of the attribution to the ECB of the single supervisor mission. One argument holds that the process of supervision at the European level should be as broad as possible, and ideally include all the economies of the European Union (Pisani-Ferry *et al.*, 2012; Barbu and Boitan, 2013). However, as things exist today, single supervision via the ECB is required only for the euro zone. It would have been more appropriate to expand the powers of the EBA. However, the EBA's credibility might have been tainted insofar as the stress tests it published in July 2011 were imperfect predictors of banks' real ability to withstand the sovereign debt crisis in late 2011.

Speyer (2012) sets out six other factors that argue against the administration of supervision by the ECB:

— A conflict in objectives: the ECB would combine the powers of monetary policy and financial supervision. There may be conflicting objectives in these mandates, such as a trade-off between price stability and the strength of the banking system.

— The risk of credibility: if the ECB fails in its role as the single supervisor, this could harm its reputation.

— The ECB is independent, and its mandate should be clear so that Parliament can easily hold it accountable for its actions. This new role of supervisor could cloud the clarity of its mission.

— A broader and more political mandate increases the risk of political interference, weakening its independence.

— The authority delegated to the EBA was more readily accepted because it was subject to parliamentary control. The independence of the central bank could be an obstacle to the exercise of the new powers.

— From a legal point of view, the decisions taken by a supervisor should be contestable before another legal entity. The notion of the ECB's independence does not fit well with the possibility of appealing to another authority.

However, these issues have to be weighted against the fact that **at the current stage of European integration, the ECB seems the only institution that can effectively enforce an improvement in financial market stability.**

Towards a better mutualization of risk

The banking union represents an undeniable advance, as it should make it possible to break the vicious circle between the banking crisis and the sovereign debt crisis. Banks should be notably less exposed to public finances weaknesses as was the case during the recent crisis. Cost of funding for banks would then be reduced and become more homogeneous. Consequently, the transmission of monetary policy could also become more homogeneous: if banks are better integrated, their characteristics should converge, which will allow them to apply more uniform rates on new loans and therefore better pass through the key rate policy to market rates.

The success of the banking union depends on developing the activity of each bank beyond its national market. The successful completion of the banking union should be characterized by banks with a territorial coverage that is broad enough to absorb asymmetric economic shocks. In this sense, the geographical diversification of banks' balance sheets could contribute to mutualizing asymmetric cyclical shocks. **By simplifying the bank-regulator relationship, the single supervisor should help banks to expand beyond their domestic markets, which would also contribute to better integration**. Besides, by reducing the potential political capture of the decision to save some banks, it would avoid to let non-performing banks (or even Zombies banks) pursue activity, hence deteriorating the quality of intermediate finance. The ensuing strength of the European banking system would improve its stability. The harmonization in the procedure would also reduce national heterogeneities across countries. It would then reduce costs of funding and fragmentation across countries. It must yet be stressed that the resolution procedure may still be complex, long and open to political dispute.

The crisis resolution fund and the deposit guarantee fund provide two additional ways to protect the banking system. To some extent, these two funds constitute a mechanism for mutualizing asymmetric shocks in the euro zone, which could contribute to further optimizing the currency area, in the sense of Mundell (Quignon, 2013). In 2009, at the height of the banking crisis, governments had to commit significant public funds, up to a level of 9.1% of GDP. But what would happen if ever these two funds proved insufficient in the future? Would each State once again take responsibility for supporting its banking sector? If some States proved unable to do this, then in order to prevent the breakup of the euro zone, such a failure could require either greater fiscal union via the ESM or that the ECB goes beyond its implicit role as lender of last resort, which is theoretically limited to liquidity crises, and becomes the true saviour of the euro by monetizing the losses. Large safety nets and appropriate backstop (through the resolution fund) may help to prevent liquidity squeeze, increasing stability and reducing fragmentation across countries. Given the limited scope of the single resolution fund and very progressive funding though, uncertainties will remain strong on the ability of the banking union to be able to resolve timely a systemic institution.

Beyond the current stage of the European Banking Union

The success of the European Banking Union depends on two issues not adequately adressed at the current stage. First, the implementation of an effective backstop in addition to the existing resolution and deposit guarantee funds, which could easily become overloaded in the case of the next systemic turbulences. The status quo still prefers national backstops which have not been set up effectively in all member states and which carry the risk of once again setting off the vicious circle between banks and states. Second, the problem of too-important-to-fail (TITF) banks, which should be discussed in the light of a comparison between Europe and the United States, as in both markets bank concentration has increased due to the financial crisis. The amount of total assets hold by European megabanks even exceeds the one hold by US megabanks, while at the same time the absolute leverage ratio (see Footnote 15) of European GSIBs is on average almost one percentage point lower than the one of American GSIBs (Hoenig, 2014). **In order not to place the budgets of the member states under undue pressure and in order to address the TITF problem, Lindner *et al.* (2014) propose a special sectoral fund instead of national backstop solutions.** In the long term, the biggest market participants' contributions to this fund are expected to be substantial such that it gives an incentive to reduce the size.[20]

The fund would have to be financed by pan-European levy instead of national ones. As the euro zone is an integrated financial market, solvent financial market participants from other member states than the domicile, including non-banks such as hedge funds and other shadow banks, should ultimately contribute to pan-European financial market stability. While in principle constructed for cases in which the Single Resolution Fund is undercapitalized, if necessary, the special sectoral fund could also be used for the coordinated process in dealing with banks for which the asset quality review and the stress test on 26 October 2014 have evaluated a lack of equity capital. As the results mainly concerned banks from the peripheral countries, this could prevent a further fragmentation of the banking system without creating budgetary consequences in the corresponding member states. In order to be immediately operational a comprehensive direct recapitalization by the ESM is needed, while the ESM receives claims against the pan-European banking sector which must be repaid in a more long-term manner.

4. The ECB and the future

The activism of the ECB has raised at least four concerns about the risks it may pose to the Euro zone in the long run. The first risk is inflation. The monetarist view acknowledges that the growth of monetary aggregates will fuel inflation. At the moment, such a risk is negligible: as discussed in chapter 1, the euro zone is facing the risk of deflation, not inflation. The second risk induced by the ECB is political: does quantitative easing bypass the mandate of the ECB, notably when the latter is involved in buying public bonds? The answer to this question will be given by the European Court of Justice in January 2015. Mean-

20. Both scenarios, asset sales or breaking apart into legally independent entities, are conceivable. The contribution period has to be stretched in order not to place a strain on lending or on financial market stability as a result of direct and high contribution payments.

while, one can say that the primary mandate of the ECB is to achieve price stability. Drawing on this mandate, one might argue that quantitative easing is aimed at increasing inflation expectations and inflation rates up to the level where the inflation target will be reached. In this sense, QE would help the ECB to achieve its objective. The third risk is one of excessive volatility in the euro/USD exchange rate (ER) in an era of secular stagnation. The reasoning borrows from the "overshooting" argument: the US tapering produces a differential in monetary stances between the US and the euro zone. A long-lasting expansionary monetary policy in the euro zone, coupled with a restrictive policy in the US, may generate a positive interest rate spread between the US and the euro zone, hence an expected appreciation of the euro vis-à-vis the USD. Such an expectation would require a sharp and sudden euro depreciation, hence volatility in the ER, without a surge in long run growth. This argument can be used, nevertheless, to argue that a sharp depreciation of the euro will foster economic growth in the short run: the risk thus becomes an opportunity. Finally, there are concerns whether the massive purchases of assets including sovereign bonds, by driving down the returns on these comparatively safe assets, will inflate the prices of other, riskier assets. This might even create bubbles whose subsequent bursting might be difficult to control. Raising the prices of existing assets also has distributional implications that many will be uncomfortable with in the wake of the crisis and given an already pronounced trend to greater inequality in many countries. Of course measures could be taken to counter possible side effects such as these. They do not invalidate quantitative easing. But they imply that careful policy choices need to be made.

So far, the relative ineffectiveness of the ECB to foster growth and inflation must be acknowledged: **the ECB will not be able to reflate the euro zone on its own**. In the light of the previous analysis **it should be considered to initiate a time-limited policy of quantitative easing in Europe via, e.g. a pre-announced and substantial volume of purchases by the European Central Bank of newly created European Investment Bank bonds on the secondary market.** The funds are made available to euro zone member state governments for public investment projects that meet certain minimal European guidelines and without a co-financing requirement. A number of variations of the scheme can be envisaged, each with specific economic or political advantages and drawbacks. These are discussed below; first we set out the basic mechanisms:

- The scheme is established based on a decision by the European Council and initially given a timescale of, say, five years that clearly establishes this form of central bank support for public investment as reflecting a temporary phenomenon necessitated by the risk of deflation and or stagnation and the break-up of the currency union. Within this framework, the EIB emits bonds on a degressive scale. Starting from an initial level – as a point of departure we propose €250 bn in the first year, but the scheme is flexibly scalable – the volume of bonds issued is progressively reduced (e.g. by €50 bn a year).
- The ECB commits to purchasing these bonds on the secondary market and holding them on its books for a holding period (for instance ten years). The EIB triple A rating coupled with the preannounced central bank purchases will ensure extremely low interest rates. In order to ensure conformity with the ECB's Treaty obligation to ensure price stability – currently being

infringed on the downside – a trigger mechanism can be incorporated: if economic recovery is sufficiently strong that inflation rises above a certain threshold, the ECB can progressively withdraw from the purchases (taper).

- The EIB makes the funds generated by its bond placements available to Member States for public investment purposes. The precise way resources are allocated between Member States can be varied to meet different policy aims and considerations of political feasibility (see below). The EIB is not responsible for detailed vetting of proposals, as is the case with its normal lending, (It normally performs extensive due diligence to secure its triple A rating, but this is not required here since the bonds are held by the ECB). Equally the usual requirement for 50% Member State co-financing is waived.
- Member States submit projects for funding that meet a small number of European guidelines (e.g. conformity to the goals of the Europe 2020 strategy, climate-change commitments etc.). A starting point could be the list in any case being drawn up for the Juncker Investment Plan. Some funding could also be reserved for pan-European projects, although the likely more extensive coordination demands involved risk implementation delays.
- Member States conduct the projects with monies being disbursed following agreed milestones. Ultimately member State governments are responsible to their electorates regarding the use of the money made available to them.
- After the agreed ECB holding period has expired the debt held by the ECB is to be serviced. Here, too, different options are conceivable. It can, but it needs not, be a feature of the scheme to extend the holding period indefinitely; see the discussion below.

Before looking at various specifications and options, it is worth noting some important advantages of this approach in the current economic and political context:

- A predetermined volume of additional real spending on goods and services is reliably and predictably injected into the sluggish European economy, raising real incomes and setting off multiplier and also anti-disinflationary effects (*cf.* IMF 2014: 75ff.). This is in marked contrast to QE on purchasing existing private or public sector assets: these do not of themselves create additional real spending, but rather rely on indirect and uncertain channels to raise spending, involve the vagaries of the financial sector and the risks of inflating asset bubbles etc.
- Government budgets are not burdened with additional debt for many years by which time real and nominal incomes and thus debt servicing capacity will be substantially higher. On the contrary, deficit and debt ratios will decline due to the faster nominal GDP growth. This is in contrast to strategies involving giving greater fiscal leeway to struggling economies: this adds to their deficit and debt (although, depending on the multiplier, not necessarily to the respective GDP ratios) and increases consolidation needs.
- Investment in areas crucial for Europe's future can be achieved, raising productive capacity and productivity and crowding in private investment. There will be no crowding out because there will be no increase in interest rates. There may be some upward pressure on inflation for a limited period

particularly if investment is also financed in low-unemployment countries like Germany. However, higher inflation, especially in Germany, is a boon not a bug of the scheme.

- An advantage shared with other QE schemes, the monetary expansion will tend to cause depreciation of the euro, raising external competitiveness.
- The scheme can be tailored in the light of political requirements. Depending on program design, and if political obstacles can be overcome, public investment spending can be concentrated in countries or regions with the highest unemployment and largest negative output gaps. But if there is no political support for such European-redistribution, the scheme can go ahead on a "juste retour" basis, albeit with substantially reduced effectiveness.
- The scheme relies on already existent institutions and can be implemented quickly.
- The program is in principle infinitely scalable, as the ECB can "finance" bond purchases with central bank money it creates at will, and it can be progressively wound down as necessary and contingent on incoming information about the state of the European economy. It is not mutually exclusive to other measures on the monetary or fiscal side (and could be rescaled accordingly).
- The scheme solves the problem of which assets the ECB should buy, offering a market of in principle unlimited size and a security on which the ECB faces no risk of capital losses (even if this is not economically, only politically, important – see below).
- The political effects for the process of European integration cannot be quantified, but are likely to be substantial. The projects and their joint funding would create a visible expression of a common European resolve to exit the crisis and embark on a path of shared prosperity and ecological modernisation. The Europe2020 Strategy would be given a substantial boost, rather than, as now, a constant remainder of failure. The current risks of political crisis (and secession) in some member states buckling under the huge economic and social pressures would be reduced.

A number of alternatives and variations exist within this overall approach, each with specific advantages and drawbacks. They relate, alongside the size and duration of the scheme, to the role of the ECB in purchasing EIB bonds, the allocation of funds between member states, and to the debt servicing and repayment options.

- Size and duration: As a point of departure a five year programme is proposed with a degressive bond issue of €250 bn in the first year (2015), falling by €50 bn each year. This represents roughly 2 ½% of Euro Area GDP in the first year falling by ½p.p. each year. The aim is to boost spending as fast as possible, but also to allow for the time needed to deploy resources efficiently. It would take the programme to the end of the Europe 2020 strategy period. The total volume (€750 bn) represents some three-quarters of the balance-sheet expansion apparently envisaged by the ECB. In the iAGS 2014 report capital investment needs of around €200 bn per year were identified. In the Commission's AGS 2015 an investment gap of between €230 and €370 bn is estimated. This is a serious understatement, however, presumably designed to show the appropriateness of the Juncker

Investment Package: it is based on reattaining an investment share of between 21 and 22% of GDP but "accepts" the heavily depressed level of GDP as the benchmark for that calculation, and in any case ignores the need for additional investment to meet agreed policy objectives. In the light of these comparators the proposals seems appropriately dimensioned, but it can be rescaled (and clearly would need to be smaller if it were targeted on the countries worst-hit by the crisis, rather than being spread across the whole currency area.

- Inflation target: In order to safeguard the independence of the ECB to pursue its mandate there should be a provision for the ECB to gradually wind down (taper) its purchases if economic conditions, and specifically the inflation rate, warrant this. Here it is proposed that central bank purchases would be wound down to zero over a six month period if the core inflation rate in the euro area exceeds 2.5% for three consecutive months. The 2.5% rate implies some limited overshooting, but this is more than justified given the prolonged and substantial undershooting of the inflation target. In order to avoid shocks to the financing process the EIB would continue to issue bonds. This would be non-inflationary as private-sector liquidity would be absorbed.
- Both fund disbursement and repayment can be designed in a number of ways, whereby an underlying trade-off between political feasibility and economic effectiveness needs to be borne in mind, reflecting the above-mentioned heterogeneity within the Euro Area. At one extreme would be a scheme in accordance with the principle "to each according to need, from each according to means". Funds would be made available primarily to the crisis countries on the basis of a combination of indicators such as the unemployment rate, the output gap or per capita income. Debt servicing and redemption (after the ECB holding period) would be "socialised", e.g. based on GDP weighting. The other extreme would be a voluntary scheme based on a "juste retour" principle. Countries may claim the ECB-backed EIB finance as they perceive their needs, and each country subsequently services its nationally-specific debt to the ECB. The first extreme is clearly politically infeasible, as the Eurobond/redemption fund debates have shown. The latter would be ineffective as uptake is likely to be very limited. Some middle way needs to be found that maximises the economic impact while meeting political exigencies. One solution would be to distribute investment funding on the basis of population. This would likely be perceived as fair, although Germany would receive the largest absolute disbursement. Even so, countries with higher financing costs and lower incomes and prices – i.e. the "crisis countries" – would actually benefit most in per capita terms. Repayment obligations could be entirely proportionate to funds received, or various European solidarity components could, given the political will to do so, be incorporated.
- A more radical proposal – although in fact it is much less so than it might appear – would be to extend the central bank holding period to "for ever", in essence removing the need for countries to repay the debt to the central bank. In other words the public investment is financed by pure money creation (helicopter money). This may well be politically difficult to "sell": it is counterintuitive, but economically there is no reason not to adopt this

approach. The debt servicing payments constitute income for the ECB; at the end of the year it transfers its profits back to its owners – ultimately the taxpayers. As both the government and the central bank are public bodies the monies paid essentially wander from the left to the right pocket of the public-finance trousers. The debt might just as well be extinguished. There is no real "loss" to the central bank in doing so. The only loss is higher inflation; normally this is a serious concern, but not in the current context (see Whelan 2014).

5. Conclusion

The euro area remains in a perilous situation, economically and politically. The threat of break-up has not been averted. In a number of countries opposition parties are gaining in strength that are openly calling for exit and/or default.

It is conceivable that a mix of less restrictive national fiscal policy, the European Investment Plan and aggressive quantitative easing by the ECB might jolt the euro area economy out of stagnation. This is highly uncertain however. First, **this chapter has showed that monetary policies by the ECB have not had a strong impact on growth, inflation and credit**. Second, **the Juncker Plan (Investment Plan for Europe) which is supposed to mobilise at least €315 bn in additional investment has important limitations**. The Plan runs for three years, so if fully realised the investment boost would amount to just over 1% of GDP each year. This would be welcome. However, the proposal is explicit that very little additional public finance is being made available. Rather the existing Structural and Investment Funds will be "fully exploited". Member States will be invited to commit funds, the incentive being that any such expenses will not count against the fiscal deficit. The key issue is that the bulk of the funding is supposed to come from private investors; the fund is highly leveraged. Given their apparent reluctance to invest in the current economic environment, it has not been made clear what the proposed scheme really changes in investors' calculations to justify expectations of a substantial increase. Even if private investment under the programme does take off, to what extent will it merely replace investment that was anyway planned (deadweight effect)? A previous and somewhat similar scheme largely failed to generate a significant investment boost. All in all, the scheme itself is unlikely to do harm – except for the risk that it might convince policymakers that anywhere near enough has been done. It would be foolhardy to expect the Plan to deliver a major boost to investment and output, however.

In order to underpin recovery, public investment and progress towards the Europe2020 goals, some form of public-investment-based QE financed by ECB purchases, for a limited period, can be considered, of which one type has been discussed in this chapter. As the literature cited above shows the view that such policies are necessary is increasingly gaining ground in the policy debate. The authorities should not leave it until it is too late. Another form of public policy may also be considered, like a package that combines a pan-European carbon tax with fiscal stimulus (see chapter 4).

The chapter has also discussed about the grey areas of the banking union and proposed a sectoral fund to escape a possible new wave of bail-outs in the future.

GREEN THE UNION: AN INVESTMENT STRATEGY TOWARDS A SUSTAINABLE EUROPEAN UNION

Restoring economic growth in Europe using monetary policy only, even of the unconventional variety, appears more and more to be insufficient and in desperate need of a second or third leg. In a much debated speech at Jackson's Hole this summer, Mario Draghi recalled this dramatic context in the fight against the risk of stagnation.

Structural reforms are often presented as a suitable complementary policy tool. However, aside from the vagueness of their content, they could prove recessionary, deflationary, and costly in the short term, procuring benefits in terms of potential growth in the long or medium term only. Even though some structural reforms may have positive impact on activity or prices in the short term, recent experiences, conducted in a period of large negative output gaps, tend to confirm the general intuition that positive impacts may be long to manifest (see Chapter 1).

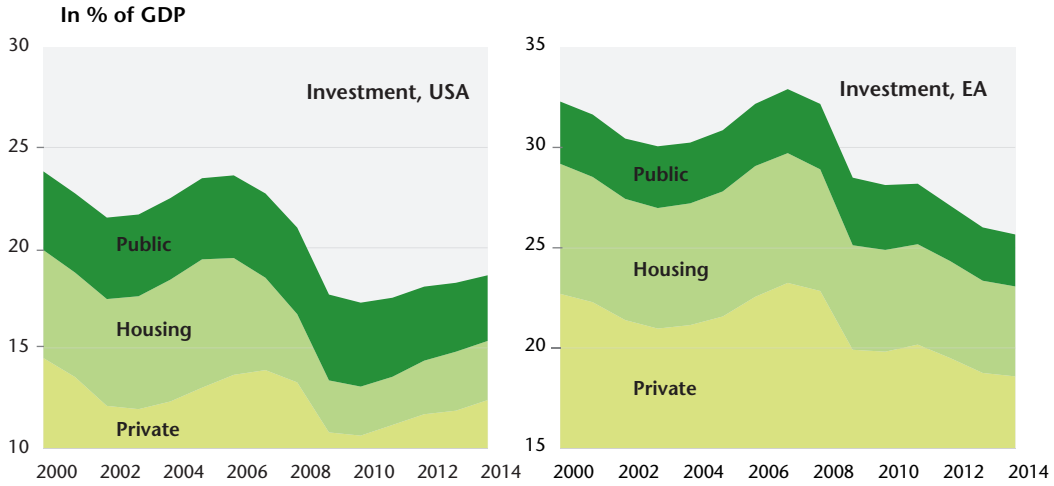
Fiscal policy could also be used as a complement. However, the governance of the Eurozone, notably the reinforced framework of the growth and stability pact (TSCG, 6-pack and 2-pack), combined with the continued weakness of Eurozone economies burdened by high cyclical deficits, have maintained restrictive fiscal policies across the Euro area. The Eurozone as a whole has now suffered from a cumulated fiscal impulse of more than *negative* 5 GDP points since 2010, explaining in part the double dip recession of the Eurozone starting in 2011. It remains important to salvage the heritage from the painful process to build fiscal governance in Europe, even if the current governance presents many flaws. In particular, when faced with a need for investment known to have a high social return because of climate change, the Euro area's fiscal governance still calls for consolidation despite enjoying very low sovereign rates.

Characteristically, one of the key aspects of the European economic malaise is the dramatic drop in physical investment since the onset of the crisis. Unlike other countries such as the US, investments in the Eurozone have not yet begun to recover (see Figure 1).

This situation is both a reflection of the current European macroeconomic context, and a cause for the continued sluggishness of economic activity in the Euro area. Worse, low investment threatens the long-term ability of the European economy to develop and service individual and social needs.

