EURO AREA POLICIES

2013 ARTICLE IV CONSULTATION

July 2013

Selected Issues Paper

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EURO AREA POLICIES

SELECTED ISSUES

July 12, 2013

Approved By

The European Department

Prepared By Ali Al-Eyd, S. Pelin Berkmen, Thierry Tressel, Shengzu Wang, Fabian Bornhorst, and Marta Ruiz Arranz

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FRAGMENTATION, THE MONETARY TRANSMISSION MECHANISM, AND MONETARY POLICY IN THE EURO AREA[1]

The European Central Bank (ECB) has taken a range of actions to address bank funding problems, eliminate excessive risk in sovereign markets, and safeguard monetary transmission. As a result, the situation across the euro area financial system has improved since the summer of 2012. But the degree of fragmentation remains high, with retail interest rates in stressed markets far above those in the core. This has impeded the flow of credit and undermined the transmission of monetary policy. Analysis presented here indicates that the credit channel has been broken during the crisis, particularly in stressed markets, and that small and medium-sized Enterprises (SMEs) in hard-hit economies appear to be most affected. Given these stresses, the ECB can undertake additional targeted policy measures, including through various forms of term funding, looser collateral policies, and direct asset purchases.

A. Has OMTs Delivered?

1. The ECB announced the Outright Monetary Transactions (OMTs) framework to address severe distortions in sovereign bond markets and safeguard monetary transmission.

2. Since the announcement, excessive risk in stressed sovereign markets has been reduced and confidence in the euro restored. Spreads on Italian and Spanish government bonds have declined from unsustainable levels to those last seen in late 2010, prior to the deepening of the sovereign crisis. At the same time, market indicators suggest that euro redenomination risks have been taken off the table, if not completely eliminated (see Box 1).

3. Corporates and banks have also benefitted from the OMTs announcement. CDS spreads for corporate and banks in stressed economies have narrowed sharply in tandem with falling sovereign risks. This has led to an improvement in bond issuance, particularly among corporates. But the impact on banks appears to be less pronounced, with issuance fading relative to the post-Long Term Refinancing Operation (LTRO) period, and CDS spreads creeping up in recent months. However, both bank and corporate risk remains substantially below pre-OMTs peaks.

Euro Area Corporate Lending Rates
(percent)[1]
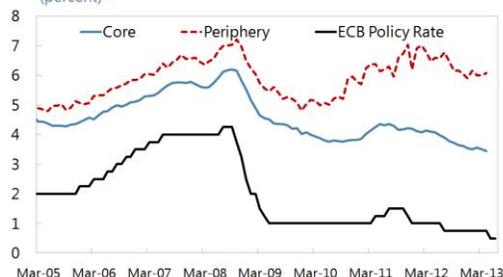
Note: Unweighted average; MFI lending to corporations under €1 million, 1-5 years maturity. Core: Germany, France, Belgium, Netherlands.
1/ Periphery includes Greece, Ireland, Itlay, Portugal, and Spain. In the sample, Ireland is excluded from May 2011 and Greece from September 2012.

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[1] Prepared by Ali Al-Eyd and S. Pelin Berkmen (EUR).

4.   But despite improved financial conditions, monetary transmission in the periphery and stressed markets remains impaired. In particular, private interest rates—both deposit and lending rates—in these economies have increased relative to corresponding rates in the core and the ECB's policy rates. This divergence began in 2011, and has since become worse, with Spanish and Italian corporates currently facing borrowing rates anywhere from 300-400 basis points above their counterparts in Germany.

B.   Why Have Interest Rates Diverged?

5.   The divergence in interest rates reflects the elevated fragmentation of financial markets. A combination of factors—including elevated counterparty risks, regulatory hurdles (higher liquidity ratios and bail-in prospects), and the increased subsidiarization of banks' business models (partly related to the rise of regulatory "ring-fencing" in some countries)—has undermined cross-border bank flows, particularly to the periphery, and contributed to diverging term funding costs with the core. At the same time, dampened growth prospects, and for certain countries, the prolonged period of low policy rates (with large mortgage books tied to low Euribor rates) have been weighing on banks' profitability and capital positions, reinforcing the need to deleverage and de-risk their balance sheets.

- **Cross border banking flows have declined.** Both core and periphery banks have retrenched throughout the crisis, withdrawing capital to domestic markets and reducing their foreign lending. The departure of capital from the periphery is most pronounced, with core banks, including from France and Germany, substantially reducing their exposure to these economies since the start of the crisis (amounting, for each of the French and German banks, to some 5-10 percent of GDP in Italy and Spain, and even higher in Ireland, see text figure).[2] Most periphery banks have also scaled back their lending to each other, while the volume of euro area unsecured interbank activity has more than halved.