In reaction to this deadlock, dissenting voices are now defending that the European Union needs an immediate yet sustained boost in investment, to avoid deflation in the short-term, and to prepare for the future and improve its sustainability in the long term. This is the proclaimed goal of the "€300 billion investment plan" recently announced by the European Commission's newly elected president, Jean-Claude Juncker. The current proposal does not go nearly far enough though—the expected multiplier of 15:1 between private and public investments underlines the utter lack of fresh public funding committed to the plan. The ability of the new European Fund for Strategic Investments to mobilise hundreds of

Figure 1. Investment in the USA and the euro area



Source: OECD, *EO96*, december 2014.

billions of private money over three years with €21 billion of (mostly recycled) EU public money can be questioned. Worse still, the Juncker plan has not clearly determined its target sectors and the projects it could potentially fund. It has not identified either the channels through which the projected increase in investments will be financed, or the ways in which it could be sustained in the medium to long term (see Chapter 1).

A European investment plan should strive to maximize both its short-term impact on activity and its long-term effects on the sustainability of future European growth—particularly regarding official EU policy goals such as the 20-20-20 objective.[1] This entails that investment in business-as-usual, unsustainable "brown" infrastructure should be avoided, as it maintains the European economy on a development pathway that grows harder to reverse the later the transition towards sustainability begins. This irreversibility of infrastructure investment makes energy a high priority sector.

This paper identifies three sectors that fulfil the double criteria of short-term boost to growth and long-term sustainability: energy production and distribution, energy retrofit in the building sector, and sustainable mobility. For each of them, we will discuss the macroeconomic interest of investing in their transformation, as well as the capacity of the EU to stimulate and maintain an increase in investments: does the EU has the financial institutions and instruments to stimulate tens or even hundreds of billions of investments in these sectors in the short term, for example in the coming three years, and at the same time how could the EU ensure the stimulus in investments will continue over decades?

It is worth noting here that, when studying the financial capacity of the EU to increase investments, the public-private debate pops up: how much of the investments should be public, how much should be private, what is the leverage effect

1. European 2020 Climate and Energy Package, setting a target of a 20% reduction in EU greenhouse gas emissions from 1990 levels, an increase in the share of EU energy consumption from renewable sources to 20% and a 20% improvement in energy efficiency.

expected? We consider this discussion important, but think it is more relevant to base the analysis on sector specific studies and determine—from the ground up—what needs to be public money and what can be private money. More generally, we think that analysing the sectoral needs for investment is a better starting point to design an investment strategy than the source of financing or the relevant institutions and instruments to be used by the plan.

Beyond sector-specific analysis, it should be noted that in order to stimulate investments in the short and in the long run, it is not enough to inject public money and attempt to achieve the strongest leverage possible on private investments. In addition to the push strategy (introducing fresh money into an adapted financial pipeline), any European investment strategy should adopt a complementary pull strategy (attracting financing out of the pipeline).

By modifying the relative prices of different sources of energy, putting in place a carbon price can spur an increase in investment through the depreciation of existing energy- and carbon-intensive capital and an improvement in the profitability of, and therefore the demand for, the projects analysed in Section 1. This paper supports the idea of a "Carbon fiscal shock", whereby this effect on investment would be maximised by setting the carbon price at a relatively high level instantly, instead of following a more traditional progressive increase over time.

Section 2 presents this proposal, which could secure increased investments in the long run and strongly reduce the current European output gap. It discusses the conditions under which such a scheme could be implemented in Europe, notably in terms of compensation and border tax adjustments. The macroeconomic impacts of an EU-wide "Carbon fiscal shock" are then analysed through the results of simulation exercises using the ThreeME and E3ME models.

1. Where to invest and how to invest?

Given the double criteria of a short-term boost to economic activity and a long-term improvement of the sustainability of European economic growth, an EU investment strategy should:

— Put energy supply and energy efficiency in buildings and transport at its core, as these sectors are key for a sustainable economy and tend to have strong macroeconomic benefits (growth, jobs, trade and economic resilience);

— Build on the existing EU financial institutions and instruments to effectively deliver a short term boost in investment, and progressively adapt them to ensure this boost is sustained in the longer term.

This section investigates three sectors: energy supply, energy efficient buildings and energy efficient mobility. For each of them we identify the current investment gap and then discuss the short and long-term macroeconomic benefits of closing this gap for the European economy, distinguishing between:

— The growth impact

— The employment impact

— The trade impact

— The resilience impact.

Then we present the financial institutions and instruments the EU has at its disposal to boost investment in these sectors, and discuss whether there is a need for complementary instruments for the EU to effectively support higher investments in the short and in the long term.

From a general perspective, investing in mobility, housing and energy sectors is key to build an Energy Union that is much less dependent on costly energy imports, more resilient to energy price shocks and at the forefront of the fight against climate change on the road to the Paris Climate Summit in December 2015. Moreover, these sectors are labour-intensive and support the activity mostly in the construction sector—building construction and civil engineering—where the output gap remains wide: the activity in 2013 was still below the 1996 level.[2] With a longer term perspective, it turns that the energy and climate transition entails costs that are outweighed by savings: according to the European Commission Energy Roadmap 2050, the additional capital cost of a decarbonization pathway for the EU energy system is below €260 billion annually, whereas savings are above €310 billion.

Energy production and distribution

Why investing?

Investment gap. Improving European energy security, particularly in the face of heightened tensions with Russia, and fulfilling the EU energy and climate objectives for 2020 and beyond require large scale investments in the European energy production and distribution infrastructure.

Concerning the energy grid, the European Commission has been identifying since 2006 a number of Projects of Common Interests grouped under the TEN-E (Trans-European Networks – Energy) umbrella. These projects entail[3] extending the European gas pipeline network—notably the strengthening of reverse flow natural gas transmission capacities, thereby improving Eastern Europe's resilience; interconnecting Member States' electric grids, which will improve the effectiveness of the internal energy market and allow long-distance transportation of electricity, in particular when produced from renewable energy sources; developing "smart grids", to facilitate the integration of renewable electricity supply and improve load balancing. The European Commission has estimated that until over the decade leading to 2020, €70 billion will be needed for gas pipelines, storage, LNG and reverse flow infrastructure, and €140 billion for high-voltage electricity transmission systems.[4] Compared with the investments delivered during the past decade, the current decade needs a rise of investments by respectively 30% and 100% for gas and electricity networks.

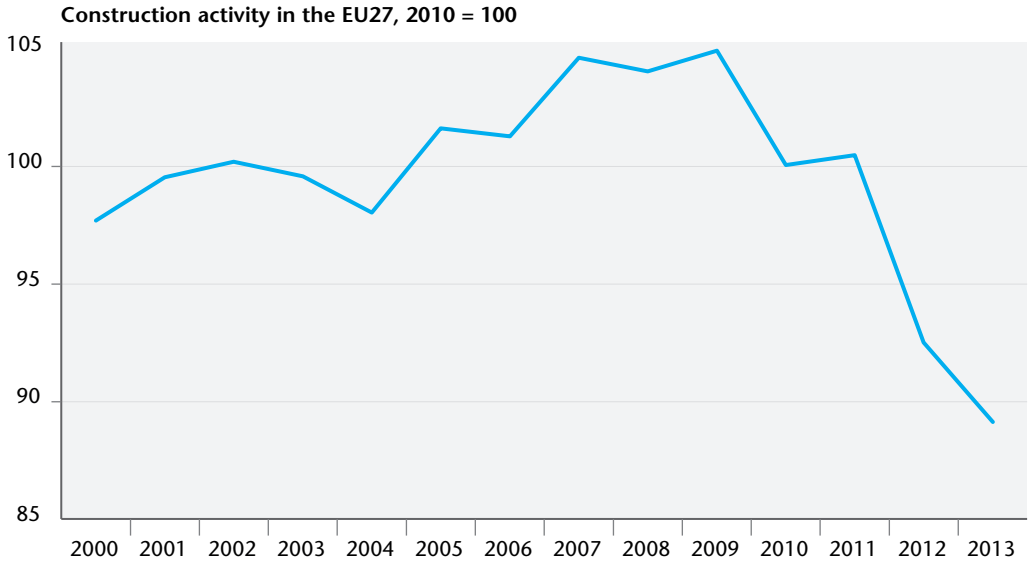
In addition, more than €120 billion have to be invested in additional renewable energy supply capacity[5] if Europe is to achieve its 2020 target. After weathering the beginning of the economic crisis fairly well, investments in new renewable energy production capacity have declined for the second year in a

2. Source : Eurostat.
3. Decision No 1364/2006/EC on Trans-European energy networks, http://europa.eu/legislation_summaries/energy/internal_energy_market/l27066_en.htm
4. MEMO/11/710, http://europa.eu/rapid/press-release_MEMO-11-710_en.pdf

row in 2013, suffering a precipitous drop of 41%.[6] This leaves ample room for a quick rebound in the deployment of new renewable energy production capacity in Europe.

Growth impact. Fulfilling the TEN-E and renewable agenda entails the completion of large scale infrastructure projects that would provide a Keynesian boost to the European economy in the short-term. Indeed, such investments would trigger activity in the civil engineering sector, a sector that has experienced a steep decline since 2008 and has not recovered yet (Figure 2).

Figure 2. Civil engineering activity in the EU27



Source: Eurostat.

In the longer term, the new gas and electricity infrastructure will improve the effectiveness of the European energy markets, with a beneficial effect on the level and stability of energy prices. If investments in renewable energy sources reduce the European energy trade deficit and protect the European economy from energy crisis (see below), their impact on long term growth remains uncertain however as it crucially depends on future fossil fuel prices.

Employment impact. The construction of new energy networks, whether it be pipelines or high-voltage power lines, would be accomplished by the civil engineering sector, with a relatively high average European labor intensity of 7.7 jobs

5. Estimation made using the Green-X model, developed by the Energy Economics Group (EEG) at the Vienna University of Technology under the EU research project "Green-X–Deriving optimal promotion strategies for increasing the share of RES-E in a dynamic European electricity market". Initially focused on the electricity sector, this modelling tool, and its database on renewable energy (RES) potentials and costs, has been extended to incorporate renewable energy technologies within all energy sectors.

6. This evolution needs to be nuanced by the falling cost of solar components: worldwide, 26% more solar capacity was installed in 2013 than in 2012 for an investment cost 20% lower. However, this can only account for part of the steep European decline in renewables investment: from 2011 to 2013, total investment fell from €92 billion to €38 billion.

per million euro of activity (vs 4 for the manufacturing sector).[7] Further, these infrastructure jobs would be purely European, and could not be off-shored. While some of the equipment used in the production of renewable energy is manufactured outside the EU, Table 1 shows that most renewable energy sources present a relatively high labor intensity.

Table 1. Direct and indirect jobs supported in the EU in 2012 per million euro of turnover, by energy source

Full time equivalents, FTEs

Wind power	8.9	**Heat pumps**	11.1
Solar power	8.2	**Biogas**	12.1
Solar thermal	11.5	**Biofuels**	7.9
Small hydropower	8.1	**Geothermal**	9.2

Source: The State of Renewable Energies in Europe, Eurobserv'er (2013), iAGS calculations.

Trade impact. Most of the infrastructure planned in the TEN-E projects, such as pipelines and high-voltage power lines can be produced within the EU. This is not the case, however, for all renewable energy supply equipment. Whereas the EU-27 has a considerable trade deficit with the rest of the world in solar components (European Commission, 2014),[8] the situation is reversed for the other main renewable energy source offering a large investment potential, wind power: in 2012, the EU had a trade surplus of more than €2.45 billion with the rest of the world.[9]

The risk for an increase in the trade deficit on solar components is dwarfed by the potential improvement that renewable energy sources promise to bring to the energy trade deficit. In 2012, EU trade deficit in energy products with the rest of the world reached €421 billion, or 3.3% of EU GDP[10]—almost three times as high as in 2004. The European Commission estimated that in 2010, renewables had already allowed to avoid €10.2 billion in imported fuel costs for electricity generation, €12.2 billion for heating and €7.6 billion for transport (Eurobserv'er, 2013).

Resilience impact. The proposed improvements to the European energy grid, along with the increased deployment of renewable energy sources, would help insulate the EU from future energy price or supply shocks. Investing in these projects would help avoid a repeat of the January 2009 gas crisis, when from 6 to 20 January, the 28.6% of European natural gas consumption that transit through Ukraine were cut off (European Commission, 2009).

Besides, the expansion of renewable energy generation in Europe is central to the achievement of Europe's objectives of greenhouse gas emissions reduction. Reaching a milestone of 20% renewable energy supply by 2020 is, along with a

7. Source : Eurostat.
8. As noted by the European Commission in a recent report, "the EU-27 has a considerable trade deficit with the rest of the world in solar components and equipment", amounting to €9 billion in 2012—mostly with China. While still very large, this deficit has been halved since 2010, when it stood at €21 billion.
9. Source: Eurostat.
10. Source: Eurostat.

20% improvement in energy efficiency, the pillar that will allow Europe to succeed in reducing its greenhouse gas emissions by 20% in 2020 from its 1990 level.

How to boost the investment?

State of the art

In order to finance the upgrade of projects targeted by the Transport European Networks in Energy, Transport, and Communications, the European Commission has set up the Connecting Europe Facility (CEF) in 2013 by a new European Regulation.[11]

In the energy sector, the CEF aims at closing the estimated investment gap of €60 to €70 billion (European Commission, 2011) in the development of European energy infrastructure. By providing technical assistance, coordination among member states and co-financing from 10% to a maximum of 50% of a project's total costs, the CEF intends to unlock investments that could not have been made in its absence. In particular, it targets an increase in private funding by bringing in new classes of investors such as pension and insurance funds through new innovative instruments such as project bonds initiative. Importantly, it will also provide grants to enable the funding of projects which, while providing very strong positive externalities, are not commercially viable in the current economic environment.

The Connecting Europe Facility complements the existing funding from the EIB, along with other existing European programs which also participate in cross-border energy infrastructure, most notably the Cohesion and the Structural Funds. More generally the CEF seeks to avoid duplicating existing European instruments, and to integrate and coordinate with existing programs, such as the Common Strategic Framework or the Partnership Contracts.

On the renewables front, while the bulk of investments are largely carried out by private banks, public finance institutions are essential in catalyzing renewable energy investments. These institutions mostly offer loans on favorable terms, guarantees, but also provide equity or grants (Eurobserv'er, 2013). After a decrease from 2011 to 2012, the EIB stepped up its support for renewables in Europe to €6.4 billion in 2013, a doubling from the year before. It represents a major actor in this space, providing a channel through which future renewables investments can be disbursed.

Issues for today and for the future

To increase investments in energy grid, the EU already has at its disposal the newly established CEF. This Facility however is under-funded. Indeed, €5.85 billion have been made available for energy infrastructure over the period 2014-2020 whereas, during its design phase in 2011, the European Commission estimated that "nothing less than €9.1 billion will suffice to make sure that the infrastructure Europe needs is built in time".

Similarly, provided that the EIB financial support is stepped up, existing financial instruments appear adequate to bring European investments in renewables

11. Regulation of the EP and of the Council of 11 December 2013 establishing the Connecting Europe Facility. Official Journal of the European Union.

back to their 2010-2011 levels. But the cost of financing renewable energy projects remains an ongoing concern: perceived risks on the evolution of support policies, volatility on the energy markets, difficulties in obtaining licenses and other administrative roadblocks all contribute to increase the cost of financing. This increased financing cost can have a large impact on the ultimate cost of the electricity delivered by the renewable energy installation over its lifecycle, impacting its profitability and competitiveness negatively.[12] There clearly is a need to enhance the link between local projects (generally financed by retail banks) and the financial market. This intermediation could be facilitated in several ways, through concessional loans,[13] securitization vehicles to improve the refinancing options for retail banks and potentially guarantee funds to reduce the cost of capital and facilitate the implication of institutional investors through harmonized and large-scale products (Ecofys, 2011).

Energy efficient buildings

Why investing?

Investment gap. Capturing the full potential of energy efficiency in European buildings require the financing of large-scale deep renovation of the existing building stock. Indeed, with a construction rate of around 1% per annum[14] and a demolition rate an order of magnitude lower (Thomsen & Flier, 2009), renewing the building stock with new, energy efficient constructions cannot be enough.

The European Commission (2012) estimated that €60 billion would be needed annually from 2012 to 2020 to conduct a moderately ambitious energy renovation of the European building stock. Copenhagen Economics (2012) estimated that conducting a deep retrofit of the whole existing stock would require €78 billion per annum over the same period. It should be noted that only a deep renovation can capture the full energy efficiency potential without risking to "freeze" part of the savings in place through a partial retrofit[15] (IEA, 2013c).

Growth impact. The buildings construction sector accounted for 5.4% of EU's GDP in 2013 (compared with 6.4% in 2008), and has been one of the hardest hit since the beginning of the economic crisis. European construction output in 2013 was more than 22% below its level of 2007 and had been falling for 6 years straight. The construction sector is thus primed for a rapid rebound given an increase in energy renovation investments. Moreover, it is largely composed of SMEs, with 61% of output produced by companies of 50 employees

12. According to the IEA, reducing the discount factor (including cost of capital and risk premia) from 10% to 5% can reduce the levelized cost of electricity generation from highly capital-intensive assets (such as wind and solar power) by up to 30% over the entire lifetime. Projected costs of generating electricity, International Energy Agency (2010). See also: Towards triple-A policies, RE-Shaping project, Ecofys *et al.* (2011).
13. The German KfW's concessional loans for renewable projects (with interest rates starting at 1% for up to 20 years) is generally considered a good example. The preferential interest rate is achieved through the provision of low-cost finance through international markets and limited public support to further reduce interest rates.
14. Source: Eurostat.
15. A partial renovation can lead to a suboptimal situation where a full renovation is no longer possible, thereby locking some of the potential energy savings away.

or less,[16] which make up one of the main focal point of many European financial support programs.

On a longer-term perspective, the impact of energy renovation on growth appears to be very dependent on future fossil fuel prices and on the modalities of the energy renovation policies implemented. For example, a policy that promotes deep and "one-shot" energy renovation of buildings at the same time they have to undergo other renovation operations will be more likely to have a strong beneficial impact.

Employment impact. The high labor intensity of energy renovation, estimated as high as 17 full-time equivalents per million euros invested (IDDRI, 2012), is expected to support a large number of jobs creation.[17] Besides, with 12 million less employed in the construction of buildings in 2012 than in 2008, there is a large pool of unemployed qualified professionals in the sector.

However, in a longer term, there is a need for some capacity development in the construction industry to master the necessary skills and techniques—which requires complementary policies to support the investment effort. Indeed, deeper renovations require more skilled crews, with deep energy renovations requiring an estimated 30% professionals among crews, compared with 5% in a base renovation (Herrero *et al.*, 2011). This increases the level of qualification of the jobs created.

Trade impact. The European construction sector is almost entirely domestic. The impact of investments in energy renovation would thus directly benefit the domestic economy. The situation is comparable regarding construction materials: with a surplus of €9 billion in 2013, the EU is a net exporter of non-metallic minerals. Moreover, buildings account for 38% of the total EU natural gas consumption (IEA, 2013a): energy savings in this sector would thus help reduce the €72 billion natural gas imports bill.

Resilience impact. The buildings sector accounts for close to 40% of final energy consumption in Europe (IEA, 2013d) and has long been identified as the sector offering the largest energy savings potential. Fraunhofer (2009) estimates the full energy savings potential at 165 Mtoe when cumulated until 2030. Further, buildings account for 38% of the total EU gas consumption (IEA, 2013a). In particular, this proportion reaches close to 50% in most Eastern Member States, such as Poland, the Slovak Republic or the Czech Republic, which import more than 90% of their natural gas from Russia (IEA, 2013b). Energy savings in this sector can therefore play a central role in the reduction of Europe's gas dependency, particularly towards Russian gas.

How to boost the investment?

State of the art

The buildings sector is highly fragmented: it comprises a large variety of building types, which serve very different residential and non-residential needs,

16. Source: Eurostat.

17. The reduction of employment in the energy sector following the decrease in energy consumption is expected to be small compared with the number of jobs creation in the buildings sector, due to the very low labor intensity of the energy sector—see in particular (Quirion, 2010).

and its ownership structure is varied and scattered.[18] As such, improving the energy efficiency of the buildings sector combines most of the main barriers traditionally identified when analyzing the lack of investment in energy efficiency (IEA, 2007): the relatively low level of energy expenses in the buildings sector hampers the effectiveness of price signals, access to capital for energy renovation remains difficult, the incentives of owners and occupants can prove divergent (principal-agent problem), and finally, a general lack of awareness on energy efficiency potential benefits and best practices prevents households and commercial buildings owners alike to take action.

These roadblocks pose specific challenges to investment in energy renovation, and require innovative financing arrangements. The European Union has put in place a range of programs in the field of energy efficiency, particularly buildings energy retrofit.

— **Joint European Support for Sustainable Investment in City Areas (JESSICA)**. This program makes use of the Structural Funds to develop financial engineering instruments aimed at "strengthening the urban dimension in cohesion policy through repayable assistance". JESSICA operates through a series of specific funds (872 in 2013) that can offer revolving equity,[19] loans and loan guarantees to local authorities across the EU, in order to support sustainable urban development—including energy retrofits. These funds can be supervised by a holding fund handled by a financial institution, such as the EIB, or directly by a national, regional or local managing authority. As of December 2013, JESSICA had committed €591 million for energy efficiency, mostly in the buildings sector, an increase of 31% over 2012. However, with only 4% of the total €14.3 billion committed in 2013, energy efficiency investments made through JESSICA can still grow significantly.

— **European Energy Efficiency Fund (EEEF)**. The EEEF has been put in place in July 2011 to provide loans, loan guarantees and equity through PPPs with European municipalities, local and regional authorities, or "private authorities acting on their behalf", such as utilities, public transportation providers, social housing associations, ESCOs. **Set up with an initial endowment of** €265 million, the EEEF had committed €146 million across 7 projects by the end of 2013, spanning energy efficiency, renewable energy and clean urban transport. **The fund targets projects in the €5 t**o 50 million range, suitable for the energy retrofit of large buildings or entire districts.[20] This fund could be used as a channel for further financing of medium—to large-scale energy retrofit projects.

— **European Local ENergy Assistance (ELENA)**. This joint EIB-European Commission initiative assists local and regional authorities in preparing

18. More than 70% of the EU population owning its dwelling, 18.5% renting at a market price, and 11% in social housing.

19. It should be noted that even in the case of equity investments, this program does not offer grants—the equity provided through JESSICA is repayable over time so as to be reinvested in the future.