Change in Cross-Border Bank Holdings, 2008Q-2012Q4
(in percent of Counterparty Country GDP)

		Counterparty Country						
		DEU	NLD	FRA	ITA	ESP	PRT	IRE	GRC
Reporting Country	DEU		-0.7	-1.8	-5.2	-10.3	-8.2	-43.2	-10.6
	NLD	-0.7		-4.4	-4.9	-3.7	-5.0	-10.5	-5.1
	FRA	-2.1	1.4		-5.2	-4.1	-4.2	-17.6	-5.0
	ITA	-4.1	-1.2	-0.4		-0.4	-3.0	-5.5	-2.4
	ESP	0.1	-4.7	-0.8	-0.4		2.3	-4.6	-0.1
	PRT	-0.3	0.8	0.0	-0.1	-0.3		0.8	0.8
	IRE	-1.6	-2.2	-0.9	-2.3	-2.1	-2.1		-2.9
	GRC	0.0	0.3	0.0	0.0	0.0	0.0	0.1	

Source: BIS; staff calculations

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[2] According to BIS statistics on banks' consolidated international claims, ultimate risk basis.

- **Term funding costs have increased.** The cost of unsecured bond issuance remains elevated for both core and periphery banks, but there is a growing divergence between the two, driven mainly by rising periphery spreads (Panel 1). Indeed, the average spread (to benchmark rates) for periphery banks at issuance was over 430 basis points in March 2013, down only modestly from peak levels seen in early 2012, while that for core banks was around 180 basis points. Prior to the crisis, the spread between core and periphery banks was negligible. Similar developments are evident in secured funding markets, with spreads on periphery covered bond issuance rising throughout the crisis, even as banks have become more reliant on secured forms of borrowing.

- **Banks' assets have become increasingly encumbered.** This reflects the shift toward secured funding, increased bank reliance on official liquidity facilities, and pressures from credit ratings downgrades on both private and public securities. However, secured funding costs have increased, further limiting banks' ability to access this type of funding. Outside of the program countries, encumbrance has increased markedly in Spain and Italy, and it has also increased in France, though the overall level is relatively low.

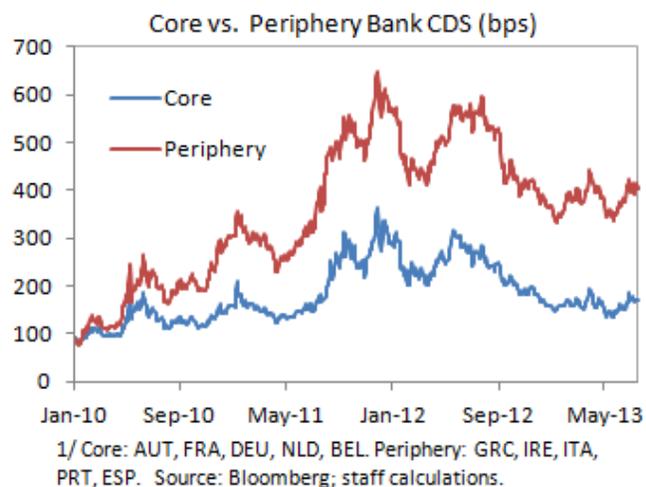- **Pressures on banks' balance sheets, including on profitability, have increased.** Weak growth and high levels of private balance sheet debt in the periphery are weighing on the health of bank balance sheets. Asset quality is declining, with nonperforming loans in Spain rising to 10.4 percent in February and those in Italy hitting 13.4 in December.[3] In addition, there are signs that bank profitability in both the periphery and core has been under pressure as firms and households deleverage. Net interest margins have moderated, while provisioning as a share of income has increased, notably for both Italian and Spanish banks (text figure). This comes despite the support to profitability from increased holdings of own-sovereign debt, facilitated in particular by the three LTRO facilities. At the same time, pressures from the low policy rate environment can also weigh on banks' profitability—for example, Spanish banks are unable to re-price large mortgage books tied to low Euribor rates.

- **Periphery banks have increased their reliance on deposits.** In particular, the spreads over Germany have increased substantially for term deposits (over 2 years), reflecting the squeeze in term funding and adding further pressure to profitability.

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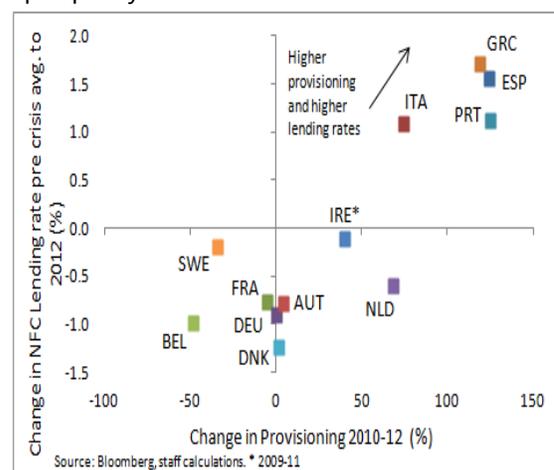
[3] Cross-country comparisons of NPL are complicated by differences in definitions. For example, Italy's impairment categories are broadly defined, capturing a wider class of impaired assets than in other countries.

6. **These risks and challenges are increasingly reflected in periphery bank CDS spreads.**
After showing some improvement post OMTs, spreads reached 430 basis points at the end of March 2013 (about 375 basis points above early 2008 levels). In fact, they have traded wider to those of core banks since the turn of this year, following the turbulence in the wake of the Italian elections and events in Cyprus. This rise in spreads has coincided with lower bond issuances, for both core and periphery banks. At the same time, the relative volume of euro area corporate bond issuance has increased, pointing to a degree of disintermediation and unmet demand by banks for corporate borrowing.

Core vs. Periphery Bank CDS (bps)

1/ Core: AUT, FRA, DEU, NLD, BEL. Periphery: GRC, IRE, ITA, PRT, ESP. Source: Bloomberg; staff calculations.

Panel 1. Euro Area: Financial Market Fragmentation

Euro area sovereign and corporate risk has declined markedly post OMTs announcements, but bank risk remains elevated...

Euro area CDS Spreads (bps) 1/
- Sovereign
- Corporate
- Bank
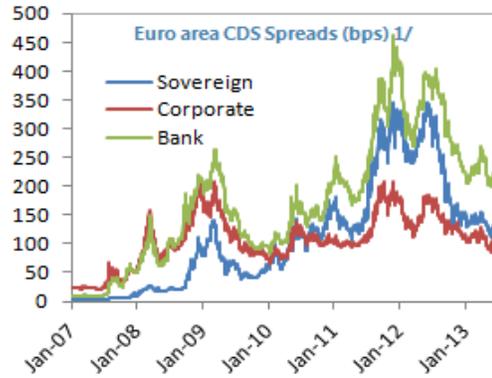
As a result, bank term funding costs have surged, particularly in the periphery relative to the core, driving issuance volumes down.

Periphery: Cost and Volume of Bank Issuance 2/
- Issuance (€bn)
- Spread (bps, rhs)
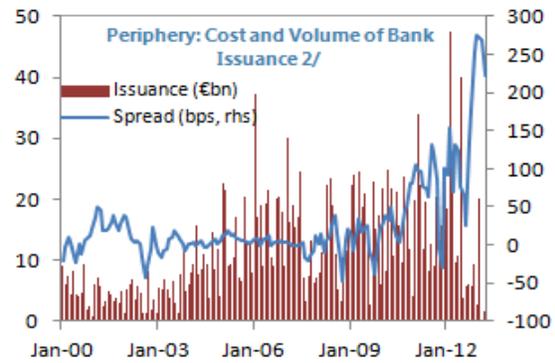
But corporates have benefitted from the post-OMTs decline in risk, boosting their relative issuance compared to banks.

Euro Area: corporate to bank issuance *(percent)*
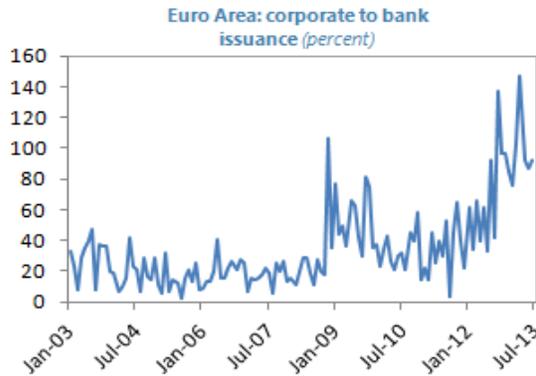
At the same time, banks in hard hit are hevily dependant on Eurosystem facilities, raising concerns over rising asset encumbrance.

Bank Borrowing from the ECB as a share of Bank Assets 3/ *(percent)*
- GRC,IRE,PRT
- ITA & ESP
- Core
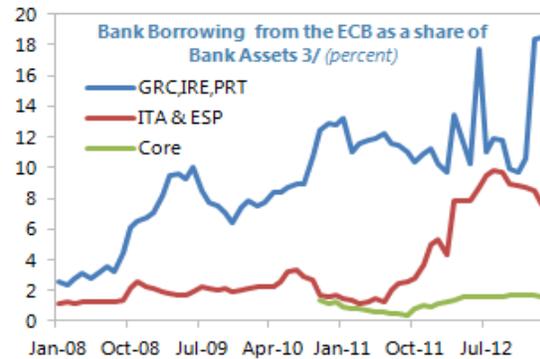
As a result, lending rates, particularly for SMEs, in the stressed markets have been driven substantially above those in the core countries.

SME loan rates, spread to Germany *(in percent)*
- Spain
- Italy
- Portugal
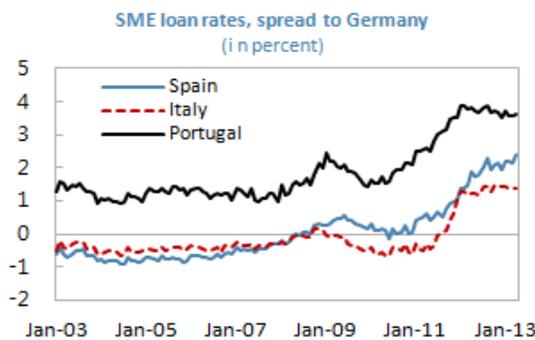
With SMEs playing an important role both in employment and value added, addressing the fragmentation is key to support growth in the stressed markets.

SME 's share in the economy *(in percent, 2010-2011, Eurostat)*
- Employment
- Value Added

EU 27   Italy   Spain   Portugal   Ireland   France
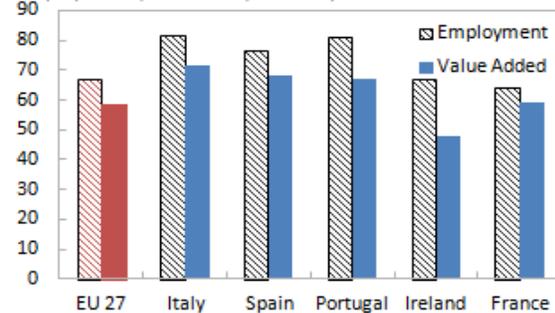
Sources: ECB; Haver Analytics; Dealogic; Bloomberg; and IMF staff calculations.
1/ Sovereign and bank CDS exclude Greece and are weighted by total debt.
2/ Periphery is defined as Italy, Ireland, Portugal and Spain. The spread is that of periphery bank issuance costs over those of the core banks. The bonds are 1-10 year in tenor.
3/ Banks are first averaged within own country, and then added across country groupings.