20. Examples include the energy retrofit of the Jewish Museum Berlin Foundation, with €1.7 million invested out of a €3.1 million total, or of the University Hospital S. Orsola Malpighi, with €31.8 million out of a €41 million total.

energy efficiency or renewable projects. It is not a financial support program for investment *sensu stricto*, since it provides grants covering up to 90% of the preparation costs of an energy efficiency project.[21] The role of ELENA is crucial: given the complexity of existing European financing mechanisms, assistance is often needed for local authorities to design eligible project proposals. **Indeed, with only €49 million disbursed** in technical assistance, ELENA has enabled more than €1.6 billion of investments, an "assistance leverage" of more than 32.[22] Expanding this type of program is key to overcome the apparent lack *of fundable p*rojects often underlined by financial institutions such as the EIB (Kollatz, 2014).

Financing issues for today and for the future

If one remains far from the level of investment needed to conduct a deep retrofit of the entire European building stock, the EU appears to be well positioned to boost investments in public buildings and/or large scale commercial buildings through its existing institutions and instruments. Indeed, boosting investment requires ensuring:

— First, financial support for energy renovation is tied to the performance level of the renovation. Otherwise, there exists a risk of funding partial and ineffective retrofits that do not capture the full energy savings potential.

— Second, financial support must be accompanied by supporting policies to build capacity in the buildings sector to deliver deep energy retrofits. This entails training programs, information campaigns and technical assistance.

The EU already is well positioned to help on all these fronts. It can enforce that its financial arms active in energy renovation, such as the EIB and programs like JESSICA only provide loans to renovation projects that promise a certain level of energy savings—similar to what the KfW Energy Efficient Renovation program offers in Germany. It can greatly expand its technical assistance program, such as ELENA, and extend their mandate to also cover capacity building beyond the sole local authorities, and across the buildings industry stakeholders. This two action points would enhance the sustainability of a short-term boost to energy renovation investment. To enhance it even further, the EU should develop third party financing building on its experiments with this type of innovative schemes through the forfeiting loans offered by EEEF to municipalities (Box 1).

However, while existing EU instruments are well adapted to support energy renovation in public buildings and/or large scale commercial buildings, they fail to fully support residential renovation. Investments in the latter can be unlocked through third party financing: the EU can help develop these practices for the residential sector by supporting national or local energy efficiency institutions in the Member States, which have the capacity to design and manage energy renovation projects in lieu of the homeowners (see box below).

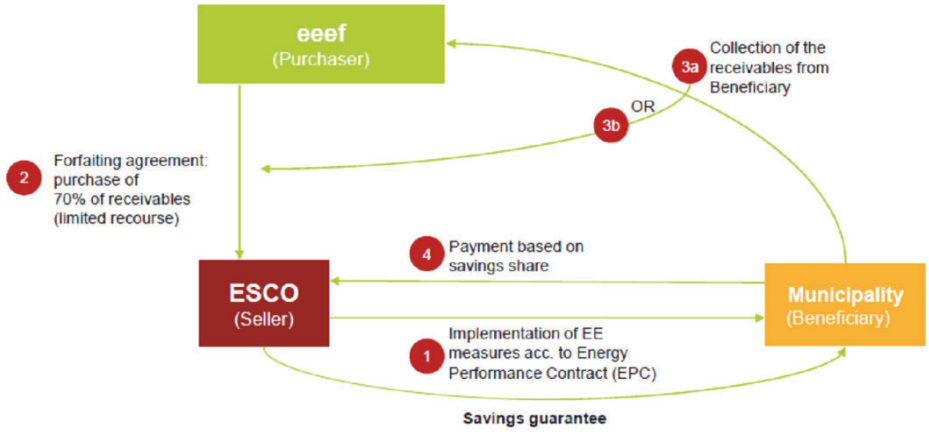
21. Including program structuring, business plans, energy audits, or tendering procedures and contracts preparation. It can also fund project implementation units.
22. ELENA – European Local ENergy Assistance, EIB (2013).

Box 1. Third-party financing

Third-party financing, where the loan financing an energy retrofit is neither carried by the occupant nor the owner of the retrofitted building, relieves the beneficiary from all liquidity constraints. Further, by having companies conducting the renovation carry part of the financing loan to be repaid through future energy savings, this kind of scheme ensures that renovation companies' incentives are well aligned with the ultimate performance of the energy retrofit.

The EEEF is already experimenting with this type of financing in the field with their forfeiting loans, used for the €1.1 million energy renovation of the University of Applied Sciences in Munich.

Figure 3. Example of third-party financing used by EEEF



Source: EEEF (Europeam Energy Efficiency Fund).

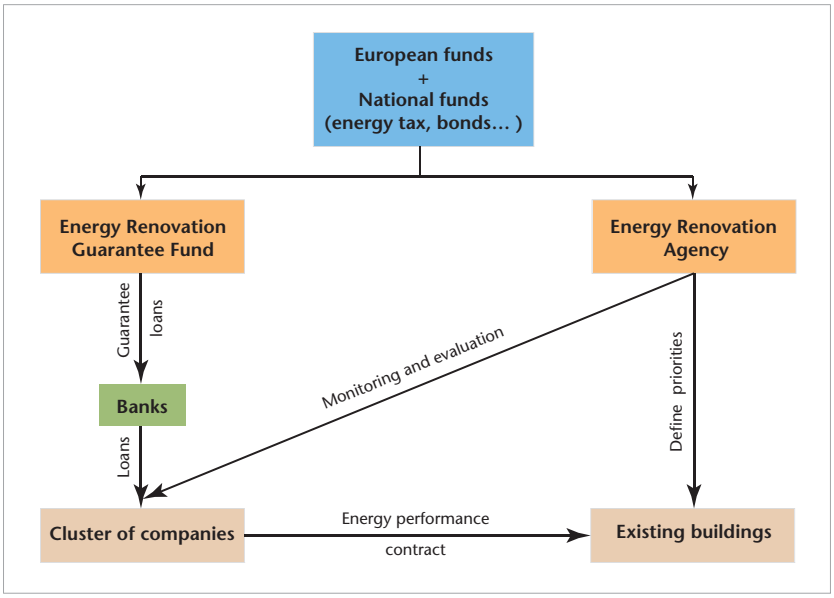
In this arrangement, the Energy Service COmpany (ESCO) commits to achieve energy savings for the municipality through an Energy Performance Contract (EPC) (step 1). This EPC serves as collateral to the loan financing the renovation. The loan is to be repaid using part of the energy savings. The EEEF then purchases part (in this example 70%) of the net present value of future municipality payments (step 2), thereby taking on most of the risk on the actual delivery of the promised energy efficiency improvement. The municipality then pays back part of its energy savings to both EEEF and the ESCO (steps 3 and 4), in proportions depending on the split made at step 2 between the two institutions. In such a scheme, the beneficiary does not have to invest capital, carry a loan, or master the required know-how to supervise an energy renovation. Everything is handled by third parties, under the supervision of EEEF.

A similar, broader financing model is being developed at the European Joint Research Centre (JRC, 2014). It aims at being applicable at a much larger scale, to enable deep energy retrofit for residential housing.

In this model, an Energy Renovation Agency reporting to the government will be needed to supervise the entire energy renovation process. When a dwelling is to be renovated, the Agency sets up a tendering process to be answered by a cluster of companies that combines all the expertise necessary to successfully carry out the energy renovation. To finance the renovation, the cluster of companies takes out a long-term loan that will be reimbursed using future

energy savings. These savings are guaranteed by an energy performance contracting between the cluster of companies and the dwelling—that is, companies are responsible for the successful reduction in the energy consumption of the renovated dwelling. It is important to note that just as in the PACE program, the energy performance contract is tied to the dwelling itself, and is to be transferred in case of a change in ownership. Finally, to facilitate the involvement of commercial banks, loans granted to finance energy retrofits would be guaranteed by an Energy Renovation Guarantee Fund, thereby mitigating uncertainties on the actual magnitude of future energy savings.

Figure 4. Third-party financing scheme proposal (JRC, 2014)



Source: JRC (2014).

European funds would be essential in setting up the Guarantee Fund, and possibly in helping funding or developing the Renovation Agency where needed. Setting up this type of financing scheme today would establish sustainable channels through which future European financial support can be deployed.

Energy efficient mobility

Why investing?

Investment gap. According to the European Commission (2011), the need for investment in transport infrastructure development in EU Member States for the period 2010-2030 has been estimated at over 1.5€ trillion. By 2020, the need for investment projects of trans-European interest (the Trans-European Network Transport projects) is about 500€ billion, half of which for what is now called the "core network" of the EU transport system. The Commission defines the core network as those projects "that carry the main concentration of trans-national traffic •ows for both freight and passengers. It will ensure the effective connectivity of the Eastern and Western parts of the Union and of its peripheral regions to

the central ones". Most projects that constitute the core network are rail and port infrastructures,[23] hence contribute to a more sustainable mobility system.

However, while the need for investment is high, EC's forecasts point the risk of a serious financing gap if no vigorous action is taken for attracting investment. For example, as regards the projects of trans-European interest, forecasts indicate an investment of 48€ billion per year, 21% lower than what has been realised for the period 2007-2013. Similar "financing gap" concerns exist for urban mobility projects as the share of the European population living in cities—around 70 currently – is still growing and should reach 80% by 2035 according to the United Nations. Funding needs for operational and capital expenditure may double by 2040 (Booz & Company, 2012) whereas local budget are under tight constraints.

Growth impact. Transport infrastructure investments trigger economic activity in the civil engineering sectors where the output gap is wide (see above). This makes such investments particularly relevant to create a short term stimulus effect on the economy. To guarantee their longer-term macroeconomic benefits, infrastructures have to be proved to be socio-economically beneficial including through appropriate market studies.

Employment impact. Investment in transport infrastructure triggers activity mainly in the civil engineering sector, where employment is low currently and where labour intensity is relatively high (see above). Beyond the construction phase and in a longer-term perspective, it is worth noting that the construction of trains or tramways is relatively labour intensive when compared with the manufacturing sector or, more specifically with the automobile industry (4.7 vs 2.7 jobs per million euro).[24]

Trade impact. In the short term, infrastructure development benefit to the EU domestic economy notably through the construction sector. Beyond the construction phase, rail infrastructures support mostly the EU economy: as pointed by the Commission in its White Paper on Transport in 2011, many European companies are world leaders in infrastructure, logistics, traffic management systems and manufacturing of transport equipment, although this position has still to be maintained. Moreover, the oil imports savings—that will arise if investments focus on resource efficient infrastructures in rail and water—are important and contribute massively to the trade balance.

Resilience impact. Investments in transport infrastructures—once again if focused on most sustainable transport modes—may increase drastically the energy security of the EU, as the current mobility relies at 96% on oil and as transport represents around 60% of the European oil consumption. From the climate perspective, it appears that a quarter of EU greenhouse gases emissions are generated by the transport sector, and that it should cut them by 60% by 2050. Moreover, the total external costs of transport in urban areas (congestion, air quality, accidents, noise and CO2) is estimated to be about €230 billion annually (European Commission, 2013).

23. Regulation of the EP and of the Council of 11 December 2013 establishing the Connecting Europe Facility. Official Journal of the European Union.
24. Source: Eurostat.

How to boost the investment?

State of the art.

Although the needs for investment are important, the transport sector risks a financing gap be it for urban or trans-European projects. The main issue here is that the bulk of investment in transport infrastructures has been and is provided by the public sector, a public sector under tight fiscal constraints in the aftermath of the financial crisis. What are the tools the EU has at its disposal in order to increase investment in transport infrastructures? Both for trans-European projects or for more local ones, it has a set of institutions and instruments already in place.

In order to speed up investments in the "core" transport network of the EU, the already mentioned Connecting Europe Facility has been created in 2013 by a new European regulation.[25] Although dedicated also to digital and energy networks, the bulk of its financial support goes to transport projects: 26€ billion for the 2014-2020 period, with a strong emphasis on rail. Coupled with potential EIB loan, the support from the CEF will take mainly the form of grants, as otherwise this type of projects of European value added would not be implemented. Grants may amount from 20 to 50% of the project cost, and up to 85% for specific projects in Member States eligible for Cohesion fund. European Commission expectations are to trigger around 120€ billion of investments in transport infrastructures (European Commission, 2011),[26] mostly from the public sector.

Within a context of tight budgetary constraints, the CEF is also expected to act as a catalyst to attract funding from the private sector. That is why it will build on the new financial instruments put in place in cooperation with the EIB, such as the Loan Guarantee Instrument for trans-European transport network projects (LGTT) or the Project Bond Initiative.[27] For transport infrastructure, a market uptake of 2€ billion is expected by the European Commission (2011) from these innovative instruments, with an expected multiplier effect of 1:15 to 1:20. The use of such instruments is supposed to be progressive: it is notably capped to 10% of the CEF funds until 2015, and this cap may be raised to 20% at a latter stage.[28]

Beyond the trans-European projects considered by the CEF, there are important investment needs in infrastructure for urban mobility. The existing EU instruments to support these projects are:[29]

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25. Regulation of the EP and of the Council of 11 December 2013 establishing the Connecting Europe Facility. Official Journal of the European Union.
26. The 32 billion expected for the transport infrastructure sector where supposed to leverage 140 to 150 billion.
27. "The Europe 2020 Project Bond Initiative, for which the pilot phase has been launched in 2012, is envisaged to become the main EU instrument to help the promoters of individual infrastructure projects attract private sector investors, in particular insurance companies and pension funds. This initiative will enable the issuance by project companies of long-term well-rated bonds instead of relying only on bank lending. The participation of the European Commission and the EIB will mitigate some of the risk associated with a project bond issued to finance a specific project. Member States, infrastructure managers or companies will therefore be able to access a competitive source of finance and consequently improve the cost of financing such projects." CEF Brochure.
28. Communication of the Commission, 7 Jan 2014, on the building of the core transport network.
29. We do not mention here the CIVITAS program that "provides funding and technical support for demonstration, evaluation and implementation of innovative technology led projects, but is focused on promoting innovation rather than addressing specific needs across Europe".

— The Structural Funds and the Cohesion Fund. They are the major financial instruments in place to support investment in mobility infrastructures. Over a fifth of regional funding is allocated to transport. In addition to the grants provided by these funds, resources are also available from the EIB and the European Bank for Reconstruction and Development (Booz & Company, 2012). Between 2007 and 2013 however, only 9% of all credits allocated by the Structural Funds to transport (€82 billion) were dedicated to urban transport.[30]

— The JESSICA programme (see above in the building section). It enables cities to access private finance for urban regeneration projects, but is limited to projects that can generate a sufficient commercial return.

— The JASPERS programme that assists cities in managing delivery of already funded urban mobility projects.

Financing issues for today and for the future

Be it through the CEF, the EIB or the Cohesion and Structural Funds, the European Union seems to have the necessary institutions and instruments to increase investment in transport infrastructures within coming years. The CEF for example could get more credits: the European Commission had asked for 6 billion more for transport in its first proposal European Commission (2011). For more local transport projects, the EIB and the Structural and Cohesion Funds could increase their investment contributions.

However, the rise in investment will hardly sustain if the investment capacity of the public sector is not increased. Indeed, if the overall EU financial contribution could leverage many other investments, these investments are traditionally mostly being made by the public sector, be it at the national or at a more local level. It is worth noting that there are new innovative financial instruments trying to attract private investors, and that there is probably again much room for them to develop. But talking about transport infrastructures, it is likely that most investments will have to be made by public investors, and that they will have much trouble making it as long as these investments are counted as debt.

Beyond the issue of access to funding, the long term improvement of urban mobility requires a focus of improving the capacity of cities to use fundings, plan and implement projects. This could be reinforced through JASPERS for example that provides technical assistance. Booz & Company (2012) suggests moreover that there may be a need for « the creation of a new financial instrument to better address the capabilities, capacities and innovation requirements of local agencies to deliver significant gains in urban mobility outcomes".

Cross-sectoral conclusions

The sector analysis above has shown that closing the investment gap in energy supply, energy efficient buildings and transports may have a number of macroeconomic benefits, both in the short and in the long term. In particular,

30. Resolution du parlement européen sur un plan d'action sur la mobilité urbaine, 2009. http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+REPORT+A6-2009-0199+0+DOC+XML+V0//FR#title1

these sectors prove to be relatively labour-intensive and to support activity in building construction and civil engineering where the output gap is wide.

Maybe more original is the fact that the EU appears to have a set of financial institutions and instruments already in place, and sometimes recently established, to effectively boost investment in these sectors. In other words, provided additional public money is made available, the EU has the ability to trigger a short term rise in investments in energy supply, buildings and mobility without having to design and implement new financial tools. For the increase to be sustained, the EU should ascribe some of this additional funding to its most innovative tools, and develop new ones such as third financing for building renovation and—most importantly for transport infrastructures—address the fiscal constraints on public actors.

2. A "Carbon price shock" to boost investment

Delivering the investments needed for building an Energy Union is not only about injecting some public money from the EU and MS and try as much as possible to have a strong leverage effect on private investments. As shown by previous sector-specific analysis, there is a need for policies and measures to support investments in the short and in the long run: adapted feed-in tariff for early renewables, technical and financial assistance for housing renovation, norms to guide and anchor expectations, appropriate road taxation to increase modal shift to rail and waterways and so on.

More generally, in addition to the push strategy (put fresh money into an adapted financial pipeline, target money to selected sectors which are believed to be of strategic importance), a sound plan should adopt a complementary pull strategy (attract financing out of the pipeline) through appropriate tax systems, laws and norms, technical assistance. This section argues that a "Carbon fiscal shock"—accompanied by appropriate compensation schemes—may not only attract financing for low carbon investments, but also strongly boost both public and private investments. By over compensation for a limited period of time (eg 5 years), implementation of carbon price (with a tax, an Emission trading scheme (ETS) or crediting instruments) would be facilitated and over compensation would provide a short term boost to the European economy, helping to fight against the risk of deflation.

The point of this scheme is to combine the necessity to get out of the crisis, i.e. increase activity in order to reduce unemployment swiftly, and to put the EU economy on the track of a real carbon emissions reduction. A high enough carbon price (see Box 2) is one of the tools to make carbon emission reduction happens.

Recent experience has shown that carbon taxes, or carbon prices as in ETS, may encounter serious opposition. High costs on certain individuals, lock-in in investments and technologies that imply high cost when switching to low carbon solutions, direct impact on competitiveness when carbon price is high in one country but low or inexistent for competitors, a loss of competitiveness which can also result in carbon leakage and compromise the efficiency of the carbon price. High level of taxes and degraded balance sheets are in today's EU another obstacle to accepting a carbon price, not to say a high one. Positive experience of carbon price implementation are often obtained through a full policy package

helping the transition, including decreases in taxes (see World Bank 2014 – State and trends in carbon pricing).

Full carbon recycling and overcompensation would thus be constituent of the full policy package making the pricing of carbon more desirable. It is usually considered that a ramp approach to carbon pricing is more optimal. Slow adaptation is indeed needed due to investment irreversibility and a (slowly) growing price of carbon help to form sound expectations. The proposal made here take the other side of bets by calling for a rapid increase in the carbon price and then a stabilisation at a rather high level (a stepwise increase in carbon price). What is lost in time to adapt is gained in credibility and trust in the recycling of carbon revenue. Nevertheless, because of an operating EU ETS, carbon price increase can be slower for large firms than for households or scattered CO_2 emissions by office buildings. Over compensation is thus a way to offset the stepwise increase in carbon. As it can be directed on specific individuals or may be sectors, it allows addressing different speed of carbon pricing for different economic agents.

Thus, over compensation is not only justified because it has a positive impact in the short term on the economy. Over compensation, by making carbon pricing acceptable and less costly to economic agents, is an investment for the transition. It is not the type of investment which one spontaneously think of when referring to an investment plan like the Juncker Plan, but, as it is increasing the success and the ambition of engaging the economy on a path of lower carbon emission, it can have more social return than any kind of investment. By making private or public physical investment in low carbon equipment or infrastructure more profitable, it provides the shock on the rate of return of capital we are desperately seeking. Moreover, investing in the possibility of the low carbon economy is a public investment by nature, i.e. the kind of investment private sector is not going to finance and for which public debt is justified. We present a financing scheme for the over compensation, where public debt is a mutualized debt to participating countries and can be used as a monitoring method for a cooperative carbon pricing.

This section presents the proposal of a "Carbon fiscal shock" and proposes to address its negative effects through two measures: a Compensation scheme and a Carbon tax on imports. A transition fund would allow for carrying public debt generated in the transition period, debt repaid back on a longer term (eg 20 years), backloading the initial stimulus and accompanying policies. A simulation of such an EU wide Carbon fiscal shock is then presented and discussed.

Paris Climate Summit at the end of the year 2015 could be a decisive moment to launch such an initiative and credibly engage in climate change mitigation and stagnation threats response.

Proposals

Proposal 1: A stepwise CO2 price increase to boost investment

The core of the proposal is a steady increase in the social price of carbon for the EU simultaneously, from a low 5 to 10€ presently to a higher 50 to 150€ per ton of CO_2. Instead of a slow ramping in the price of carbon, the price of carbon would be high initially and would not increase in the future. Later on, it could even diminish, reflecting then the marginal cost of abatement of CO_2.

A high initial price would aim at a higher rate of depreciation of capital, a higher marginal productivity of capital, inducing a loss in capital (whereas smoothed by some compensation packages) but a boost in private investment. A social price of carbon would have a similar impact on public investment, and given that some flexibility is granted to Member States on the calculus of public deficit, public investment would be a strong driver of the investment boost.

The social price of carbon can be affected through a minimum price of carbon on ETS and a tax for non ETS economic units. Public subsidies to green investment, lowering the cost of capital can be a second option, which may seem more acceptable, but this option implies rising taxes in order to finance subsidies. It raises the problem of monitoring and certifying the emission reduction content of investment. As a (large, depending on sectors) part of emission reduction is achieved by change in behaviour, investing in the right technology does not necessarily deliver emission reductions. For that reason, letting the price of carbon flow from the easily accountable sources (fossil fuels, concrete, fertilizers consumption) to the final prices is appealing.

Addressing negative effects

A high carbon price would have negative effects that have to be considered, mainly through 3 channels: 1. loss of consumption by high carbon emitters among households. High carbon emitters may be poor households with low possibility of substitution because energy is a primary good and because choices made by households forbid rapid adaptation to a large shift in relative prices. 2. The same effect arises for producers who cannot shift rapidly (or without depreciating a large quantity of capital) on their production function when facing a change in relative prices. The high carbon price would have a strong negative impact on their balance sheet or on their ability to operate their business. The irreversibility of investment (as in the case of households) is the cause of the loss occurred. 3. A general loss of competitiveness generated by a higher cost of energy in the EU compared to the cost of energy in other parts of the world where such a carbon price wouldn't be implemented. That effect could be even stronger if energy efficiency is improved in Europe and global energy demand is reduced as a result. Carbon leakage, through the localisation of carbon emitting industrial processes where they are less priced or taxed could result in an overall increase of global carbon emissions and jobs destruction in "virtuous" countries.

Those 3 channels could be mitigated by a compensation scheme for households, a reconversion and compensation fund for firms and a carbon tax on Eurozone (or EU) imports.

Box 2. How to estimate a monetary price for carbon?

The concept of a carbon tax is coming from the theoretical concept proposed by the economist Pigou to address market failures and consists in levying a tax on the goods that impose spillover costs on society which are not supported by the externality's source. Then adding a tax allows through private markets reflecting the social cost in a cost-effective way. Climate change has been identified as a bad externality to the society by shaping the world in a less welcoming way and is directly linked to greenhouse gases emissions which are

coming from our fossil fuels consumption. If there is a large consensus on taxing emissions to reduce their, there is still a debate on its socially optimal price. The externality there is quite difficult to clearly identify and estimate. Even if there is strong scientific evidence on the nature of phenomenon, there is still an uncertainty on its magnitude.

Giving a price to the carbon emitted today strongly depends on this expected future damage and estimating it in monetary value rely on different parameters. A various academic literature attempts to tackle this task by proposing estimations for a Social Cost of Carbon (SCC). W. Nordhaus proposed through an Integrated Assessment Model (IAM), RICE a set of different estimates (Nordhaus, 2011) for SCC and found for the year 2015 an average SCC of 43.57 $\$^{2005}$ associated with a standard deviation (SD) of 19.35 $\$^{2005}$. Some meta analyses have been conducted and Havranek & Zilberman (2014) found range of estimates that is from 0-130 $\$^{2010}$ per ton of carbon (tC) whereas Tol (2013) found a mean estimate of $\$^{2010}196$/tC with a SD of $\$^{2010}$ 322 /tC in its review of 600 estimates.

Empirical experiences have been put in place unilaterally or regionally by some countries to price carbon and there is some evidence of relatively high carbon price. For instance the Swedish carbon tax is up to $ 168/tCO2 and the Tokyo Cap-and-Trade carbon price reaches $ 95/tCO2 (World Bank, 2014). However the majority of prices in existing systems lie below $ 35/ tCO2. A recent study of the IMF (Parry *et al.*, 2014) calculates for the top twenty countries how much would be the price of CO2 emissions by only taking into account the domestic co-benefits from reducing other bad externalities such as local pollution, health harms and transport congestions and the authors found an average, a nationally efficient price of $ 57.5 / tCO2. In the Deep Decarbonization report (SDSN & IDDRI, 2014), the authors proposed, at least for France, a carbon price trajectory, initially formulated by the Quinet commission[31] and which is compatible with the objectives of 75% emissions reduction by 2050 starting at EUR^{2008} 32/ tCO2 in 2010, EUR^{2008} 56/tCO2 in 2020 and EUR^{2008} 100/tC in 2030.

Proposal 2: Compensation scheme and full recycling of carbon revenue

Financing of the compensation would use partly carbon tax or price revenue directly. Part of that compensation could be permanent or long term in order to accommodate with specific situations with high irreversibility in the choices made under the no carbon price system of relative prices. The rest of the carbon revenue would be directed to general taxes or social contributions reduction, allowing for a shift of taxation from labor to environment tax. But the core of the proposal is that for a temporary period of time, (e.g. 5 years), compensation schemes would be superior to the carbon revenue.

The compensation scheme for households could consist of a general tax reform, a special fund for high energy consumers, low price or free non-transferable fuel allowances, an investment/third party fund for retrofitting building with subsidies for retrofitting costs. Again, compensation can be designed as too overshoot initially the implied costs in order to boost households' income and to limit the number of losers and the extent of their loses.

31. La valeur tutélaire du carbone, Centre d'Analyse Stratégique (2009).

Compensation for firms can be based on sectors. For instance, high energy consumers but already efficient could have access to free of tax energy or benefit from grandfathering in the ETS. Reconversion of investment fund could be implemented in order to reduce the cost of investment of to provide with financing even for firms lacking access to financial markets because of deteriorated balance sheets. Energy efficiency investment could thus be separated from any other investment.

A more ambitious approach could be based on a general tax reform. By redefining the goals and the principles of taxation, by shifting taxation from some bases to others, the implementation of a carbon price and tax could be made more easly accepted. Over compensation, temporary in nature, can't be a permanent funding of a decrease in tax rates. But, reallocation of public spending, extra revenue from the boost on the economy, benefits from the recovery and automatic stabilizers redesign when back to normal could provide room for fiscal reform.

Proposal 3: Over compensation

That would allow for over compensation as so temporary policies to increase the acceptability of a carbon price. The benefit of over compensation of the cost of the carbon price would be double.

First, it is a response to previous failed attempt to implement in some countries a carbon price and would allow for an ambitious value for carbon. The experience of Swedish carbon price (implemented in 1991 at 27$/t, increased in 2004 to 100$/t and presently over 150$/t$CO_2$) is that a high price can be easily accepted when overall taxation is significantly reduced. Let stress that a steep increase is also preferable (as in Sweden from 2000 to 2004) because it guarantee to households and firms that the proposed deal (less general taxes against more environment taxes) is not going to be modified in the future.

Second, it would be a boost to the EU economy and a way to bypass the framework of treaties. For a 100€/t increase in carbon price, representing roughly 1.5% of GDP, the over compensation could amount to 0.5 to 1% of GDP and would be decreasing over 5 years. The total amount, from 1.4% of GDP to 3% of GDP, would be financed by a Transition fund, equivalent to European debt repaid through member states contributions over a period to define (with an order of magnitude of 20y). That financing channel would be similar in design to the European Social Fund, FEM or FEDER, except for the ability to bear debt. Repayment of the debt would be budgeted in the Budget of the European Budget. A more restricted fund, limited to Eurozone countries or even to a subset, implying a smaller funding (reduced to 60% if limited to Eurozone) could be an alternative, based on the enhanced cooperation procedure (or even open method of coordination). The flow of payment would have to be implemented from contributions of participating members to the fund. Such a fund would be close in spirit to the polish proposal of a European Investment Fund, able to raise debt.

Transition fund debt would not be accounted as public debt (as proposed in the Juncker Plan for member states participation to the European Fund for Strategic Investment[32]), in order to bypass the constraints of the TSCG and debt rules.

32. Enderlein and Pisani-Ferry make a similar proposition in their 2014 Reforms, Investment, and Growth report, an agenda for France, Germany and Europe. http://www.economie.gouv.fr/files/files/PDF/rapport_enderlein_pisani-en.pdf

1.6% nominal interest rate over 20 years would imply from 12 to 30b€/year, and at the level of the EU would necessitate an initial debt of 240b€ to 510b€. Participating Member states would be allowed to use the fund up to their share in the fund in order to finance the over compensation of the carbon price introduction. Monitoring of the overall process would be a condition for the funding and the fund would therefore act as a controlling institution.

Proposal 4: Carbon tax on imports

The last point of the proposal is a carbon tax on (extra EU, extra participating members) imports and a negative tax (subsidy) on export. Such a taxing scheme is to be thought as similar to VAT (see Laurent & Le Cacheux (2009) for a discussion). The import tax could be based on average estimates of carbon content of imported products unless the importer can provide evidence of a lower import content. The product of the carbon tax on import would be used for funding investment program in emerging countries, answering actively by this way to the protectionism accusation. Any country engaging into a carbon tax or carbon price scheme would be exempted of the carbon tax on imports. The Carbon revenue distribution and the exemption could be powerful tools for climate negotiation.

Taxing imports and neutralizing on export prices the impact of carbon price scheme inside the EU is an important objective. It allows for a specific timing of carbon pricing in Europe, one core element of the Carbon Fiscal Shock discussed here. Stepwise carbon pricing is justified for political reasons (improving credibility of the price path and the compensation package) and economic ones (boosting the EU economy to escape the deflation or stagnation trap). Carbon leakage and competiveness issues can destroy the political momentum of carbon price and climate change mitigation. Even if an international agreement can be expected in the medium term, and even if, in the medium term, carbon price can be hoped to be global, different national price paths are the rule. Moreover, details in the implementation of the carbon pricing scheme, addressing competitiveness and carbon leakage issues can complicate the interactions of different national carbon price systems. Facing this reality, border taxation of carbon appears as a necessary tool.

Box 3. Literature review on carbon leakage and boarder tax adjustments

The issue of Carbon leakage has been addressed mainly with the creation of the EU Emissions Trading Scheme and Boarder Tax Adjustment seems to be an optimal policy to fight against carbon leakage and the existence of "pollution havens". However its international acceptance has not been yet fully established and its legality within the current international trade rules is still in debate since it aims to regulate activities undertaken abroad EU. Some criticism arose to argue on the protectionist aspects of such a mechanism. This question is conceptually rather difficult to address since it is seeking to compare a counterfactual scenario (no introduction of carbon policy) with the observed data. Different approaches have been used to estimate the carbon leakage effects; the first one is based on the use of theoretical model, in general or partial equilibrium which is calibrated with existing data. Winchester, Paltsev, & Reilly (2011), Fischer & Fox (2012), Demailly & Quirion (2006), Burniaux, Chateau,

& Duval (2013) and Monjon & Quirion (2010) used this method to estimate the effect of implementing BCA on emissions and output and Branger & Quirion (2013)conducted a meta-analysis on this topic. The other methodology is relying on retrospective empirical studies and econometrically estimated and is leading to assess historical leakage. Aichele & Felbermayr (2011), Baier & Bergstrand (2009) or Ederington & Minier (2003) in particular conducted empirical studies on this issue.

More generally, four mechanisms relating to carbon leakage have been identified. The first three are negatively oriented and has been proposed by Reinaud (2008):

— The short-term competitiveness channel: the increase in price leads to a reduction in the market share of the constrained industries to the benefit of unconstrained competitors.

— The Investment channel: a unilateral mitigation action provides incentives to firms to direct capital towards countries with less stringent policies.

— The fossil fuel price channel: It can be approximate by the "rebound effect"; energy demand reduction conduct to a decrease of global energy prices which ultimately trigger higher energy demand elsewhere.

A fourth channel has been identified by Dröge, Wang, & Grubb (2009) and is linked to positive technological spill-overs: it relies on the idea that the increase in the price of energy spurred by a more stringent climate policy could stimulate technological progress, which in the end, improves the competitiveness of firms.

How to implement it in the European framework?

The right level of application of a carbon price is the EU. The EU ETS has been operational and functioning for years and backed by a strong experience. Backloading and the reserve mechanism (IDDRI, 2014) provide tool to step up carbon price and even control carbon price.[33] Moreover, implementing a border carbon tax inside EU may be heading in a direction which is not to be whished.

Deploying a high carbon price beyond ETS could be fostered at the EU level and backed European institutions. The transition fund would then be companion tool that the Commission could operate, based on its knowledge and competence of those subjects. Coordination with other funds (in particular EFSI, the Juncker Fund) would thus be accomplished smoothly.

Enhanced cooperation could be another level of organisation if time or political will is missing to implement an EU wide ambition. EU ETS operation and other instrument for carbon pricing could be dissociated (in timing) and a sub set of willing countries could engage themselves in the Fiscal Carbon Shock, implement the transition fund (and the corresponding backloading debt). The implementation of the carbon border tax would be more difficult and could be approximated by compensation devices at a cost in term of readability and efficiency.

33. Currently, the logic of ETS is to give a price resulting from quantities of emission reduction targets. This guarantees a cost effective pricing of carbon under quantity constraints. Having CO_2 emissions resulting from a pre-determined carbon price constitute a different approach. Flexible and adaptive targets for emissions reductions achieved may end in convergence of the two logics.

Simulation

In this section we assess a policy package that combines a carbon tax of €100/tCO2 with fiscal stimulus in Europe. The carbon tax is introduced in 2015 and held constant in real terms; its revenues are recycled such that there is an overall positive stimulus (starting at 50% of revenues and reducing over time) to Europe's economies. The revenue recycling takes the form of reductions in income taxes, subsidies to energy-intensive firms and public investment in energy efficiency.

The E3ME macro-econometric simulation model from Cambridge Econometrics was used to carry out the assessment. E3ME does not assume full employment or optimal use of economic resources, meaning it is well-suited to modelling Europe's economies post-recession and the potential effects of fiscal stimulus.

The modelling finds that there could be short-term economic benefits from the policy package, of up to 1.4% of GDP. One should note that this results from a particularly large estimate of the double dividend to be expected from investment in the energy transition. Simulations made with the ThreeME model, although demonstrating similar impacts on economic activity, are comparatively smaller in magnitude (see Box 4).

In the E3ME simulation, employment could also increase by up to 0.6% in this period. There are positive economic impacts in all EU Member States, but some of the largest benefits are in countries that currently have high unemployment rates.

The modelling also finds that there are longer-term macroeconomic benefits. These benefits are smaller than the short-term impacts and are driven by reductions in fuel imports to Europe. Employment increases in the long run as there is some switching from energy-intensive to labour-intensive activities.

The long-run modelling does not factor in the higher levels of debt that are taken on at European level; these would need to be paid back at some point in the future and could reduce GDP growth at this time. However, as Europe's economies would still benefit from reduced fuel imports, it is reasonable to assume that, over the projection period as a whole, results would be positive.

CO_2 emissions fall by around 14% as a result of the carbon tax and energy efficiency measures. This reduction would put Europe close to being on track to meet its 2030 emissions target.

The policy scenario

The policy scenario is decomposed in four sub scenarios. They are:

- S1 – A pan-European carbon tax. The carbon tax is introduced at a rate of €100/tCO2 in 2015 and maintained in real terms over the projection period. It is applied to energy-related and process emissions across all sectors and replaces the EU ETS (including any revenues generated from auctioned allowances to the power sector).
- S2 – The carbon tax plus revenue recycling to households and industry. This scenario includes the same carbon tax as S1 but also includes revenue recycling to households in the form of lower income tax rates (70% of the revenues) and to industry in the form of lump-sum subsidies (25% of the revenues). In addition, there is a **short-term over-recycling of revenues**,

starting with a 50% boost in 2015, gradually declining to zero over a five-year period (Table 2).

- S3 – The carbon tax plus revenue recycling in S2 and investment in energy efficiency. In this scenario the final 5% of revenues is used to invest in household energy efficiency measures. We apply a coefficient derived from the IEA's *World Energy Outlook* to estimate additional energy savings. We assume that all the efficiency measures lead to reductions in household use of energy, principally gas but also electricity and heating oil. As in S2, there is a short-term over-compensation of revenues.
- S4 – Carbon tax, revenue recycling and BTAs. In addition to the measures in S3, in S4 we introduce Border Tax Adjustments on imports of the 'Big 6' energy-intensive industries (pulp & paper, refining, basic inorganic chemicals, cement and lime, iron and steel, aluminium). The revenues from these BTAs are assumed to be used to finance low-carbon development outside the EU and do not benefit the domestic economy.

Table 2. How the carbon tax revenues are allocated, %

Scen		2015	2016	2017	2018	2019	2020
S2	Households	105.0	98.0	91.0	84.0	77.0	70.0
	Industry	37.5	35.0	32.5	30.0	27.5	25.0
	Energy efficiency	0.0	0.0	0.0	0.0	0.0	0.0
	Total	142.5	133.0	123.5	114.0	104.5	95.0
S3-4	Households	105.0	98.0	91.0	84.0	77.0	70.0
	Industry	37.5	35.0	32.5	30.0	27.5	25.0
	Energy efficiency	7.5	7.0	6.5	6.0	5.5	5.0
	Total	150.0	140.0	130.0	120.0	110.0	100.0

Source: Eurostat.

Basic modelling approach

E3ME is a simulation model based on a post-Keynesian approach. Unlike the more common Computable General Equilibrium (CGE) modelling approach, E3ME does not assume optimisation and full utilisation of economic capacity, hence allowing for underemployement.

These features makes the model a suitable tool for evaluating fiscal stimulus. By acknowledging that Europe's economies are suffering from a shortage of aggregate demand, the model can be used to estimate the effects of various measures to boost domestic consumption. The method of stimulus here (borrowing at European level to finance national spending) has some resemblance to a European programme of quantitative easing (QE). However, QE would be very unlikely to include the same targeting of spending.

Further information about the E3ME model may be found on the model website.[34]

34. http://www.e3me.com

The carbon tax is entered as an additional tax on fuel consumption, with the rate depending on the fuels' carbon contents. It is assumed that the electricity sector passes on its costs in full but other sectors may be restricted from doing so by international competition; if this is the case then they will likely suffer a loss of profitability.

It is assumed that the revenues are recycled by national administrations and there are no cross-border transfers (apart from the BTA revenues, see below). As the EU's Member States already have excise duties on fuels it is assumed that there is no increase in transaction costs and all the additional revenues are available for recycling.

The policy scenario suggests that the over-recycling of revenues comes from a central European fund and is therefore not included in national balance sheets. It follows that we have an assumption that there is no direct crowding out of economic activity and the stimulus is additional to everything else that is going on in the economy. There may, however, be indirect crowding out, for example if Member States started reaching full employment or sectors reached their production capacity; this effect is captured by the model's equations but, given current growth rates, it seems rather unlikely that output will reach capacity levels.

The BTAs are modelled as an increase in import prices. The rate of the price increase is determined by the carbon intensity of EU production and EU carbon prices; this is added as a tax on imports of the specified products from outside the EU.

Realistically, BTAs are only likely to be applied to a few selected products. In our analysis we have expanded these products to cover the entire NACE 2-digit parent sectors; even so, these sectors contribute a small share of total GVA in Europe so we would not expect large economic impacts from this measure.

The aim of the BTAs therefore is not to improve macroeconomic results but to offer protection to the specific EU industries that are exposed to competitiveness issues and 'carbon leakage'.

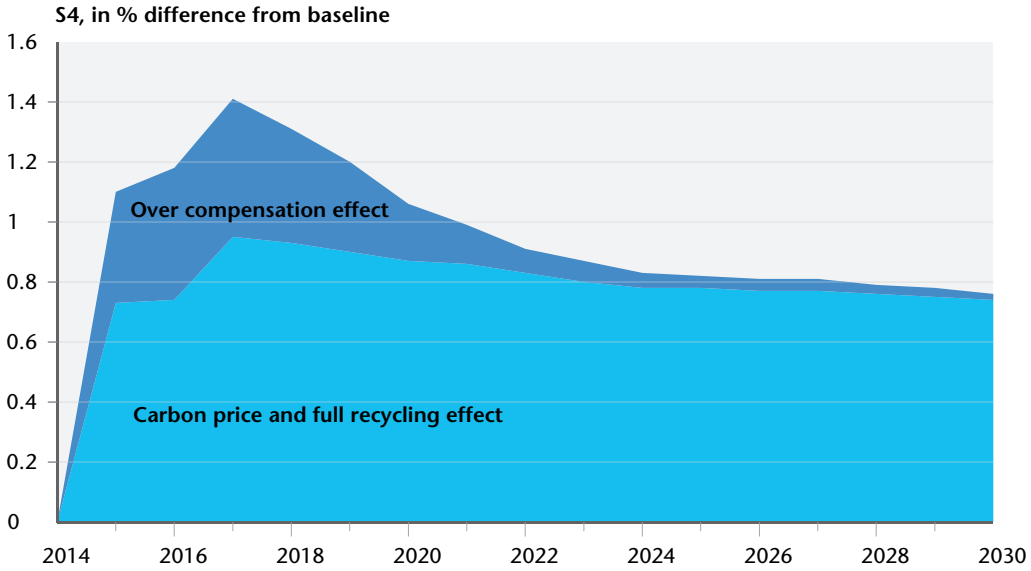
Macroeconomic impacts

Figure 5 shows the impacts of the full policy package on GDP (S4 compared to baseline, over compensation break down). There is an immediate stimulus effect worth about 1.1% of GDP, which increases up to 2017, reaching around 1.4% of GDP. Beyond 2017, the stimulus effect tails off, and GDP is around 0.8% higher than in the baseline beyond 2020.

The stimulus is financed by borrowing at European level and, in this scenario, it would remain as an outstanding debt as we have not included a repayment mechanism. However, even if the debt was repaid later in the projection period we could still expect to see a small long-term positive effect due to the restructuring that arises from the carbon tax and energy-efficiency measures.

Employment increases by around 0.6% (short run) and 0.3% (long run) compared to the baseline, following a similar pattern over time to GDP. According to our results, the policy package thus stimulates both higher levels of economic activity and employment.

Figure 5. EU28 GDP



Sources: Cambridge Econometrics, E3ME Model.

Table 3 shows the evolution of key macroeconomic indicators over the projection period. The pattern is one of increased consumption by households (due to the lower income taxes) and increased investment (primarily in energy-efficient equipment). Trade effects are quite limited in scope, although for imports this outcome represents a combination of lower fuel imports and higher imports of consumer goods (see below). Inflation increases, with the price level about 2% higher in S4 than in the baseline. It would therefore be important to ensure that low-income households are compensated for higher electricity and fuel prices.

Table 3. EU28 summary of results

S4, in % difference from baseline

	2015	2016	2017	2018	2019	2020	2025
GDP	1.1	1.2	1.4	1.3	1.2	1.1	0.8
Consumption	0.9	1.3	1.7	1.6	1.5	1.3	1.0
Investment	2.9	1.9	2.3	1.8	1.6	1.4	1.1
Exports	-0.3	-0.3	-0.3	-0.2	-0.2	-0.3	-0.3
Imports	0.8	0.3	0.6	0.4	0.4	0.3	0.0
Price index	1.7	1.9	1.9	2.0	2.0	2.1	1.9
Employment	0.6	0.5	0.6	0.6	0.5	0.5	0.3

Source: E3ME Model.

The GDP impacts are positive throughout the projection period. In the short term, there is a stimulus effect from the over-recycling of revenues. This stimulus is only effective because there are unused economic resources across Europe in the projection period; if Europe's economies were already operating at full capacity, inflation would likely be the result, rather than an increase in real activity.

However, the modelling results also show long-term benefits. These are due to some of the structural shifts that occur in the scenario. There are two main ones:

- There is a positive effect on Europe's trade balance from the reduced fuel imports—fuel consumption falls as a result of both the carbon price (S1) and the energy-efficiency measures (S3). A large share of the savings in imported fuels is spent on goods that are, at least in part, produced domestically. This boosts domestic production levels.
- There is a transfer from businesses to households—a large share of the carbon tax is paid by business, more than the 25% of revenues that is recycled back to industry. Some sectors, such as electricity generation, can pass these costs on to final consumers but others are unable to pass costs on, due to foreign competition. Lower profits in these sectors are matched by higher real household incomes. As households have lower savings rates and higher domestic consumption rates than businesses (e.g. multinationals' profits may flow abroad), this creates more activity within Europe.