C. Fragmentation Feeding Into the Broken Monetary Transmission Mechanism

7.   Together, pressures from fragmentation and weak balance sheets have contributed to elevated lending and deposit rates in the periphery. A main consequence has been a breakdown in the monetary transmission mechanism in these economies. Indeed, despite lower policy rates, private interest rates remain high, reflecting a combination of factors, including lack of term-funding for some banks, and weak bank and corporate balance sheets. As borrowing costs have risen, access to credit has been further reduced, particularly for SMEs, and de-integration forces in EMU have strengthened.

8.   The European intermediation system is mainly bank-based, with about 90 percent of NFC debt financing intermediated through the banking sector (text chart). Although reliance on bond financing has been gradually increasing since the start of the crisis—as larger corporates have turned to markets—it still remains low (at about 11 percent).

Euro area: NFC borrowing breakdown (percent)

— Bank

---- Bond (rhs)

1999Q1   2003Q3   2008Q1   2012Q3

Source: ECB

9.   The interest rate channel has been hampered by the decline in interbank activity. As the volume of interbank activity declined through the crisis, so did the effectiveness of the transmission of policy rate changes to money market rates. A number of factors, including counterparty risks and the rise in excess system liquidity—partly reflecting supportive ECB measures and the general decline in econom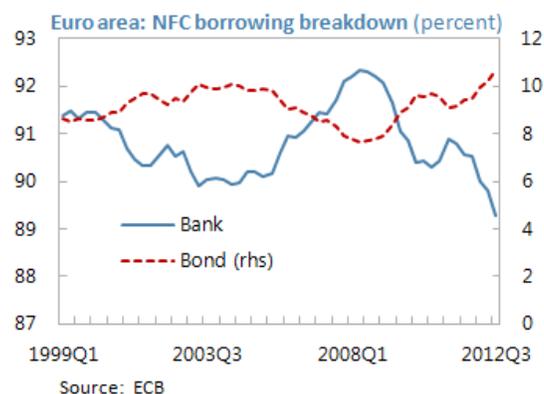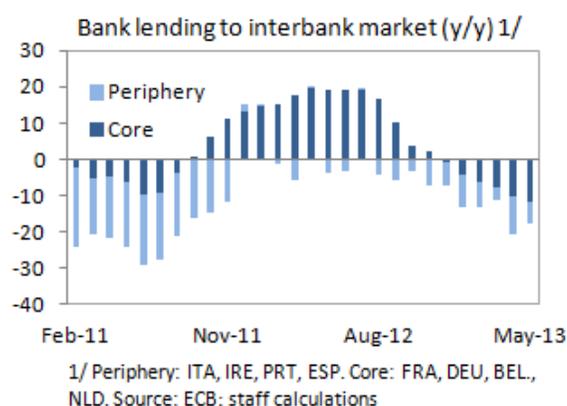ic activity, among others—have weighed on interbank activity, despite reduced volatility of money market interest rates since early 2012.[4]

10.   At the same time, weaknesses in both bank and corporate balances sheets undermined the credit channel. In addition to the decline in wholesale funding and rise in borrowing costs— forcing banks to deleverage, including by reducing their loan-to deposit ratios through a combination of reduced assets and higher deposit rates—the stress in sovereign bond markets has also led to problems in the functioning of the monetary transmission

Bank lending to interbank market (y/y) 1/

■ Periphery
■ Core

Feb-11   Nov-11   Aug-12   May-13

1/ Periphery: ITA, IRE, PRT, ESP. Core: FRA, DEU, BEL., NLD. Source: ECB; staff calculations

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[4] As noted in ECB (2012), the decline in turnover of euro area money market instruments in the first half of 2012 is attributable to both the ongoing debt crisis—and the related impairment of the interbank market—and to the high excess liquidity environment that prevailed in the euro interbank market as a result of the two three-year LTROs conducted in December 2011 and February 2012.

mechanism. Indeed, government bonds not only serve as a benchmark (floor), but also are the prime source of collateral in the interbank markets, reinforcing the decline in activity there. While the ECB's unconventional policies have mainly addressed at restoring this channel, by substituting the lack of market funding with the official funding, lending rates remain high and overall credit growth is still subdued.

11.   The remaining obstacles for the credit channel to properly function include: i) the lack of term-funding in some stressed countries, with deposit rates and the cost of unsecured bond issuance remaining persistently high; ii) ongoing weaknesses in banks' balances sheets—including from reduced profitability and declining asset quality in low growth environment—and the consequent strengthening of sovereign bank links, as banks have purchased debt of their sovereign with official liquidity. These factors limit credit supply; and iii) weak firm balance sheets,

particularly in countries such as Italy, Portugal, and Spain where corporate and household sector deleveraging is still ongoing (see 2013 SIP on indebtedness and deleveraging in the euro area). While these headwinds limit credit demand, banks are also facing increasing NPLs and are unwilling to provide credit at the rates that are prevalent in the core European countries given reduced net-worth and cash flow of NFCs and the decline in the creditworthiness of households.