Table 4. EU 28 summary of results, 2020

In % difference from baseline

	S1	S2	S3	S4
GDP	-0.7	0.9	1.1	1.1
Consumer expenditure	-1.5	1.2	1.4	1.3
Investment	-0.3	0.7	1.4	1.4
Extra-EU Exports	-0.5	-0.2	-0.2	-0.3
Extra-EU Imports	-1.1	0.1	0.3	0.2
Price index	2.1	2.1	2.0	2.1
Employment	-0.3	0.3	0.5	0.5

Source: E3ME Model.

Table 4 shows the results for each scenario in 2020, which is just after the initial stimulus comes to an end (although there are still some lagged benefits at this time). In most cases the results are quite intuitive; the carbon tax reduces GDP by 0.7% and imports fall by even more in S1. However, the effects of the revenue recycling, including the stimulus, make these impacts positive overall in the other scenarios.

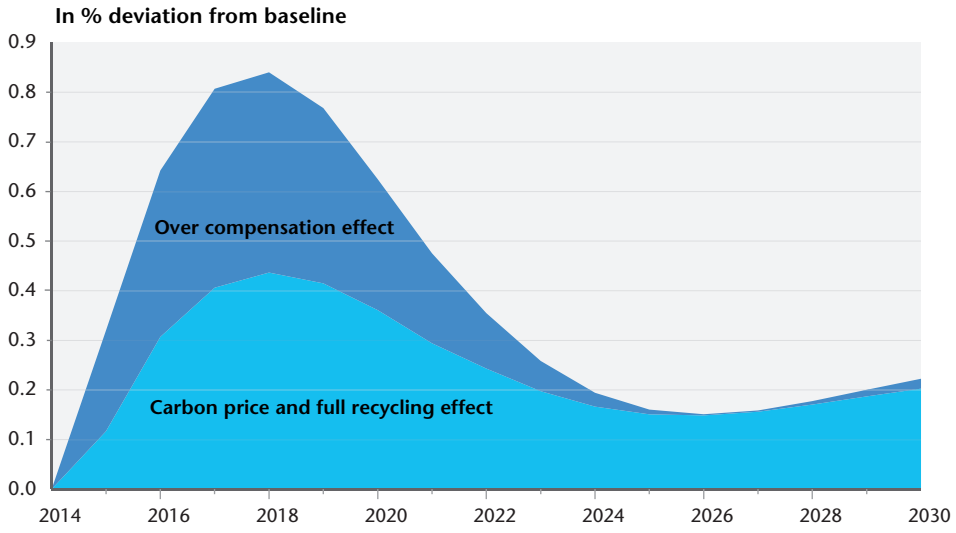
The BTAs have a limited impact on the economy as a whole. This is because the revenues from the BTAs are not spent within Europe but are instead assumed to be provided to developing countries to finance low-carbon measures. The effects of the BTA thus become a trade-off between import substitution and higher prices for final consumers. These effects very nearly cancel out overall.

Household spending is the largest component of GDP and is an important driver of the overall results. In S1, household spending falls due to the higher prices and a loss of real income, but lower income taxes result in higher spending in the other scenarios. Investment also tends to track GDP in these results but there is additional stimulus to investment through the energy-efficiency measures in S3 and S4.

Box 4. ThreeME versus E3ME, the French case

Simulations were conducted through two models in this report, the one related to the European scale has been made with the E3ME model (Cambridge Econometrics) and another one for France with the ThreeME model (OFCE). Even if both models highlight a positive impact of the carbon fiscal shock plan on the output, the magnitude in the results is quite different. Beyond the fact, that each model has its own properties, the question of the scale and the existence of spillovers effect of the over countries matters in the results. The ThreeME model has been developed in the framework of a research convention between OFCE and the French Environmental Agency (ADEME). It is a neo-keynesian Computable General Model (CGE) that exhibits features like stickiness in the adjustments processes of prices and quantities or a representation of the labor market through a Phillips curve which allows taking into account a dynamic dimension in its results. Its multi-sectoral structure in 37 sectors, in which 17 are only energy production activities leads to take into account the possible structural changes in the economy and then lead to a more accurate analysis.

Figure 6. French GDP, Carbon Fiscal Shock simulation using ThreeME



Source: Cambridge Econometrics, E3ME Model.

Beyond the question of the positive effect of an investment plan, the question remains whether there is the possibility for an environmental tax to lead to structural positive effect on the economy. The existence of the double-dividend has been since its formulation by Pearce (1991) discussed and even challenged on its theoretical foundations. Some theoretical articles found a loss of welfare, either through a suboptimal emissions reduction (Bovenberg & de Mooij,1994), a loss of income (Van de Bovenberg,1994) or a reduction of employment (Bovenberg, Goulder & Jacobsen, 2008). Paradoxically, empirical studies, which were mainly using CGE models to assess the impact of the introduction of a carbon tax observed a positive double-dividend. Takeda (1997) found for instance that for the Japan economy a strong double-dividend arises when recycling of revenues is associated with capital tax reduction. Fraser & Waschik (2013) got the same results for the Australian economy with several mechanism designs.

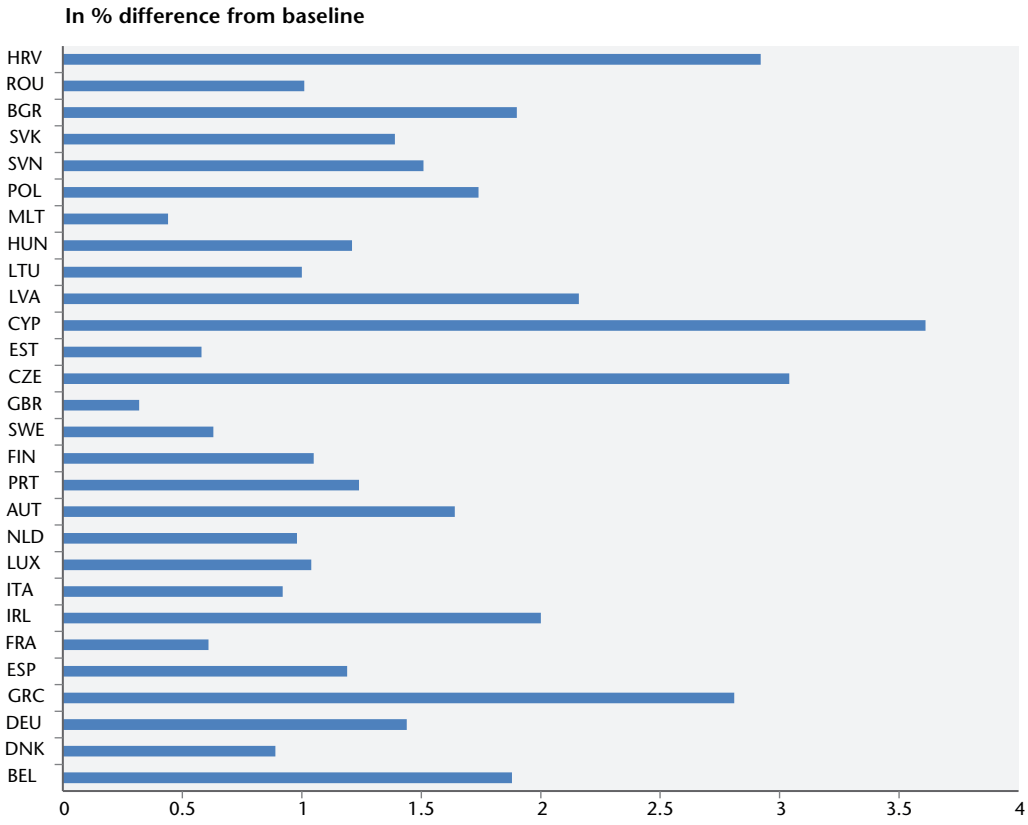
Even if the theoretical framework is not shared by all the articles on the double-dividend question, the main argument that can explain this difference in the results is that contrarily to empirical studies that take into account of some realities, the theoretical articles take as granted the optimality of the economy as a benchmark. Although environmental taxes appears to be less distortionary than pre-existing taxes, which in the end justify this positive effect.

There are no policies designed to address employment directly, so the employment impacts are the result of changes in levels of economic activity. There is also some shift from energy-intensive to labour-intensive activities. In this analysis we have not considered whether Europe's labour markets would be able to provide the right skills to take up these additional jobs. However, from the sectoral results discussed below, we can see that the additional jobs would fall broadly into two categories: fairly low-skilled jobs in consumer services and more specialised positions in installing energy-efficient products. Policy makers may need to consider whether adequate training is provided for the latter case.

Impacts across Europe

Figure 7 shows that the GDP impacts are positive in all Member States in 2020. They are all positive and range from 0.3% in the UK to 3.6% in Cyprus.

Figure 7. S4 GDP by region, 2020



Source: Cambridge Econometrics, E3ME Model.

There are various reasons for the differences across regions. Most notably, as the stimulus is a proportion of the carbon tax revenues, regions with a higher carbon intensity get a larger stimulus. This is the result of a fairly arbitrary assumption that has been made in the modelling exercise, but explains why countries like the UK, France and Sweden see smaller impacts.

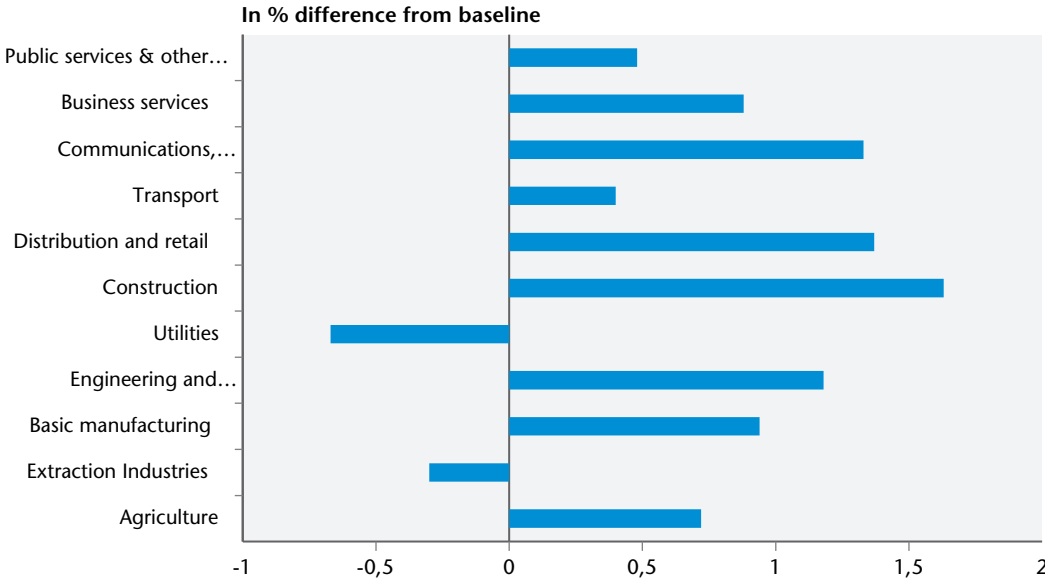
Another issue is that the countries with the most capacity available (e.g. high unemployment rates) are likely to gain more from the stimulus. In many cases these are also the more energy-intensive countries so the effects are stronger in these countries overall.

Other possible reasons for variation in outcomes include industry cost pass-through rates, household savings ratios, the share of international trade and the flexibility of labour markets. There can also be strong interactions between Member States due to their trade linkages.

Impacts on key sectors

Almost all sectors benefit from the measures. The ones that see the largest increases in output and employment are those that supply consumer services and those that produce/install energy-efficient products.

Figure 8. EU28 Output by sector, 2020



Source: Cambridge Econometrics, E3ME Model.

The sectors that lose out are the energy extraction and utilities sectors.

Table 5 shows the impact on energy-intensive industries' (EII) output in 2020. As expected, the carbon tax has a negative impact on most EIIs (S1). Chemicals and non-metallic minerals appear the hardest hit. In the second scenario (S2) some EIIs benefit from the increase in economic activity resulting from the compensation of households and industry. The Non-metallic minerals and Basic metals sectors particularly benefit from the introduction of energy-efficiency measures, as they are part of the supply chain for energy-efficient investment goods (S3).

Non-metallic minerals benefits the most from the border tax adjustments (S4). In general, however, the BTAs have only a small impact on domestic production, even in the EIIs. This is partly a short-run effect as most existing plants will still be open and producing in 2020, regardless of import prices. Decisions on relocation of plants may frame the longer-term outcomes in these sectors but this would require a more detailed sectoral analysis.

Table 5. EU28 Output by energy-intensive sectors, 2020

In % difference from baseline

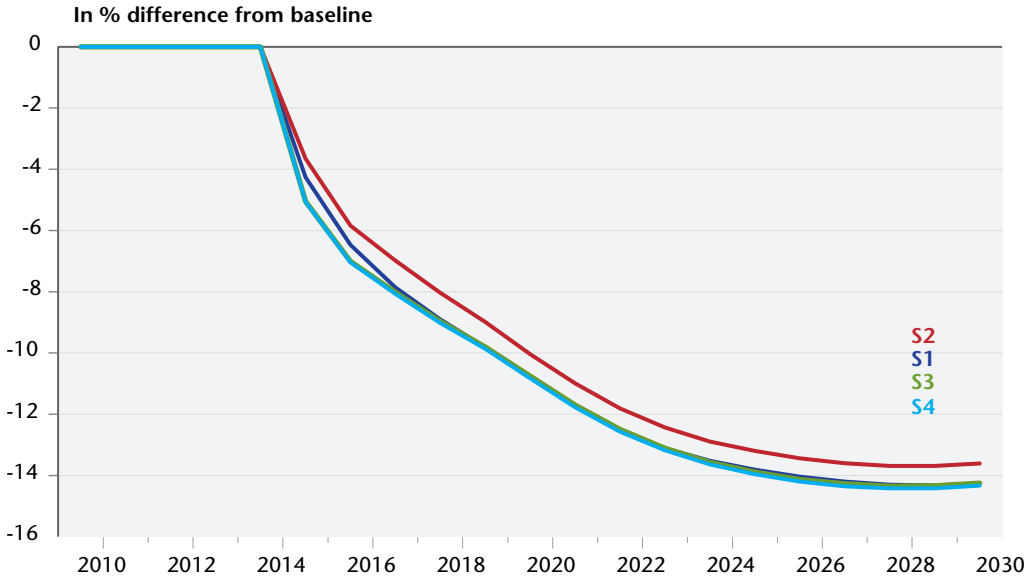
	S1	S2	S3	S4
Paper & paper products	-1.1	0.6	0.9	0.9
Manufactured fuels	-0.8	-0.7	-0.7	-0.7
Chemicals excluding pharmaceuticals	-1.4	-0.1	0.2	0.2
Non-metallic minerals	-1.6	-0.3	0.4	0.7
Basic metals	-0.3	1.4	1.8	1.9

Source: E3ME Model.

Environmental impacts

Figure 8 shows the impact on emissions levels in all four scenarios. Overall we see a reduction in emissions of around 14%.

Figure 9. EU28 CO2 emissions by scenario,



Sources: iAGS, E3ME Model.

By far the largest reduction in emissions comes from the carbon tax in S1. S2 sees some rebound, due to the higher levels of economic activity but there is a further reduction in emissions due to the energy-efficiency measures that are introduced in S3. The BTAs have only a small impact on emissions levels, due to the small changes in output that they cause.

As the carbon tax is imposed on all sectors, direct emissions fall across the whole economy. Power generation makes the largest contribution in absolute terms and the results show some increase in renewables by 2020.

Emissions from households are also reduced by the energy-efficiency measures, which reduce domestic consumption of gas.

Table 6. EU28 CO2 emissions by fuel user, 2020

In % difference from baseline

	S1	S2	S3	S4
1 Power generation	-20.5	-19.8	-17.9	-17.9
2 Rest of energy branch	-12.7	-12.6	-13.0	-13.0
3 Iron & steel	-16.3	-15.9	-15.8	-15.8
4 Non-ferrous metals	-13.6	-12.7	-12.4	-12.5
5 Chemicals	-9.4	-9.6	-9.6	-9.6
6 Non-metallic minerals	-14.8	-14.3	-14.0	-13.9
7 Ore-extraction	-21.3	-21.1	-20.9	-21.0
8 Food, drink & tobacco	-13.4	-12.8	-12.7	-12.7
9 Textiles, clothing & footwear	-17.0	-16.5	-16.5	-16.5
10 Paper & pulp	-12.5	-12.0	-11.8	-11.8
11 Engineering etc.	-17.2	-16.5	-16.3	-16.3
12 Other industry	-13.3	-12.8	-12.7	-12.8
13 Construction	-20.9	-20.5	-19.8	-19.9
14 Rail transport	-4.6	-4.5	-4.5	-4.6
15 Road transport	-10.3	-9.7	-9.6	-9.9
16 Air transport	-0.8	-0.7	-0.6	-0.8
17 Other transport services	-10.1	-10.0	-10.0	-10.0
18 Households	-11.7	-11.1	-27.1	-27.1
19 Agriculture, forestry	-28.9	-28.9	-28.8	-28.9
20 Fishing	-4.1	-4.0	-4.0	-4.1
21 Other final use	-13.3	-11.8	-11.4	-11.5
22 Non-energy use	-1.1	0.1	0.6	0.7

Sources: E3ME.

Table 7 shows the reduction in consumption of each fuel. Again, all fossil fuels are affected. Consumption of gas is reduced by the energy-efficiency measures in S3 as well as the carbon tax.

Table 7. EU28 CO_2 emissions by fuel type, 2020

In % difference from baseline

	S1	S2	S3	S4
Coal	-21.3	-20.7	-20.6	-20.6
Liquid fuels	-8.1	-7.5	-7.4	-7.6
Gas	-7.9	-7.2	-9.6	-9.6

Sources: E3ME.

DEFINING THE RIGHT INTERNAL EXCHANGE RATE

European economies need to adjust to a sustainable path of growth. That implies adjusting internal exchange rates. Since the start of the Great Recession, euro area crisis countries (and more specifically Greece, Portugal, Spain, Italy, Ireland) have engaged in austerity policies in order to slash public deficits, but also in attempt to regain lost competitiveness. These policies, by weighing on internal demand and growth, have successively pushed euro area countries into competitive disinflation policies. This non-cooperative game, the goal of which is to win market shares against euro area partners by improving the country's price-competitiveness, has already had sharply disinflationary effects and risks pushing the euro area economy into deflation, a threat already identified in last year's iAGS report.

Wage deflation is producing adjustment but at a high social cost, and there is a serious risk of overshooting. Defining the appropriate target is thus critical. In this chapter, we attempt to define adjustment targets for the euro area countries. To do so, we compute the variation of the general price level of each country compatible with a stable and sustainable international investment position, that is the balance between a country's foreign assets and liabilities. We take into account the fact that economies have not yet recovered from the crisis as this influences long-run trade balances. The simulations also include the simultaneous determination of import and export prices, which determines the final real effective exchange rate of each country endogenously. They rely on fresh econometric estimates of trade elasticities (see Ducoudré and Heyer, 2014).

This chapter is a first attempt at calibrating a cooperative and coordinated price/wage policy in the euro area in a unified framework. Even though a substantial readjustment has been achieved since 2011, much still remains to be done. A rebalancing strategy should rely on maintaining inflation differentials within the euro area over an extended period, with higher inflation in Germany and lower inflation in crisis countries; deflation is not required in the latter countries if the readjustment is implemented gradually. A nominal depreciation of the Euro would facilitate the rebalancing by making it compatible with a higher inflation rate. Debt relief in some countries would also ease the adjustment.

The chapter is organised as follows. The first part studies the external imbalances of the euro area countries, by looking at structural trade balances. It emphasises the role of wage deflation in the effective exchange rate adjustments that occurred since 2008 as a way to correct external imbalances. The second part briefly presents the model, and discusses the results of the simulations.

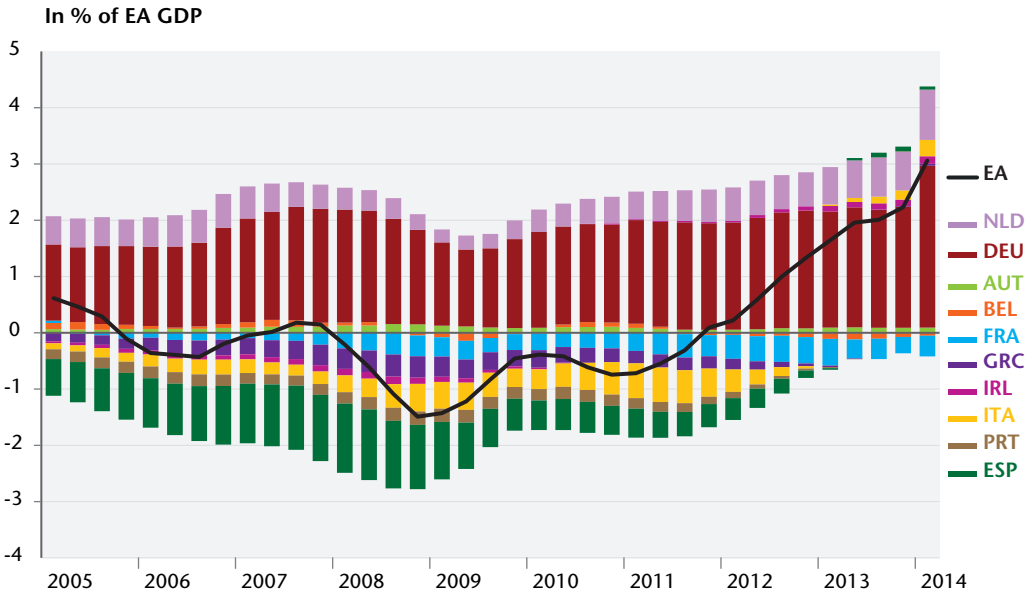
1. External imbalances adjustments since 2008

To assess the need for adjusting to internal exchange rates, we start the analysis by looking at current trade balances in euro area (EA thereafter) countries. Next we point to the adjustments already achieved in EA countries. To do that, we carefully look at labour costs, relative prices and trade flow variations since 2008.