Percent of Bank Loans Rejected
(ECB Safe survey, April 2012-March 2013, average)
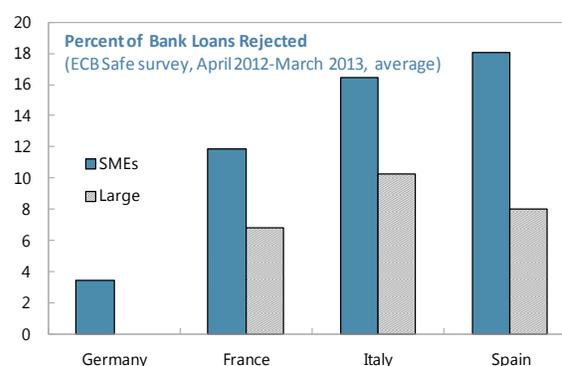
12.   Fragmentation and the broken monetary transmission mechanism impact small and medium enterprises (SMEs) disproportionately. Interest rates charged for small loans in stressed countries are higher than those charged for larger loans, but also than those charged for similar loans in core countries (Panel 1). While the ECB's bank lending survey indicates that demand for loans has been weak, the SAFE survey shows that SMEs applying for loans are experiencing difficulties in obtaining credit from banks, particularly in Spain, Italy, and Portugal.[5] SMEs listed "finding customers" and "access to finance" as their largest concerns. While there have been improvements in the availability of external financing (including bank loans, bank overdrafts, and trade credit) and in the associated terms and conditions during the last six months, the conditions have been worse for SMEs than for larger companies (see Box 3 of May 2013 ECB Monthly Bulletin).

13.   Ensuring credit availability to viable SMEs is essential to supporting the recovery in the euro area, given that the SMEs are about 80 percent of employment and 70 percent of value

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[5] Survey on the access to finance of small and medium-sized enterprises in the euro-area (SAFE) (October 2012-March 2013). The survey covers about 7500 firms of which 93 percent are SMEs.

added in Italy, Spain, and Portugal (Panel 1). In addition, SME sectors in Italy, Spain, and Portugal are dominated by micro-firms with less than 10 employees (about 94–95 percent of total firms).

D. Assessing the Pass-through of the ECB Policy Rates to Lending Rates

14.   A simple model is used to assess the pass-through of policy rates to bank lending rates, controlling for factors capturing both the interest rate and creditchannels. An error correction model is employed similar to those found in the ECB's Monthly Bulletins of August 2009 and May 2010. The ECB focuses on quarterly interest rates at the euro area level, and explains various retail rates through money market rates, the capital-to-asset ratio, and credit risks. The May 2010 note concludes that credit risk was an important factor contributing to the widening of short-term lending spreads between 2008:Q3 and 2010:Q1. The study described here analyzes both euro area and individual country level lending rates, covering Germany, France, Italy, Spain, and Portugal for January 2003 to February 2013. In particular, the changes in bank lending rates (ΔLR_t) for small and big loans are regressed on simultaneous and lagged changes of market rates (ΔMR_t), lagged changes of the bank interest rate, and on other measures of the credit channel, including bank funding, leverage, credit risk, and economic uncertainty (ΔX_t).An error correction term is also included, to capture deviations from the long-term relation.

$$\Delta LR_t = \varphi + \gamma \left(LR_{t-1} - \beta_1 MR_{t-1} - \beta_2 X_{t-1} + \kappa \right) + \alpha_{1i}\Delta MR_t + \sum_1^i \alpha_{2i}\Delta MR_{t-i} + \sum_1^i \alpha_{3i}\Delta LR_{t-i} + \sum_1^i \alpha_{4i}\Delta X_{t-i}$$

15.   Various specifications are examined to capture the range of effects on lending rates. Baseline regressions are run using monthly lending rates (loans both below and over €1 million for all maturities), 3-month Euribor, senior financial CDS to capture credit risk, bank bond spreads at issuance (for both periphery and core) to capture funding costs, asset-to-capital ratios to capture leverage, and , and PMIs to capture overall economic outlook affecting firms' balance sheet. Additional variables include lending rates to NFCs between 1-5 year maturity, other money market rates (overnight EONIA, 3-month EONIA, 3- and 7-year swap rates), other measures of credit risk (sovereign yields, subordinated financial CDS), other measures of cost of funding (bank equity prices, stock market indeces, term deposit rates), other measures of leverage (loan-to-deposit ratio), and an economic policy uncertainty index to capture overall weak and uncertain economic activity.[6] Baseline regressions are also run for the period of 2003-August 2008 to see how the pass-through changed after the crisis.[7]

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[6] The Economic Policy Uncertainty Index is constructed from two types of underlying components (see Baker, Bloom, and Davis: PolicyUncertainty.com). One component quantifies newspaper coverage of policy-related economic uncertainty. A second component uses disagreement among economic forecasters as a proxy for uncertainty.

[7] Because of the short-sample period, the results are only indicative.

16.   The regression results support the notion that funding costs, credit risk, and leverage have become important determinants of lending rates since the onset of the crisis, particularly for stressed countries. These factors appear to be more relevant for small loans, typically associated with SMEs.[8] Detailed results are as follows:

Interest rate pass-through
(LT coefficients, not controlling for other factors)

- Without controlling for other factors, the long-term pass-through from Euribor to lending rates has declined after the crisis for the euro area (as a whole) and stressed countries, but not for core countries. This reflects the importance of other factors in determining lending rates in stressed countries.

- Once controlled for other factors, the long-term pass-through from Euribor to lending rates is close to their pre-crisis levels, implying that the recent divergence in lending rates is explained by these other factors (cost of funding, credit risk, and leverage).

- The immediate pass-through is broadly similar across countries, and larger for large loans.

Immediate pass-through

Long-term pass-through
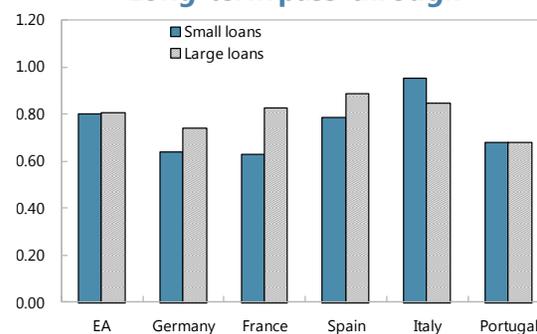
Bank bond spreads
(Long-term coefficient)
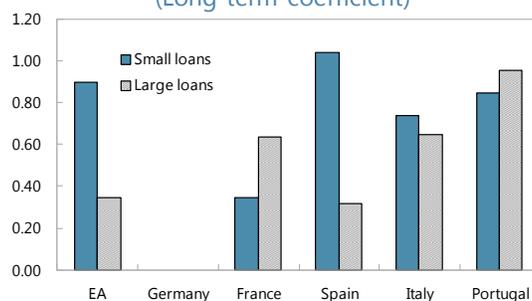
Financial CDS
(Long-term coefficient)
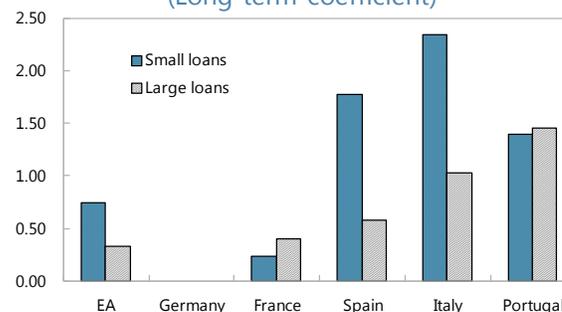
[8] See forthcoming working paper for further details.

- Both the cost of funding and credit risk are significant factors in explaining lending rates for the euro area and the stressed countries, but not for the core countries. Similarly, asset-to-capital ratios (capturing banks' leverage) are significant for Italy and Spain, implying that banks with weak capital positions cannot (or do not) lower their lending rates. Broadly, the long-run coefficients for the cost of funding, credit risk, and leverage are higher for small loans than for larger loans (except for Portugal, in which case the coefficients are very close).

- The information in sovereign risk appears to be captured in financial sector risk and bank bond spreads. While sovereign yields are significant when they are included in the regressions together with money market rates, they lose significance when the other cost of funding and risk variables are included in the regression. At the same time, sovereign yields are significant in the term deposit rate regressions (particularly for Italy), possibly reflecting that banks and sovereign are competing in the same funding market.

- While economic policy uncertainty and PMIs are significant in certain regressions, they lose their significance when other control variables are included. The significance of these variables could increase with additional data, reflecting emergence of demand factors as evidenced in survey data.

- Term-deposits appear to be an important factor for lending rates in Italy. The coefficient on Euribor in the lending regressions is smaller as it also affects deposit rates.

- Using alternative money market rates yields qualitatively similar results. Stock market indices (an alternative measure of the cost of funding) and the loan-to-deposit ratio (an alternative measure of leverage) are not robustly significant. The importance of the latter could be captured better in a panel regression framework (capturing countries with high dependence on wholesale funding), but homogeneity assumptions for other coefficients would be too restrictive. Regressions using lending rates for 1-5 year maturity do not yield consistently significant results.[9]

17.   Other studies have also found that credit risk, funding constraints, and weak firm balance sheets have affected the transmission mechanism during the crisis. Goretti (2013) looks at the determinants of NFC lending rates in a panel regression framework. The paper regresses NFC lending rates on Euribor, sovereign yields, and unemployment and finds that lending rates are determined more by sovereign yields and unemployment than the Euribor after 2010. A recent paper by Ciccarelli, et al. (2013) looks at the functioning of the credit channel, trying to identify both bank lending and firm balance sheet channels using a panel VAR framework, broadly differentiating the coefficients for stressed countries and others. The paper finds that the problems in the bank lending channel (due to funding constraints) have been mitigated by the ECB's unconventional monetary policy instruments, but that the transmission mechanism through the firm balance sheet channel remains impaired (as of end 2011), and

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[9] Over the last year, about 5 percent of the new loans were in this category (8 percent for small loans and 3-4 percent for large loans). About 90 percent of the loans has maturity less than 1 year.

appears more prevalent in small banks (which tend to lend primarily to SMEs). Finally, Zoli (2013) focuses on the Italian financial system and finds that sovereign spreads have transmitted to bank CDS spreads and bond yields, which was transmitted to firm lending rates. In addition, banks with lower capital ratios and higher NPLs were found to be more sensitive to sovereign spreads.