External disequilibrium in the euro area countries

Since the start of the 2008 crisis, the current account of the euro area has strongly increased, starting from a current account deficit of -1% of GDP in 2008, to a surplus of +3% of GDP in 2013 (Figure 1). This apparent improvement mainly comes from the harsh reduction of current account deficits in southern countries: Spain, Italy, Greece and Portugal. A superficial analysis would stop here and conclude that external imbalances have been corrected, the last country in need to correct being France. However, high unemployment and depressed internal demand account for an important part of the adjustment. Austerity policies weigh on internal demand and imports, explaining a substantial part of the improving trade balances. On the other side, the shrinkage of exports due to trade partners' internal demand collapse worsens the trade balance. Moreover, these current account surpluses, once business cycle effects are taken into account, may not be compatible with sustainable trajectories of international investment positions.

Figure 1. Current accounts developments in the euro area since 2000



Source: Eurostat.

Starting from these remarks, we try to assess current external disequilibria in EA countries taking into account the fact that these countries and the world economy have not yet recovered from the crisis. The external disequilibrium of a country can be assessed by computing the gap between the structural trade balance and the trade balance that stabilizes the net international investment position (NIIP thereafter) at a desired level expressed as a % of GDP[1]. The structural trade balance of a country depends on the output gap of the economy: a negative output gap signals a weak internal demand that diminishes imports. Closing the output gap would then worsen the trade balance of that country. The structural trade balance also depends on the output gaps of trade partners: if they

1. Clearly, given that a negative NIIP (normally) implies an outflow of interest, dividend and other payments, which burden the current account, a persistent rise in the NIIP is not sustainable. Although the constraints are not as binding in the case of surpluses, it is usually inadvisable to pile up increasing net foreign assets as this creates imbalances that can lead to capital losses.

face a negative output gap, they import less from the country. Closing their output gap would then improve the trade balance of the country.

In Table 1 we report the structural trade balances (STB thereafter) for eleven EA countries (see also Box 1 for computation details). STB are generally lower than current trade balances, since almost all EA countries face a more negative output gap than that of their partners. Greece, the most extreme case, has an actual trade balance near to 0 in 2013 (-0.2% of GDP), but its STB amounts to -11.4% of GDP due to its strongly negative output gap (-13.3% of GDP). On the contrary, Germany has a higher STB (8.3% of GDP) than its trade balance (6.2% of GDP) in 2013, since its output gap is nearly closed while that of its main trading partners is on average wider.

We also report the STB target, *i.e.* the STB compatible with a stable NIIP. It is computed as the current NIIP adjusted by the gap between the potential growth rate and the long run real interest rate, and corrected for the gap between the current account and the trade balance. Defining the target of the external adjustment of EA countries is a critical task. It is clear that an ever increasing or decreasing external position is not sustainable over the long run. Stabilizing the NIIP is therefore a necessary condition, but the level at which that position becomes unsustainable is not clearly quantified in the literature. In this part, for sake of simplicity we stabilise the NIIP in the long run at its *current* level. In the second part of the chapter, we define some other constraints on long run NIIPs.

Table 1. Trade balance gap for 11 euro area countries in 2013

% of GDP

	Net international investment position	Current account	Trade balance	Output gap (%)	Potential growth (%)	Weighted output gap of trade partners (%)	Structural trade balance	Structural trade balance target*
	(1)	(2)	(3)	(4)	(5)	(6)	(7) = (3) – (6) + (4)	(8) = [(5) – r] x (1) – [(2) – (3)]
AUT	1	2.7	3.7	-2.9	1.5	-2.0	2.8	1.0
BEL	46	-1.9	-0.1	-1.9	2.0	-2.7	0.7	2.2
FIN	16	-1.1	0.3	-3.1	2.0	-2.0	-0.8	1.5
FRA	-17	-1.3	-1.3	-2.9	1.7	-2.5	-1.7	0.0
DEU	48	7.5	6.2	-0.6	1.1	-2.6	8.3	-1.2
GRC	-121	0.7	-0.2	-13.3	1.5	-2.1	-11.4	-1.5
IRL	-105	6.6	23.3	-8.7	2.0	-2.4	17.0	15.6
ITA	-30	1.0	2.6	-5.6	0.9	-2.2	-0.8	1.6
NLD	46	10.9	10.6	-4.3	1.8	-2.2	8.5	0.1
PRT	-119	0.5	1.7	-7.2	1.6	-3.0	-2.6	0.5
ESP	-98	0.8	2.9	-5.3	1.7	-2.8	0.3	1.3

* The structural trade balance target is the structural trade balance that is compatible with NIIP stability at its 2013 level. We assume that the gap between the current account and the trade balance (revenues and current transfers) is constant. We assume r = 1%.

Sources: *OECD Economic Outlook 95*, *IMF WEO* October 2014, *Oxford Economics, IMF International Financial Statistics, Eurostat*, iAGS calculations

STB targets are generally positive. This is due to three points. Firstly a positive and stable NIIP needs a positive STB insofar as the gap between the potential growth rate and the real interest rate is positive. Secondly, a higher real interest rate than the potential growth rate implies NIIP and STB with reverse signs, which is the case for Italy here. Thirdly, the gap between the current account and the trade balance (revenues and current transfers in % of GDP) is assumed to be constant in the long run and has then to be compensated by a higher or lower STB. This last point is indeed very important for Ireland.

We now analyse more carefully the gap between the structural trade balance and its target in Table 2. Results show that situations differ from one country to another. Some countries need to strongly increase their STB to achieve the target. This is the case when the last column of Table 2 reports a positive TB gap. It concerns first and foremost Greece: a strong improvement in Greek competitiveness is needed to improve the trade balance in the long run and stabilise the NIIP. Finland, France, Belgium, Italy, Portugal and Spain are concerned to a lesser extent. Conversely, Germany and the Netherlands, which already have the highest NIIP, should reduce their STB, since the current ones imply ever increasing NIIP.

Table 2. Structural trade balance adjustment since 2008

% of GDP

	Structural trade balance		Structural trade balance target	Variation 2008-2013	Trade balance gap
	2008	2013			
	(10)	(7)	(8)	(11) = (7) – (10)	(12) = (8) – (7)
AUT	6.1	2.8	1.0	-3.3	-1.8
BEL	-1.6	0.7	2.2	2.3	1.6
FIN	5.8	-0.8	1.5	-6.6	2.3
FRA	-4.3	-1.7	0.0	2.6	1.6
DEU	7.0	8.3	-1.2	1.3	-9.5
GRC	-2.6	-11.4	-1.5	-8.8	9.8
IRL	-7.3	17.0	15.6	24.3	-1.4
ITA	10.5	-0.8	1.6	-11.3	2.4
NLD	-1.3	8.5	0.1	9.8	-8.5
PRT	10.1	-2.6	0.5	-12.7	3.1
ESP	-11.6	0.3	1.3	11.9	1.0

Sources: *OECD Economic Outlook 95*, *IMF WEO* October 2014, *Oxford Economics, IMF International Financial Statistics, Eurostat*, iAGS calculations.

To a certain extent, these results come from the countries' responses to the crisis. Column 11 in Table 2 shows the evolution of STB between 2008 and 2013. This is a way to gauge the effort made by EA countries to reduce external disequilibria since the start of the crisis. Four country groups emerge. The first one consists of Spain, France, Belgium and Austria who have made a part of the adjustment. These countries have completed about 60% of the required adjustment (90% for Spain). The second one is the case where countries (Portugal, Finland and Italy) were in excess STB before the crisis and the hit from the crisis has resulted in a decreasing NIIP, i.e. a too low STB. The crisis has brought these countries in the red

zone. The third group includes Ireland and the Netherlands, who have increased too much their STB and have overshot the target. Finally, during the crisis Germany and Greece increased imbalances, but in opposite fashions. These two countries are symmetrical in a sense: rapidly increasing NIIP for Germany and rapidly decreasing NIIP for Greece, in structural terms.

These results emphasize that the massive external trade surplus in Germany is a concern for the EA, since without a German adjustment other countries cannot adjust as well. Firstly, a large NIIP for Germany can imply large negative NIIP for the rest of the EA if the euro exchange rate is in a way sensitive to EA wide NIIP. Secondly, increasing NIIP dynamics, even larger when STB is higher than current TB, thus indicates a strong increase in NIIP is to be expected unless price adjustment is done.

The strong compression of internal demand in Greece has had no significant effect on the competitiveness of the country until now. More generally, overshooting and increasing imbalances of seven countries out of eleven stresses that macroeconomic policies conducted during the crisis have not been well-designed to correct external imbalances among EA countries in the sense that they don't favour stabilising NIIPs.

Box 1. Computing structural trade balances

Structural trade balances can be computed by correcting trade balances from the differentiated effects of business cycle among countries. The idea is to estimate trade balances with closed output gaps, while neglecting the effect of relative prices adjustments, that is to say that we assume constant market shares in the long run (this assumption is relaxed in the second part of the chapter).

Assume that the volume of exports x_i of country i depends on the foreign demand d_i^{EX}:

$$x_i = d_i^{EX}$$

Similarly, the volume of imports m_i of country i depends on the domestic output y_i:

$$m_i = y_i$$

The long run volume of imports is equal to the potential domestic output $\overline{m_i} = \overline{y_i}$. It follows that $\overline{m_i} = m_i - (y_i - \overline{y}_i)$.

As bilateral trade imposes $m_{ij} = x_{ji}$ we deduce:

$$d_i^{EX} = \sum_j wx_i^j m_j = \sum_j wx_i^j y_j \quad \text{and} \quad \overline{d_i^{EX}} = \sum_j wx_i^j \overline{y}_j$$

where wx_i^j is the share of country j in the exports of country i.

The structural trade balance is then $STB = \overline{x_i} - \overline{m_i} = x_i - m_i +$

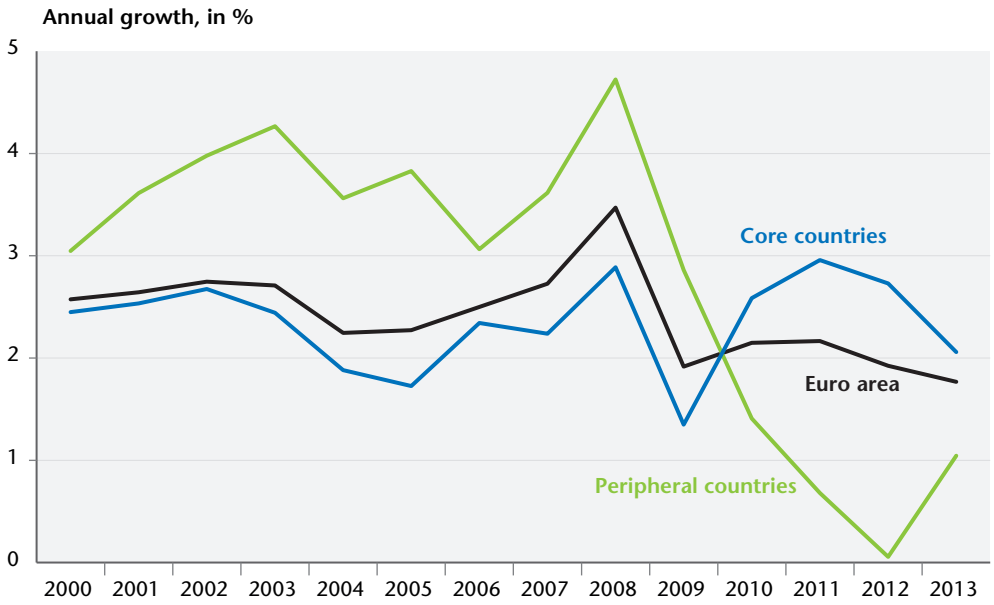
$$\underbrace{(y_i - \overline{y}_i)}_{\text{output gap of country } i} - \underbrace{\sum_j wx_i^j (y_j - \overline{y}_j)}_{\substack{\text{weighted output gap} \\ \text{of trade partners}}}$$

Correcting external imbalances since 2008

As it is visible in Table 2, some countries with a high STB in 2008, like Austria and Finland, have decreased their surplus since the beginning of the crisis and countries with high deficits have reduced them (Ireland and Spain). Intra-EMU trade figures also attest for decreasing imbalances (see Box 2). This tendency to the rebalancing of current account imbalances has been supported by labour cost developments, and for some authors, among them Buti and Turrini (2012)[2], wage adjustments have been one of the main drivers of the correction of external imbalances.

Before the inception of the crisis (2000-2007), nominal compensation per employee grew faster in peripheral countries of the Eurozone (+3.6% annual mean growth, Figure 2) than in core countries (+2.3%), generating a divergence of competitiveness among Member States. This tendency has been reversed since 2010. Between 2010 and 2013, nominal compensation per employee has slowed down very significantly in peripheral countries (+0.8%) while it has accelerated, modestly, in core countries (+2.6%).

Figure 2. Evolution of nominal compensation per employee (total economy)



Note: peripheral countries group includes Spain, Italy, Portugal and Greece. Core countries group includes France, Germany, Belgium, Netherlands, Austria and Finland. Within a group, national evolutions are weighted according to their respective nominal GDP.
Sources: Ameco, iAGS calculations.

As can be seen from Figure 3 and Table 3, the evolution of nominal wages was heterogeneous among countries. The magnitude of wage moderation has been closely linked with the extent of the slack in the labour market, as measured by the increase in the unemployment rate. For example, in Greece, where the adjustment of employment was extreme, nominal wages have decreased at an

2. Buti et Turrini, 2012, "Slow but steady? Achievements and shortcomings of competitive disinflation within the Euro area", *ECFIN Economic Brief*, 16, November 2012.

annual rate of 3.5 points since 2010. Wage moderation was also pronounced in Ireland, Spain and Italy. Since the crisis, nominal wages have stagnated in Ireland, contrasting with their pre-crisis dynamism (+6.0% per year between 2000 and 2007), and a similar pattern is observable in Spain (+0.7% average yearly growth since 2010, contrasting with +3.7% before 2008). Wage growth has also moderated, but to a lesser extent, in countries preserved from sovereign crisis, as can be seen in France, Belgium, Austria and Finland. In a context of rising employment and falling unemployment, the acceleration of German wages (+2.5% of average yearly growth since 2010, compared to +1.0% between 2000 and 2007) constitutes a noteworthy exception among euro area states.

However, macroeconomic data may underestimate the magnitude of the process. The effects of the crisis were more severe among young and unskilled workers, whose wages tend to be lower than the average. According to several studies that use micro-data, composition effects have had a positive contribution to average wages since the start of the crisis[3], which is hidden in macro-data. This is true both in core countries and in peripheral ones.

Table 3. Nominal compensation per employee (total economy)

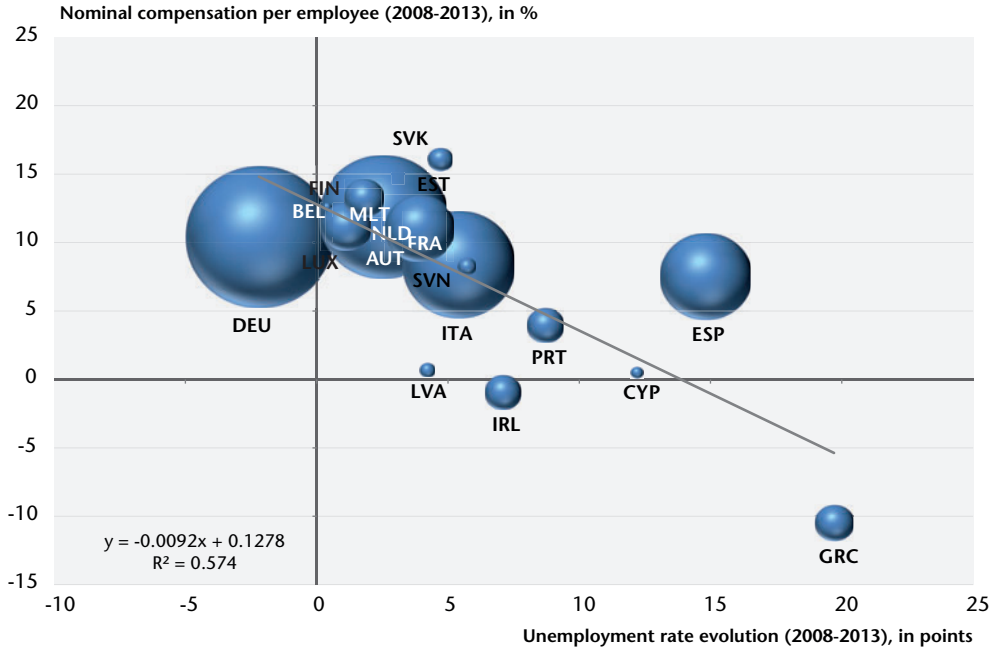
In %

	2000-2007	2008-2009	2010-2013
Core countries	**2.3**	**2.1**	**2.6**
FRA	2.8	2.2	2.4
DEU	1.0	1.2	2.5
NLD	3.5	3.2	1.9
BEL	2.8	2.4	2.6
AUT	2.5	2.8	2.0
FIN	3.1	3.1	2.7
Peripheral countries	**3.6**	**3.8**	**0.8**
ESP	3.7	5.6	0.7
ITA	3.0	2.9	1.5
IRL	6.0	2.1	0.0
PRT	3.8	2.5	0.4
GRC	5.9	3.3	-3.5
EA	2.6	2.7	2.0

Sources: Ameco, iAGS calculations.

3. See for example, ECB (2012) "Euro area Labor Markets and the Crisis", *Occasional Papers Series 138*, October 2012, which concentrates on the start of the crisis, or for the Spanish case see Puente et Galan (2014), "Un analisis de los efectos composición sobre la evolución de los salarios", *Boletin Economico*, Banco de España, Feb. 2014, and Verdugo (2013), and "Les salaires réels ont-ils été affectés par les évolutions du chômage en France avant et pendant la crise ?", *Bulletin de la Banque de France*, 192, Q2 2013 for the French case.

Figure 3. Evolution of unemployment rate and nominal compensation per employee



Sources: iAGS calculations on Ameco data.

Focusing exclusively on nominal wages might be incomplete in order to assess the magnitude of the adjustment. In the presence of downward wage rigidities, firms may adjust their wage bill by cutting jobs. According to the "Wage Dynamics Network" survey made by ECB[4], this was precisely the main strategy used by firms. Two thirds of firms reacted to the demand shock associated with the start of the crisis by cutting costs[5] and among those firms, 66% did it by reducing labour costs despite the inability to cut wages[6]. Hence, 24% of firms cut temporary employees, 17% permanent employees and 14% decreased the number of hours worked.

Unit labour costs (ULC) measure the labour cost per unit of added value, which is a better indicator of labour cost adjustment as it takes into account simultaneously the dynamics of nominal compensation per employee and the one of employment through its accounting impact on productivity.

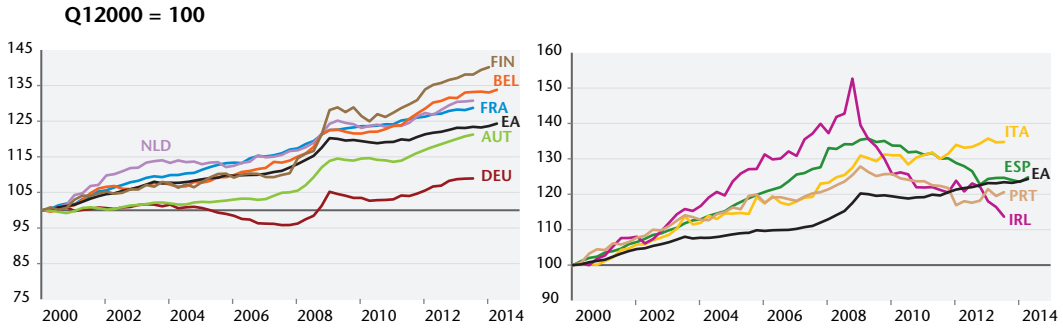
Between 2000 and 2007, important divergences contributed to the emergence of external imbalances. The euro area ULC increased by 12 points during this period—rather less than the increase in consumer prices—but this figure masks heterogeneity across Member States. Before the crisis, ULC increased significantly in peripheral countries as Ireland (+40 points), Spain (+28), Italy (+23) or Portugal (+20). The evolution was close to the euro area mean in France (+17),

4. For a summary of the results, see Lamo (2013), "Firms' adjustment during times of crisis", *ECB Research Bulletin*, 18. Firms that answered the survey come from 9 EU countries: Belgium, Czech Republic, Estonia, Spain, France, Italy, Netherlands, Austria and Poland.
5. This share reached 78% if the shock was judged to be strong and to 94% if it was coupled with credit constraints.
6. Only 1% of firms declare a decrease of base wages and 10% of firms a cut on flexible wages.

Belgium (+14) and the Netherlands (+17). Finally, ULC growth was moderate in surplus countries like Austria (+5) and even decreased in Germany (-4).

As discussed in the iAGS Report 2014, since the start of the crisis ULCs have adjusted but very asymmetrically. The trends identified in last year's report continue. The crisis countries (but not Italy) have all by now (Figure 4 includes the first two quarters of 2014 for most countries) adjusted so as to return to the trajectory of average ULC growth in the currency union (+24 points between 2000 and Q2 2014). Nevertheless, a positive gap persists in Italy (+34 over the same period), Belgium (+33) and France (+29). Although German ULC started to increase after the crisis, it has only increased by 9% since Q1 2000, which remains 15 points below the average of the Eurozone. In interpreting these figures it is important to recognise that the EA average ULC increase has lagged behind the benchmark given by the target inflation rate of the ECB.[7] A ULC increase in line with this target (1.9% a year) would amount to over 30% between 2000 and 2014.

Figure 4. Unit labour costs (total economy)



Sources: iAGS calculations on Eurostat data.

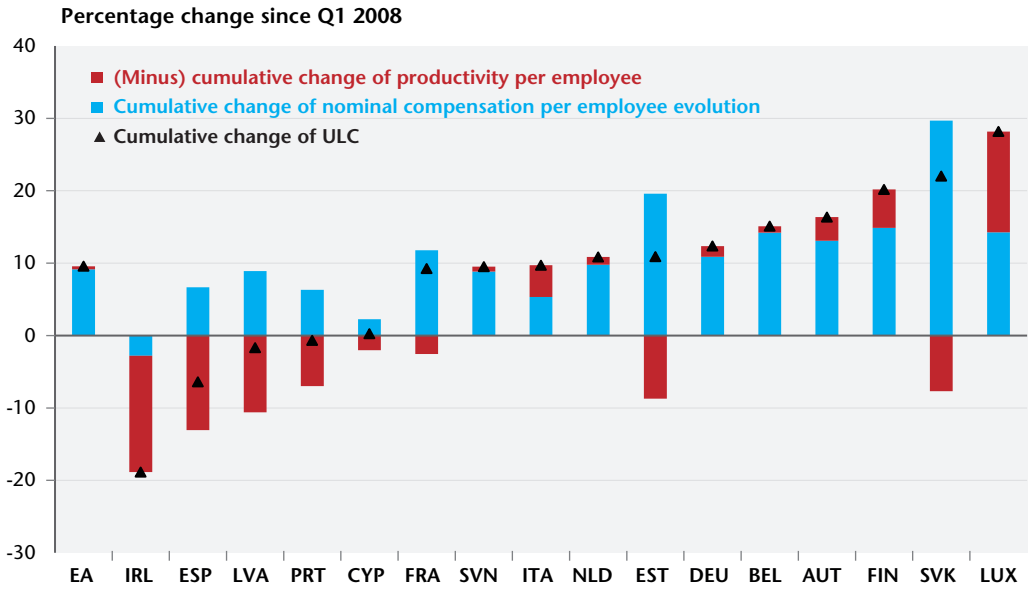
As it can be seen in Figure 5, all of the crisis countries except Italy actually achieved negative ULC growth between 2008 and 2012. For some countries the cut in ULC is very significant as in Ireland (-19%) or Spain (-6%). While the period following the crisis is characterized by nominal compensation moderation, most of the decrease of ULC in deficit countries can be explained by the surge of labour productivity (Figure 5): employment adjustment was higher than the output drop which translates into an observed rise of productivity that, for given labour costs, has as a consequence the increase of firms' profitability.

On the other hand, Germany has experienced a ULC growth since the crisis (+12%), that contrasts with the decrease observed before. Since 2008, its ULC growth rates have been broadly in line with the EMU average (+10%): in other words, while it is no longer opening up a competitiveness gap vis-à-vis the other EMU countries, neither is it closing the accumulated gap that had built up in previous years. Nominal compensation accelerated in Germany in 2012, but this momentum was not maintained, the rate weakening in 2013 and improving only slightly in 2014 (Herzog-Stein and *al.*, 2014). Meanwhile labour productivity still

7. See e.g. Watt (2007) "The role of wage-setting in a growth strategy for Europe", Philip Arestis, Michelle Baddeley and John McCombie (eds.) *Economic growth*. New directions in theory and policy, Edward Elgar: 178-199.

grows faster than the euro area average. Austria, by contrast, has been steadily closing the gap with the EMU average from below, offering an example of successful symmetrical adjustment.

Figure 5. Determinants of Unit labour costs evolution (total economy)



Sources: iAGS calculations on Eurostat data.

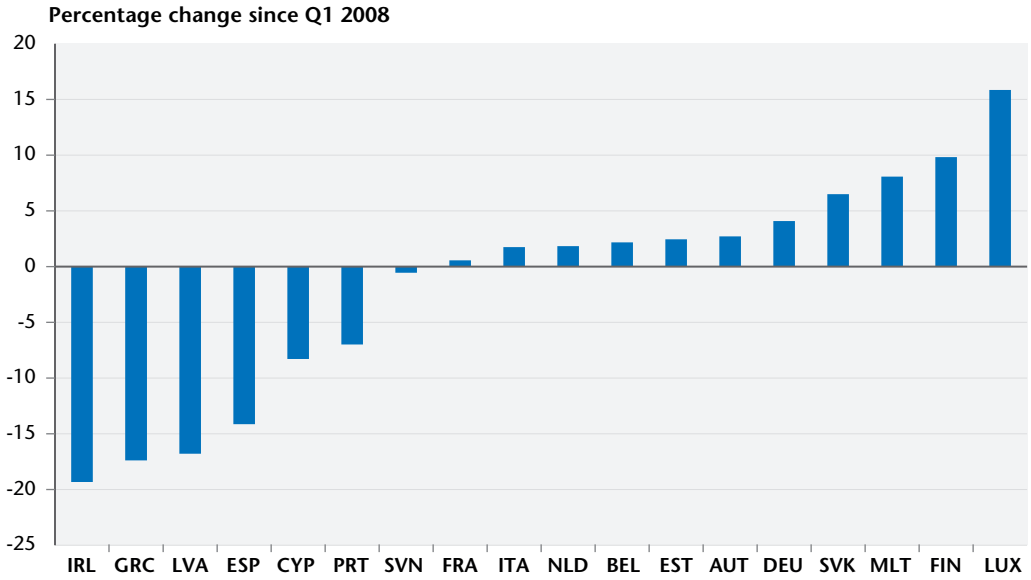
If the evolution of ULC seems to support the rebalancing of current accounts in the euro area (with the notable exceptions of Italy and Germany), the analysis of cost-competitiveness needs to compare the relative labour cost adjustment with respect to the evolution of the labour cost of competitors. The simultaneity of the adjustment reduces the amplitude of relative cost adjustments in many countries. Even in Ireland (which reduced ULC by -31%), the relative ULC (Figure 6) gains with respect to competitors based in the rest of the euro area are lower, although they remain significant (-20%). A similar effect is observable in some countries of Eastern Europe (like Slovenia) where labour costs reductions cancel each other out.

Among big countries only Spain has improved its cost-competiveness significantly. This is explained not only by the decrease of domestic ULC (by 6 points since 2008), but also because its principal partners, most of them in core countries, have increased, even if moderately, their own labour costs (Figure 7). At the end the Spanish relative ULC decreased by 14 points. On the other side, French and Italian competitiveness have not deteriorated significantly since 2008 in spite of the fact that their nominal ULC have remained relatively dynamic, thanks to the persistence of wage dynamics in other core countries, like Germany after 2009.

While recent labour market developments seem to support the correction of imbalances, their impact should not be overstated. The EA countries have made a lot of efforts to compress ULC since 2008. But these efforts do not spread automatically into export prices as firms may restore margins instead of decreasing prices, particularly in a context where firms have restricted access to bank loans and suffer from damaged balance sheet after the hit of the crisis. Significant divergences can arise between relative export prices and labour costs. Since 2008, in

spite of an impressive reduction in relative labour costs, export prices of goods and services have risen in Ireland (+3.9%) and Greece (+6.3%) and remained unchanged in Spain (Figure 8). Otherwise, the relative export price has decreased in Finland (-4.9%) while it was the country with the highest relative ULC growth (Herzog-Stein and *al.*, 2014).

Figure 6. Relative ULC (country ULC / competitors average ULC) within EMU



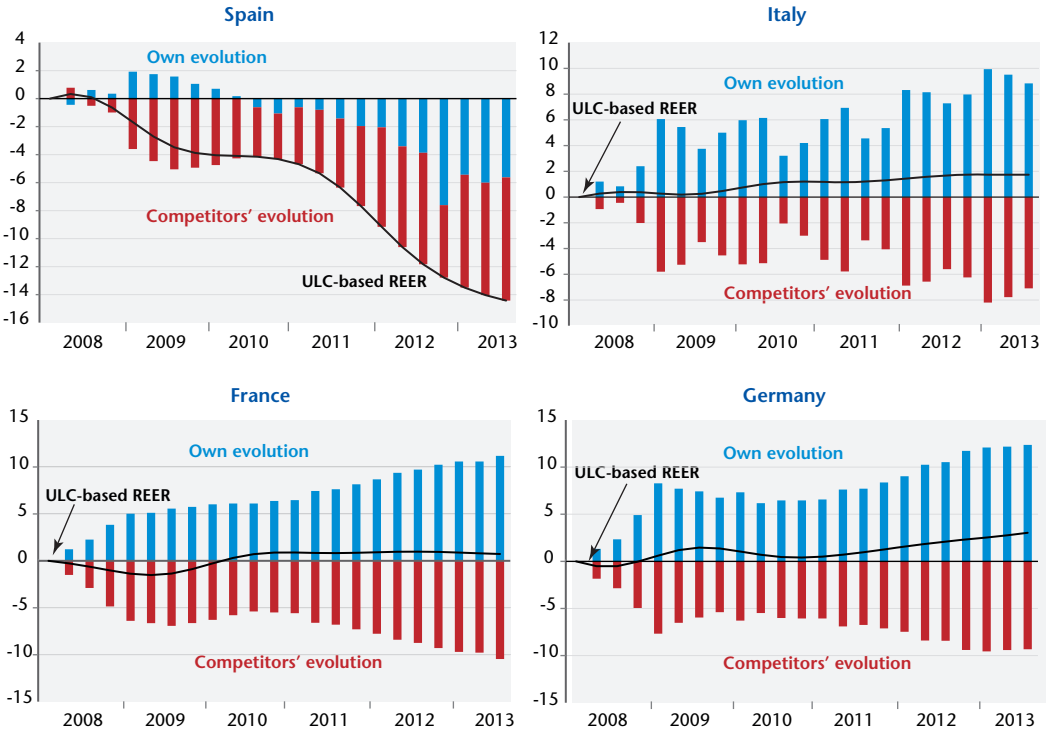
Note: the competitors average ULC corresponds to the geometric mean of the reference competitors (here Eurozone countries) weighted by a double weighting scheme that takes into the account the bilateral intensity of competition in each market.
Sources: iAGS calculations on DG Ecfin data.

Once one restricts the comparison to the export price of goods and the competitor group is extended to non-Eurozone countries, the relative export price has decreased in most Eurozone countries, pointing to the role of exchange rates in the assessment of price-competitiveness. Only Belgium (-5.1%) and Greece (-6.0%) have lost price-competitiveness with respect to this broader group.

It is important to signal that the gap between labour cost developments and export prices may reflect some statistical bias: while ULC are computed for all firms in the economy, which have adjusted severely in many countries, export prices are, by definition, set by the group of exporters. It is now well known that the bulk of foreign sales are concentrated among relatively few exporters. Those firms, which have been called "the happy few"[8], tend to be more productive, produce higher quality products, are more profitable and have a better financial situation. The crisis hit particularly small firms of which many had to close, while the "happy few" have better resisted to the shock. This selection mechanism favours big firms with advantages in terms of quality and reputation that are able to set higher prices. On the other hand, small firms close and stop exporting. Hence, the average export price may rise while the firm-level export price may decrease in line with costs developments.

8. See Mayer and Ottaviano (2007).

Figure 7. Evolution of relative ULC

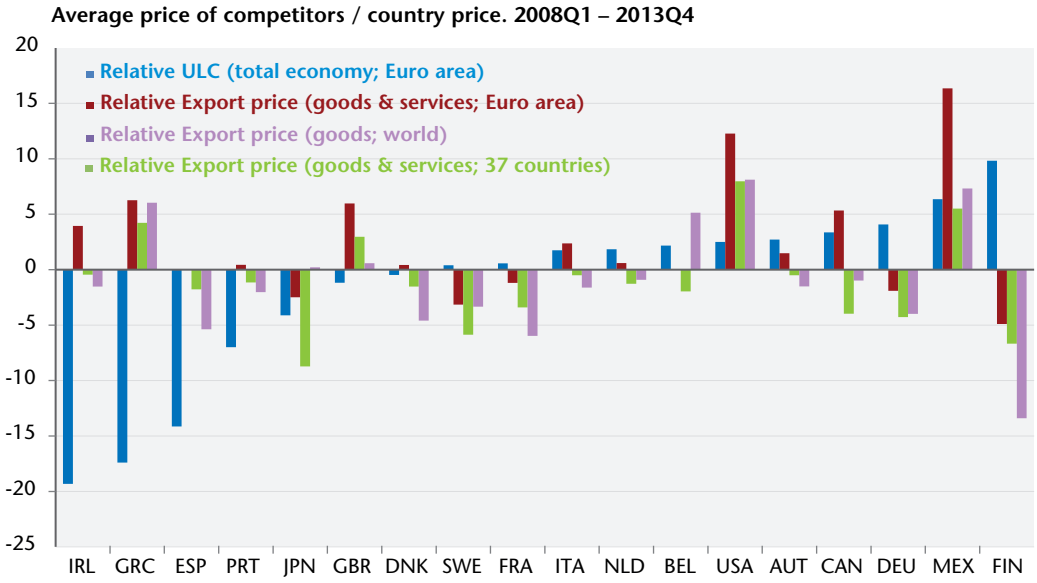


Sources: iAGS calculations on Eurostat and European Commission data.

The gap between ULC and export prices may also suggest that firms are "pricing to market": irrespective of changes in their labour costs of production they sell goods on foreign markets in line with price trends on those precise markets. The adjustment variable is the firm margin and profitability, suggesting that exporters may be restoring margins that had been squeezed in the pre-crisis period. Even so, the gap between ULC and export price developments suggest that export growth could have been stronger if price rises had been restrained.

While labour market dynamics might contribute to the correction of imbalances in Eurozone, the social and economic costs of this strategy seem too high. The ULC decrease in crisis countries is explained mostly by the rise of productivity which is linked to a massive surge of the unemployment rate (See chapter 1). By September 2014, unemployment had increased by more than 7 million people since the start of the crisis. Unemployment has decreased at a moderate pace lately, but the scars of the "Great Recession" will last. First, the impact of the unemployment gap on wage negotiations will last, as a Phillips curve analysis suggests. Second, this kind of adjustment transfers revenues from workers—and, among them, the more vulnerable with higher propensity to consume—to firms. In a context of low investment, this transfer will weight on aggregate demand. Third, the ULC reductions have not been sufficiently offset by higher ULC and price inflation in Germany. Together, these developments increase deflation risks, notably in peripheral countries, in a period where private and public actors are seeking to repair their balance sheets. The wage deflationary pressures will then continue and may even strengthen if expectations re-anchor to a deflationary equilibrium.

Figure 8. Variation of the relative export price of merchandises



Note: Relative ULC (export-price) is computed as the ratio between ULC (export-price) in the country over the average ULC (export-price) of its competitors (weighted by a double weighting that measures the intensity of competition in world markets).
Sources: iAGS calculations based on DG Ecfin data.

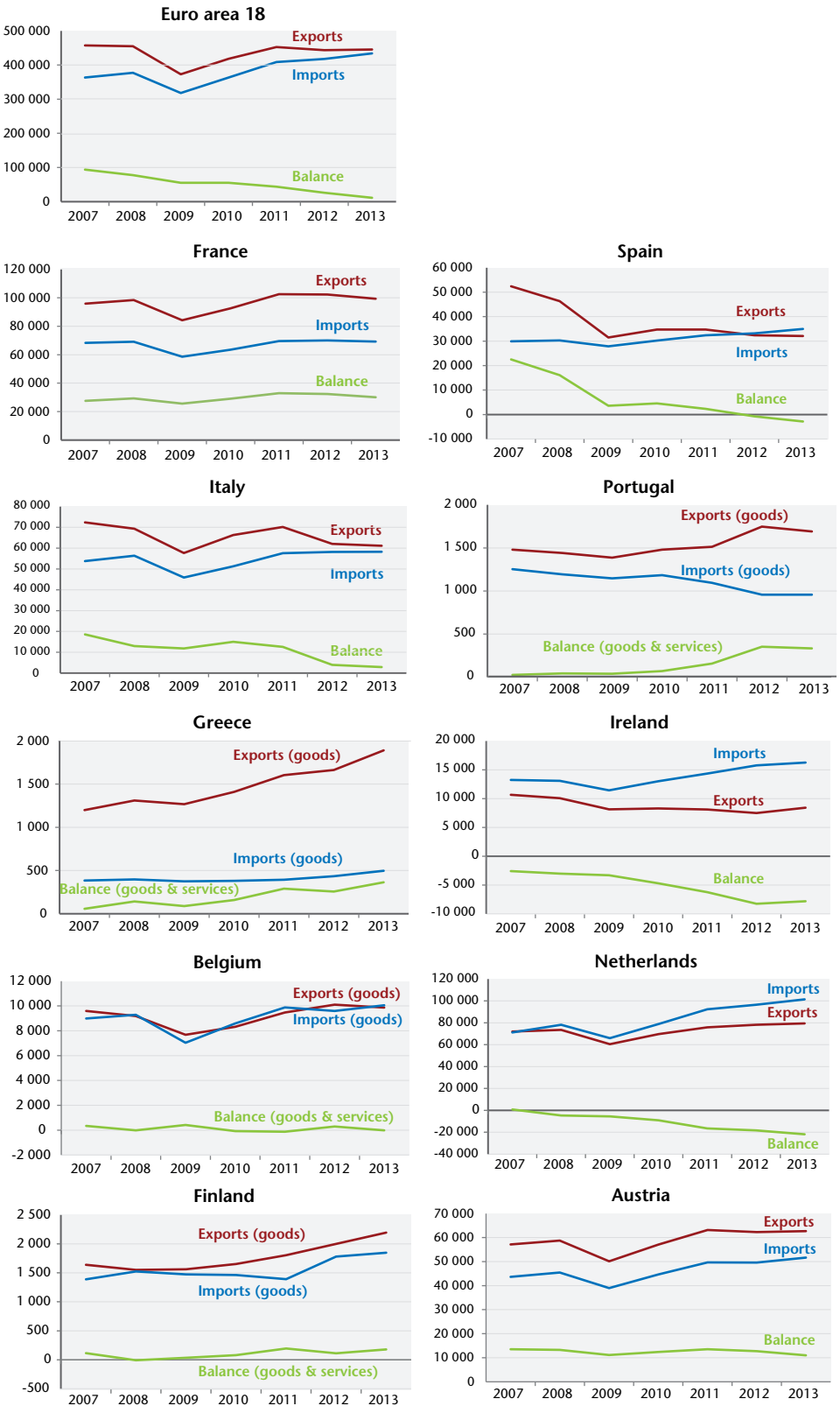
Box 2. Adjustments of euro area countries regarding Germany

Another way to assess the correction of imbalances is to look at bilateral trade between EA countries (Figure 9). So we consider Bundesbank data for the bilateral trade and payments relations between Germany–the largest economy and by far the most important surplus country in the currency area–and ten other EA countries including the biggest ones (France, Italy, Spain) and crisis countries (Ireland, Greece, Portugal). The figures are reported from the German position, so that the line representing "Exports" to, for instance, Spain represents Spanish imports of goods and services from Germany. Overall, the German trade surplus vis-à-vis other EA countries disappeared in 2013. Germany has maintained a current account surplus throughout the period since the crisis with all the other countries except Ireland and Netherlands. But the current account surpluses have fallen substantially, and Germany is now in deficit with Spain in 2013.

If we consider the developments of exports and imports separately, a similar pattern emerges as seen with post-crisis trade relations more generally. Initially the trade deficits were closed primarily by import compression. More recently, though, exports from the crisis countries to Germany have picked up somewhat. As a combined result of these two trends, the German trade surpluses are now very limited in most cases (exception: France). The fact that the current account deficit remains considerably wider is due to the other components of the current account (factor income and transfers) which have tended to remain rather stable in the years since the crisis broke. This means that, despite the improvement in bilateral trade balances with Germany, the crisis countries still have to fund current account deficits, which implies further increasing their net foreign liabilities vis-a-vis Germany.

Figure 9. Bilateral trade (Goods and services) of EA countries with Germany

Millions of euros



Sources: Bundesbank, iAGS calculations.

Greater import absorption by Germany on the back of expansionary policies and measures to increase wage and price growth would have reduced the costs of adjustment and the crisis countries would already certainly be running trade surpluses and probably also current account surpluses against Germany, enabling them to pay down foreign debt. It is not too late to rectify this costly error. A corollary of shrinking bilateral current account surpluses with the EMU crisis countries is that the continued German current account surpluses of between 6 and 7% of GDP are due to growing net exports in trade with non-EMU countries, for instance the US and the BRICS.

2. Correcting external imbalances in the euro area

In order to perform a more systematic and globally consistent analysis of the imbalances in the EA, we construct a small trade model that computes the required price adjustment of every EA country. Those price adjustments are by construction compatible with both an internal rebalancing–closing the output gap–and an external rebalancing–stabilizing the net international investment position (NIIP) at a sustainable level.

The core of the model consists of equations linking import and export volumes to output variations and to competitors' prices. Imports react positively to domestic activity and to domestic prices, and negatively to competitors' prices. Exports react positively to foreign activity levels and to competitors' prices, and negatively to domestic export prices. The model also incorporates equations for export and import prices in order to reflect the pricing strategies (in the space between local currency pricing on one extreme and producer currency pricing on the other extreme). A detailed description of the model and its calibration are given in the technical appendix.

The main contribution of this modeling exercise relative to previous studies is that a global equilibrium is computed at the EA level. Instead of computing partial equilibrium price adjustments, *i.e.* those needed in one country without taking into account the effect of domestic price changes on the equilibrium of other countries, our methodology computes price adjustments that are compatible with internal and external adjustment of all EA countries *simultaneously*. Said otherwise, we compute the equilibrium that should be reached if all EA countries were acting cooperatively. The rest of the world is assumed to adjust its demand for imports according to its activity level and to the EA export prices, but to keep its own prices unchanged.

Defining the target of the external adjustment of EA countries is the critical task.[9] Even though it is clear that an ever increasing external position is unsustainable over the long run, and that stabilizing the NIIP is therefore a necessary condition, the level at which that position becomes unsustainable is not clearly quantified in the literature and may depend on a wide range of parameters. In our baseline scenario, we somewhat arbitrarily assume that NIIPs are sustainable over the long run provided they are within the ±50% range of GDP (the sensitivity to

9. On the other hand, the target of the internal adjustment is naturally defined as closing the output gap.

that parameter is studied in alternative scenarios further below). Therefore, for those countries whose NIIP is already within ±50%, the target of their external adjustment is simply to stabilize their NIIP at its current level. For those countries whose NIIP is below -50% (resp. above +50%), their target is to stabilize their NIIP at -50% (resp. +50%) at a 20-year horizon.

Table 4 summarizes the baseline scenario. The first column presents the NIIP targets. Greece, Ireland, Portugal and Spain are expected to improve their NIIP and reach the -50% level, while other countries are simply expected to stabilize their NIIP at its current level. The last two columns present the results in terms of real effective exchange rate (REER) adjustments and in terms of value added (VA) price adjustments. Note that VA price adjustments and REER adjustments differ precisely because all the countries are supposed to change their VA prices simultaneously: the REER incorporates changes in domestic prices but also changes in prices of multiple trade partners. All the adjustments are computed using the data available at the end of 2013, and therefore represent what remains to be done as of the beginning of 2014. In the baseline, export prices of countries outside the EA are supposed to remain constant in Euro terms. The computed adjustments are such that, if implemented immediately, all the countries would reach their NIIP targets in 20 years from now. Of course the prescribed adjustments cannot be achieved right now but will be gradually implemented, so our results in terms of VA prices should rather be understood as cumulative inflation differentials.[10] For example, according to Table 4, Germany should increase its prices by 26.1% while Greece should decrease them by 6.9%, corresponding to a cumulative inflation differential of 33%, so the adjustment could be achieved in 20 years with an annual inflation differential of 1.65% between Germany and Greece.[11]

We now discuss the results in terms of REER adjustments. Unsurprisingly, Germany and the Netherlands need a substantial real appreciation. Greece, on the other hand, still needs to depreciate by almost 14% despite having already reached a balanced current account; this is so because its recent current account improvement has a strong cyclical component, related to the compression of its internal demand. The other crisis countries (Ireland, Italy, Spain, Portugal) have already mostly completed their adjustment. Looking at the results in terms of VA prices, the model predicts moderate negative price adjustments for only three countries: Belgium, Finland and Greece, and substantial positive price adjustments in Austria, Germany and the Netherlands. Given that these figures should be understood as deviations relatively to a world inflation trend, our results indicate that deflation is no more needed–even in crisis countries–in order to achieve the adjustment; only inflation lower than the EA average is required.