E.   How Can the ECB Address the Broken Transmission Mechanism?

18.   The ECB has deployed both conventional and unconventional policies to combat the crisis.[10] Together, these actions have alleviated some funding problems for banks, reduced sovereign and private risk, removed tail risks related to the euro, and kept monetary conditions accommodative, particularly for the core countries. But financial markets are increasingly fragmented, and weak growth has reinforced balance sheet stresses and credit risks. These pressures have pushed up retail interest rates in the periphery and restrained the flow of credit, undermining the transmission of monetary policy to stressed economies.

19.   The evidence above highlights the importance of cleaning up bank balance sheets and other measures to increase access to credit for SMEs. Repairing bank balance sheets and making further progress on banking union are essential to restore confidence in the financial system, weaken bank-sovereign links, reduce fragmentation, and support credit and growth (see Staff Report). But, given that this will take time, it is important to stem the decline in real activity through various measures to support credit supply.

20.   In this regard, the ECB should consider targeted policies to help reduce fragmentation and further improve monetary transmission. Monetary policy alone cannot address underlying weaknesses in banks' balance sheets, but by supporting demand to the fullest extent, it can provide breathing space for this to occur. In most cases, policies would entail additional ECB balance sheet risks, but this alone should not inhibit further needed action. Such risks could either be addressed through offsetting measures, including a backstop provided by the EIB (discussed below), or sustained through gains to financial stability and/or the ECB's ability to maintain a protracted investment horizon.

Assure term funding needs:

21.   At a minimum, the ECB should take further action to support liquidity to weak banks. In line with the ECB's current approach, this could include (1) additional LTROs of considerable tenor (e.g., 3-5 years) to ensure term funding for weak banks; and (2) a targeted review of existing collateral policies, including to lower haircuts on certain assets (e.g., additional credit claims (ACCs) and ABS). In combination, the result could be akin to credit easing. While

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[10] In particular, policy interest rates have been lowered to historic levels, special liquidity facilities implemented, collateral policies relaxed, and OMTs announced. In addition, the ECB and NCBs have had limited, direct interventions in selected securities markets through the SMP and Covered Bond Purchase Program.

about a third of the 3-year LTROs have been repaid, repayments have been largely driven by core banks with ample liquidity, and weaker banks in stressed countries remain reliant on official liquidity, given high term-funding costs.

22.   The provision of additional liquidity should at least cover any current funding shortfalls. As an example, based on current loan-to-deposit ratios, the combined funding gap for Spanish and Italian banks is about €600 billion.[11] Moreover, while the ECB's current full allotment policy ensures that there is enough liquidity in the system, the maturity of lending operations is limited to only 3 months. This is not conducive to term lending given the need to rollover frequently, and it also prevents banks from matching new liabilities with exiting longer term assets, thus increasing incentives to deleverage. In this context, additional LTROs of a scale similar to those already implemented could be useful, with additional amounts provided to promote further lending activity.

23.   A targeted review of existing collateral policies is an integral part of this option, particularly given the pressures on system collateral and the encumbrance of banks' balance sheets. This would increase liquidity for weak banks and promote the flow to credit to SMEs without further broadening the pool of eligible collateral.

- *The ECB could reduce haircuts on certain assets, namely additional credit claims (linked to SME loans and asset backed securities).* This would directly increase the availability of collateral for weaker banks and SMEs in stressed economies, and encourage greater securitization activity. Indeed, for a given collateral category, the ECB's haircuts are larger than what is imposed by some other major central banks to limit risks to its balance sheet.[12] But at the same time, haircuts have become more binding as the quality of collateral has declined (see Box 2).

- *National Central Banks could be less conservative in assessing the quality of ACCs used as collateral and held on their balance sheets.* NCBs may be too conservative in assessing credit risk—as a deviation from ECB criteria.[13]

Target liquidity to SMEs:

24.   The ECB could also take actions to ensure that liquidity is directly targeted to SMEs. In particular, the ECB could consider a targeted lending scheme, similar to Funding for Lending Scheme in the U.K. (see Box 3). While LTROs together with relaxed collateral requirements

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[11] This funding gap represents the difference between loans outstanding and deposits held, which is about €200 billion for Italy and €400 billion for Spain.

[12] For example, the haircut imposed by the ECB on ABS (up to 5 year tenor) is 16 percent, more than three times that imposed by the US Federal Reserve on comparable assets.

[13] At the present juncture, NCBs have the ability to accept ACCs that do not meet the ECB's minimum eligibility criteria, but they must bear any associated risk on their own balance sheets. By setting their own criteria and risk mitigation measures for ACCs—as "deviations" from those of the ECB (though approved by the ECB)—NCBs are able to ensure a greater provision of liquidity to weaker banks

function in a way similar to these programs in providing funding for banks, they do not change incentives for banks to lend. Therefore, a new LTRO could be contingent on the provision of new lending to SMEs, directly supporting credit to this sector. But for this to prove effective, the costs to access the scheme must be less than alternative funding costs. Therefore, lower haircuts (as described above) should be considered in tandem.