10. More precisely, price adjustments should be understood as cumulative inflation differentials relatively to the average inflation rate in the EA. When we say in Table 4 that Germany should increase its prices by 26.1%, we mean that the adjustment will be over when the cumulative inflation differential between Germany and the EA average reaches 26.1%. In the baseline, we also suppose that prices of countries outside the EA (expressed in Euro terms) increase at the same rate as the average EA inflation (*i.e.* we suppose that the relative purchasing power parity holds). This assumption will be relaxed when we examine changes in the Euro exchange rate.

11. If price adjustments are not done immediately but are gradually implemented over time, then the NIIP will not reach its target in 20 years, but later. How much later depends on the speed and profile of the adjustment. We choose to abstract from these short term dynamics and maintain the focus on long term equilibria.

Most of the adjustment should now go through inflation rates above the average in surplus countries.

Table 4. Baseline scenario

In %

	NIIP target (% GDP)	REER adjustment	VA price adjustment
AUT	0.5	+14.9	+26.6
BEL	45.8	-16.1	-6.0
FIN	15.8	-14.3	-8.6
FRA	-17.0	-4.5	+2.7
DEU	48.4	+21.8	+26.1
GRC	-50.0	-13.7	-6.9
IRL	-50.0	+5.6	+9.6
ITA	-29.5	+5.8	+12.3
NLD	46.3	+19.5	+25.0
PRT	-50.0	-3.2	+5.4
ESP	-50.0	+2.9	+9.7

If Greece is to reach a NIIP of -50% of GDP in 20 years from now, it must achieve a real depreciation of 13.7%. This can be obtained by decreasing its VA prices by 6.9% (assuming that the other EA countries also adjust their VA prices by the prescribed amounts and that prices outside the EA are unchanged).

Source: iAGS calculations.

Since the model predicts price increases in most EA countries and since our baseline scenario assumes unchanged price levels outside the EA, the model predicts a loss of competitiveness of the EA as a whole and therefore a deterioration of its trade balance (of 2.8% of GDP, down to 0.8%). This result stems from the chosen NIIP country targets which sum up to an almost zero aggregate NIIP for the whole EA. As a consequence the model targets an almost balanced current account at the EA level, and therefore predicts a deterioration of the aggregate trade balance. Alternative scenarios with respect to the exterior position of the EA are analyzed further below.

We explored the sensitivity of our results to various hypotheses: the degree of internal rebalancing, the nominal depreciation of the Euro, the real interest rate, the adjustment horizon and the NIIP target range. The main conclusion is that the general picture given by the baseline results is rather robust, while other interesting features emerge.

First, if price adjustments are computed without assuming that output gaps are closed, then the results are broadly similar except for Greece, for the reasons mentioned above: instead of a real depreciation of 13.7%, the country would need an appreciation of 11.9% in the absence of internal rebalancing; the same applies to a lesser extent to Ireland, which would need an appreciation of 19.8% instead of 5.6% (because of its large output gap of -8.7%).

We also performed simulations in which the nominal effective exchange rate of the Euro is allowed to change (but export prices of countries outside the EA are still kept unchanged in foreign currency terms). The result is that REER adjustments are insensitive to changes in the nominal effective exchange rate of the Euro. The intuition for this result is simply that long term equilibria in real variables

are invariant to nominal variables (and we do not incorporate short term adjustment dynamics). However, adjustments expressed in terms of VA prices are affected by the nominal exchange rate, on a one-to-one basis. For example, under the hypothesis of nominal depreciation of the Euro of 10%, all internal prices must increase by 10% more than in the baseline scenario. In particular, that means that in the 10% depreciation scenario, no negative price adjustment is needed (even relative to the common inflation trend).

The results are not very sensitive to the value assumed for the real interest rate on foreign assets, which is 1% in the baseline.[12] Again, Greece is the exception with a required REER adjustment ranging from -22.3% (in case of a negative real interest rate of -1.5%) to -7.7% (for a real interest rate of 3%).

We also tested the sensitivity of our results to the horizon at which the NIIP is assumed to reach its target position. In the baseline, this horizon is set at 20 years, which means that the target NIIP will be reached in 20 years if the countries adjust immediately to the new internal prices and maintain that price level over the next 20 years. Shortening or extending the adjustment horizon significantly changes the adjustment required from those countries which are not already within the required NIIP range (±50%), *i.e.* Greece, Ireland, Spain and Portugal. The impact on other countries in terms of REER adjustment is small, but not zero, because of general equilibrium effects. Results for this exercise are reported in Table 5. The main point to be stressed is that, if we leave them 50 years or even more to adjust, then Greece and Portugal no longer need a real depreciation in order to reach equilibrium (as was already the case of Italy, Spain and Ireland in the 20 years baseline).

Table 5. REER adjustments as a function of the adjustment horizon

In %

Horizon	10 years	20 years	50 years	Infinite
AUT	+14.2	+14.9	+15.3	+15.5
BEL	-16.9	-16.1	-15.6	-15.3
FIN	-15.5	-14.3	-13.7	-13.3
FRA	-4.3	-4.5	-4.7	-4.7
DEU	+21.8	+21.8	+21.8	+21.8
GRC	-43.7	-13.7	+4.3	+14.8
IRL	-0.8	+5.6	+9.4	+11.4
ITA	+5.7	+5.8	+5.8	+5.9
NLD	+19.1	+19.5	+19.7	+19.8
PRT	-17.4	-3.2	+5.3	+10.1
ESP	-5.4	+2.9	+7.9	+10.6

Source: iAGS calculations.

12. In our simulations it is necessary to make an assumption for the real interest rate on foreign assets in order to make the transition from trade balances to current accounts (and the latter is then used for computing the NIIP). See the technical appendix for more details.

Finally, we examined the influence of the target range for NIIP, which is ±50% in the benchmark. Table 6 shows the results. On one extreme if we impose a return to a zero NIIP for all countries, then the crisis countries–which currently have highly negative NIIP–must depreciate much more than in the baseline, while the adjustment required for other countries is mostly unchanged.[13] On the other extreme, if the upper limit on the absolute NIIP is lifted–and therefore if the only constraint is to stabilize the NIIP at its current level–then no crisis country needs to depreciate.[14] Simulations with the range ±25% give result close to those obtained with a lower bound of -35% as it is set in the six pack scoreboard.

Table 6. REER adjustments as a function of the NIIP target range

In %

NIIP target range	0%	±25%	±50%	±100%	No range limit
AUT	+14.8	+14.8	+14.9	+15.5	+15.6
BEL	-3.9	-10.1	-16.1	-15.3	-15.2
FIN	-7.3	-14.1	-14.3	-13.2	-13.1
FRA	-9.9	-4.9	-4.5	-4.7	-4.8
DEU	+28.9	+25.2	+21.8	+21.8	+21.8
GRC	-34.9	-24.5	-13.7	+8.6	+17.8
IRL	-0.0	+3.1	+5.6	+12.0	+12.6
ITA	-4.0	+4.1	+5.8	+5.9	+5.9
NLD	+23.7	+21.6	+19.5	+19.8	+19.8
PRT	-13.8	-8.6	-3.2	+7.4	+11.8
ESP	-6.4	-2.0	+2.9	+12.0	+11.9

Source: iAGS calculations.

The last two sensitivity exercises have shown that, for the countries with a very negative NIIP (Greece, Ireland, Portugal, Spain), the adjustment could be eased or even escaped if the constraints were relaxed (either in terms of adjustment horizon or of NIIP target). Another way of relaxing the constraints would be to introduce some external debt relief, which could be achieved through a public debt relief. Though we did not quantify this possibility, it is clear that it would translate into a smaller relative price adjustment for these countries.

So far we have presented the adjustments needed as of the beginning of 2014. But it is possible to apply the same methodology to past data and therefore to reconstruct the evolution over time of the internal disequilibria of the EA. We performed this exercise for all years between 1995 and 2013 (implicitly considering the Ecu as the single currency before 1999). Some clear historical patterns emerge from this exercise. Germany starts from an overvaluation of about 10% in

13. The depreciation required for Belgium and Finland is smaller in that case than in the baseline, because those countries currently have a positive NIIP and a trade balance deficit. Sustaining a zero NIIP requires less effort than sustaining a positive NIIP.

14. The results for this case are similar to the results with a very large time horizon to adjust. Having a lot of time to adjust means letting the NIIP drift very slowly, which in the medium term is almost the same as stabilizing the NIIP.

1995 and then sharply reverses its position in the early 2000s to arrive at an undervaluation of 21% in 2007, which has mostly remained constant since. The Netherlands exhibit a fairly stable pattern of undervaluation oscillating between 10% and 20% during the whole sample. France starts from an equilibrium position in 1995, quickly becomes undervalued by 20% by 1999, then gradually loses its competitive advantage to arrive at a small overvaluation today. Portugal and Greece were overvalued during the whole sample, with a worsening of their situation during the financial crisis, followed by a marked improvement between 2011 and 2013. Spain qualitatively follows a similar pattern, but with a quantitatively smaller overvaluation.

In all the exercises above, the target of the adjustment has been defined in terms of stabilizing the NIIP at its current level, or as an effort to bring back the NIIP into a sustainable range if needed. But considering the adjustment under this angle has some drawbacks. For example, some countries (Belgium and Finland) today have current account deficits but a positive NIIP. Stabilizing their NIIP at its current level means turning their current account deficit into a surplus. But one could argue that shrinking the deficit down to a level compatible with a negative —but sustainable—NIIP would constitute an acceptable adjustment, which actually happens to be more sensible because less painful. This observation led us to consider another type of global EA readjustment in which the price adjustments are minimized, under the constraint that all NIIPs are stabilized in a sustainable range over a given horizon. More precisely, we computed the vector of price adjustments that minimizes the quadratic sum of price deviations weighted by country GDPs, under the constraint that all NIIPs converge in the range of ±50% of GDP within 20 years. Table 7 shows the results. The optimal NIIP targets are different from those of the baseline; in particular, only Greece will reach the lower bound of -50%, while three countries—Austria, Germany and the Netherlands—will reach the upper bound of +50%.

Turning to REER adjustments and VA price adjustments, one can see that the magnitude of bilateral readjustments is globally the same as in the baseline, but with a lower average price level (*i.e.* this scenario requires a lower average

Table 7. Alternative scenario: Minimization of price deviations

In %

	Long-term NIIP(% GDP)	REER adjustment	VA price adjustment
AUT	50.0	+2.1	+5.8
BEL	37.4	-14.8	-9.2
FIN	-5.5	-6.8	-3.7
FRA	-5.4	-7.2	-4.6
DEU	50.0	+22.2	+22.2
GRC	-50.0	-13.6	-11.1
IRL	50.0	-7.5	-5.6
ITA	8.0	-6.1	-3.2
NLD	50.0	+17.9	+20.1
PRT	-32.8	-5.6	-4.1
ESP	6.9	-7.3	-5.2

Source: iAGS calculations.

inflation in the EA). The baseline was biased towards inflation because it was based on a shrinking of the current account surplus of the EA, itself needed because the aggregate NIIP target of the EA was close to zero; in this alternative scenario where price deviations are minimized, the average price deviation is close to zero, and therefore the aggregate trade balance shrinks by less (it shrinks by 1.8% of GDP, down to 1.7%).

The last scenario that we examined is also based on a minimization of the price deviations, but under the additional constraint that the REER of the whole EA should remain unchanged. The results are reported in Table 8. The general picture is that this scenario calls for even less inflation on average, especially for France and Italy which are additionally asked a much larger devaluation relatively to Germany. The consequence is that the aggregate trade balance is shrunk by only 1.3% of GDP, down to 2.2%. Note that this scenario still predicts a degradation of the trade balance–even though the real exchange rate of the EA is kept constant–because the EA has a larger output gap than the rest of the world and will therefore import relatively more when output gaps are closed.

Table 8. Alternative scenario: Minimization of price deviations, under stable aggregate REER

In %

	Long-term NIIP (% GDP)	REER adjustment	VA price adjustment
AUT	50.0	-2.8	+3.0
BEL	3.6	-7.2	-4.7
FIN	-15.5	-3.4	-1.5
FRA	34.9	-18.9	-17.3
DEU	50.0	+21.9	+20.1
GRC	-50.0	-13.5	-13.1
IRL	-10.2	-1.8	-0.9
ITA	25.8	-12.1	-11.2
NLD	50.0	+16.6	+17.8
PRT	-50.0	-1.3	-2.8
ESP	10.6	-7.3	-8.5

Source: iAGS calculations.

Of course this exercise has its limitations. It is based on a rather crude model of the trade behaviours of EA countries, and it abstracts from many important issues: short and medium term dynamics, non-price competitiveness, sectoral disaggregation, valuation effects on the NIIP, feedback effects on the rest of the world. In particular, a Euro depreciation should further reduce the adjustment because of the expected positive valuation effects on the NIIP.[15] Further effort is therefore needed to obtain more precise estimates of the disequilibria within the EA. We nevertheless believe that our figures provide a good starting point and are useful enough to draw some policy conclusions.

15. See for example Pupetto L. and Sode A. (2012).

The main conclusions can be summarized as follows. First, even though a substantial readjustment has been achieved since 2011, much still remains to be done. The price disequilibria between overvalued and undervalued countries within the EA could be as much as 35% under reasonable assumptions. Secondly, a rebalancing strategy should rely on maintaining inflation differentials within the EA over an extended period, with higher inflation in Germany and lower inflation in crisis countries; deflation is not required in the latter countries if the readjustment is implemented gradually. A coordinated wage policy, with substantial wage increases in Germany, would definitely be needed in order to achieve the rebalancing while limiting adjustment costs. Third, a nominal depreciation of the Euro would facilitate the rebalancing by making it compatible with a higher inflation rate even in crisis countries. Fourth, public debt relief in some countries–at least in the smaller crisis countries like Portugal, Greece and Ireland–would also ease the adjustment.

This year's iAGS does not contain a detailed analysis of wage policy. We refer readers to last year's report, where a coordinated setting of minimum wage increases in accordance with macroeconomic considerations in each country was shown to have a significant potential in achieving balanced adjustment of competitiveness within the euro area without imposing the high costs associated with deflationary policies.

More generally, the Macroeconomic Imbalances Procedure offers, in principle, an opportunity to seek to reach a "grand bargain" centred around a golden wage rule.[16] This would increase the capacity of social partners and governments to deliver balanced wage outcomes that respect the need for growth and competitiveness while avoiding a dangerous race to the bottom. This requires, rather than the destruction of collective bargaining institutions, on the contrary, joint national and European initiatives to develop the institutional capacity for wage setting that takes macroeconomic outcomes as a firm basis for outcomes.

16. See Watt, A. (2012).

Technical appendix

The model

The first step is, for given NIIP targets, to compute the corresponding trade balance targets. Let i denote the country index, TB_i the trade balance to GDP ratio of country i, CA_i the current account to GDP ratio, $NIIP_i$ the NIIP to GDP ratio, r the real interest rate, π the inflation rate. We compute the part of the current account R_i (expressed as a ratio of GDP) that is not explained by trade or by interest payments on the external position:

$$R_i = CA_i - TB_i - (r + \pi)NIIP_i$$

That residual is non zero either because of transfers (remittances, debt cancellation…), errors and omissions, or because the assumed interest rate r does not correspond to the effective average interest rate on the net external position.

Then, given potential growth g_i, the adjustment horizon h and the NIIP target $\overline{NIIP_i}$, the target trade balance is defined by:

$$\overline{TB_i} = \frac{\overline{NIIP_i} - NIIP_i\left(\frac{1+r+\pi}{1+g_i+\pi}\right)^h}{\sum_{t=0}^{h-1}\left(\frac{1+r+\pi}{1+g_i+\pi}\right)^t} - \mathrm{R}_i$$

This target trade balance is such that, if the country were adjusting to this new value today, then the NIIP would reach the target NIIP in h years, provided the hypotheses on growth, real interest rate and inflation are realized.

It is important to note that this calculation incorporates several other assumptions. First, the residual R_i is assumed constant over time; as a side effect, if the value that we assumed for r is wrong, then our interest payment computations are wrong only on the difference between the initial NIIP and its target. Second, we assume that changes in the NIIP are only due to current account surpluses or deficits and not to valuation effects: this seems like a reasonable approximation since there is no time pattern or trend in those valuation effects over time (see Pupetto and Sode, 2012, p. 30 for more details).

We now describe the trade model that is at the core of the computation. All the endogenous variables denoted by lower letters are log-deviations from a reference level (defined as the actual values at the end of 2013).

The volume of exports x_i of country i depends on the foreign demand d_i^{EX} and on the difference between p_i^{EX}, the index of competitors' prices on export markets of country i, and p_i^X, the export prices of country i:

$$x_i = d_i^{EX} + \varepsilon_i^X(p_i^{EX} - p_i^X)$$

where ε_i^X is the price-elasticity of exports. Note that the elasticity of exports with respect to the foreign demand is equal to one, which means that this is a specification in terms of market shares.

Similarly, the volume of imports m_i of country i depends on the domestic output y_i and on the difference between domestic VA prices p_i^{VA} and import prices p_i^M:

$$m_i = y_i + \varepsilon_i^M(p_i^{VA} - p_i^M)$$

where ε_i^M is the price-elasticity of imports. Again, the elasticity with respect to demand is equal to one, which is necessary to ensure homogeneity.

The foreign demand d_i^{EX} faced by country i is a function of import volumes of trade partners and of the output of the rest of the world y_{RoW} (the latter being a proxy for the imports of the rest of the world):

$$d_i^{EX} = \sum_j wx_i^j \, m_j + wx_i^{RoW} y_{RoW}$$

where wx_i^j is the share of country j in the exports of country i.

The price p_i^X of exports of country i depends on domestic VA prices and on competitors' prices on export markets:

$$p_i^X = (1 - \varepsilon_i^{PX}) p_i^{VA} + \varepsilon_i^{PX} \, p_i^{EX}$$

where ε_i^{PX} is the price-elasticity to competitors' prices. On one extreme if $\varepsilon_i^{PX} = 1$ then the producers of country i entirely adjust to competitor's prices, potentially at the expense of their margins. On the other extreme if $\varepsilon_i^{PX} = 0$ then the producers focus exclusively on their margins, potentially at the expense of their competitiveness.

Similarly the price p_i^M of imports of country i depends on domestic VA prices and on a price index p_i^{EM} of exporters to country i:

$$p_i^M = (1 - \varepsilon_i^{PM}) p_i^{VA} + \varepsilon_i^{PM} \, p_i^{EM}$$

where ε_i^{PM} is the price-elasticity to export prices. On one extreme if $\varepsilon_i^{PM} = 0$ then the exporters to country i entirely adjust to domestic prices, potentially at the expense of their margins. On the other extreme if $\varepsilon_i^{PM} = 0$ then the exporters focus exclusively on their margins, potentially at the expense of their competitiveness.

The index of competitors' prices on export markets of country i is defined by:

$$p_i^{EX} = \sum_j wc_i^j \, p_j^X + wc_i^{RoW} e$$

where e is the nominal effective exchange rate of the Euro, and the weights wc_i^j are computed by double weighting. Note that we make here the assumption that export prices (in foreign currency) of countries outside the Eurozone do not change, so e can be understood as non-euro competitors' price expressed in euros.

The price index of exporters to country i is defined by:

$$p_i^{EM} = \sum_j wm_i^j \, p_j^X + wm_i^{RoW} e$$

where wm_i^j is the share of country j in the imports of country i.

Given the changes in exports, imports, prices and output, one can infer the percentage point variation in the trade balance ratio, which is given by:

$$\Delta TB_i = X_i\left(p_i^X + x_i\right) - M_i\left(p_i^M + m_i\right) - TB_i\left(p_i^{VA} + y_i\right)$$

The solution of the model is defined as a set of vectors $x, m, p^{VA}, p^X, p^M, p^{EX}, p^{EM}, d^{EX}$ satisfying the equations of the model, under the constraint that the trade balances reach their target (*i.e.* $\Delta TB_i = (\overline{TB_i}) - TB_i$ for all countries) and given the assumptions for the output changes and the exchange rate (in the baseline, the output gaps are supposed to close, so the output

changes y are set to the opposite of the 2013 output gaps, and the exchange rate of the Euro is supposed to remain unchanged, so $e = 0$).

Finally, for a given solution of the model, one can compute the REER changes for every country:

$$reer_i = p_i^{VA} - \left(\sum_j \left(\frac{wm_i^j + wx_i^j}{2} \right) p_j^{VA} + \left(\frac{wm_i^{RoW} + wx_i^{RoW}}{2} \right) e \right)$$

Note that again this calculation assumes that prices of countries outside the euro area (expressed in foreign currencies) remain unchanged.

Calibration

The data for the 2013 NIIP, TB and CA come from Eurostat. The 2013 output gaps come from the OECD database. The potential growth rates are the same as those used for the iAGS model. The bilateral import and export shares come from CEPII's CHELEM database.

The inflation rate π is set at the ECB target of 2%. In the baseline, the real interest rate r is 1% and the horizon h is 20 years.

Finally, Table 9 shows the values assumed for the price-elasticities of export and import volumes and prices.I

Table 9. Price-elasticities of export and import volumes and prices

Elasticities	ε^X	ε^M	ε^{PX}	ε^{PM}
AUT	0.60	0.16	0.18	0.51
BEL	0.47	0.28	0.57	0.79
FIN	0.60	0.31	0.57	0.79
FRA	0.58	0.74	0.52	0.72
DEU	0.42	0.79	0.53	0.77
GRC	0.47	0.37	0.41	0.40
IRL	0.60	0.33	0.28	0.51
ITA	0.43	0.57	0.44	0.43
NLD	0.60	0.28	0.41	0.36
PRT	0.47	0.56	0.77	0.79
ESP	0.85	0.81	0.44	0.76

Sources: Ducoudré and Heyer (2014) for France, Germany, Italy and Spain. OECD (2005) for the other countries.

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