Direct private asset purchases:

25.   The ECB could circumvent weak banking systems through targeted asset purchases. Direct ECB purchases of private assets would support market-based credit to households and corporations while bank balance sheets are repaired. Program design could limit ECB balance sheet risks, though private assets could include: securitized assets (supporting SME financing), corporate bonds, commercial paper (NFC financing), and covered bonds (bank funding), while mortgage backed securities could be encouraged and accepted for collateral at Eurosystem liquidity facilities. Although the purchases could be small (to limit the balance sheet risks), official participation could boost confidence and thus act as a catalyst to further market activity. Depending on the nature of the program—i.e., whether or not it targeted existing loans—the impact could be timely, but may still be hampered by regulatory changes, including higher risk weights on securitized assets.

Backstop from the EIB:

26.   The EIB could provide a backstop to contain the balance sheet risks. The EIB currently has paid in capital of €55 billion (after a €10 billion increase that has nearly been completed). As an illustration, €10 billion provided as a backstop, or first-loss guarantee, to ECB private asset purchases could be leveraged to support a much larger pool of securitization activity. The amount of leverage would depend on several factors, including the amount of risk pooled among member states, and the impact on EIB financial ratios.

27.   Nevertheless, even a modest leverage could have a sizeable impact on SME-backed securities. The euro area securitized bond market reached €1.03 trillion at end 2012, of which approximately €140 billion was collateral backed by SME loans. The current stock of SME loans by banks is estimated at approximately €1.5 trillion. However, beyond SMEs, further support to market development could be achieved by including assets securitized by mortgages, and enhancing the commercial paper market infrastructure.

Euro Area Securitized Bond Market as of end 2012 (€ billion)

Total size: €1.03 trillion

Other 2/ | SME | ABS | RMBS

46.0
143.1
158.2
688.2

Euro Area 1/
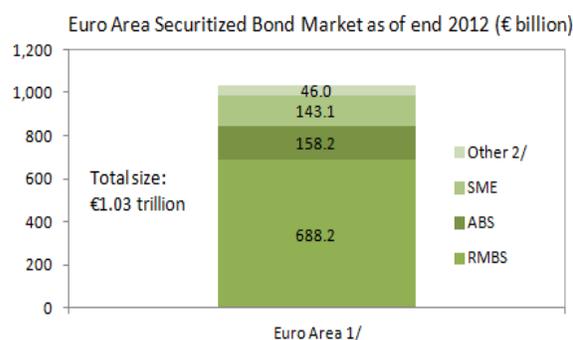
Source: AFME
1/ AUT, BEL, FIN, FRA, DEU, GRC, IRE, ITA, NLD, PRT. 2/ Other: CMBS, WBS, CDO

Box 1. Assessing OMTs and Redenomination Risks

The ECB introduced the OMTs framework in response to "exceptionally high" risk premia in sovereign bond markets "related to fears of the reversibility of the euro." Periphery sovereign yields have narrowed substantially, suggesting a decline in redenomination risk. Howe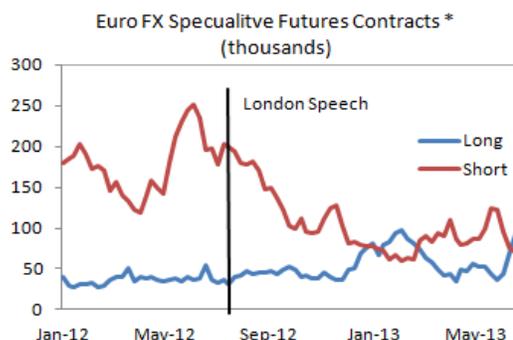ver, isolating these risks from other market forces is difficult. In this regard, a few indicators can help to shed light on the extent to which these risks have been removed. Two are considered here:

- *Speculative activity in euro-currency contracts.* In the wake of President Draghi's "London Speech" in July 2012, the number of speculative short futures contracts in euro dropped markedly, reaching levels last seen before the crisis escalated in late 2010. This was followed by a modest rise in long contracts. Although both contracts have recently been volatile, and represent only a very limited slice of the overall euro currency market, they are often taken as an indicator of broad market sentiment and tend to be well correlated with the euro exchange rate.[1/] In this regard, the marked shift in positions suggests a distinct change in sentiment.

Euro FX Specualitve Futures Contracts *
(thousands)

Source: Bloomberg; staff calculations
*Commitement of Trade contracts in euro futures for non-commercial purposes.

- *Legal jurisdiction of obligations.* Similar bonds issued by the same (large) periphery bank could be expected to trade somewhat differently if one (governed by local law) is considered to carry higher redenomination risk to the other (governed by international law). A rise in yields and widening of their relative spread could indicate the buildup of such risks, among others, prior to the London Speech. But the ensuing improvement in their yields has been significant, and the stabilization of their spread largely sustained (beyond periods of broad market stress).

Bonds of a Periphery Bank: Local vs. NY Law (percent)

Assessing the impact of OMTs on euro redenomination risk is complex. However, notwithstanding this, or the difficulty of disentangling factors driving market dynamics through the crisis, the indicators considered here display a marked shift in the period following the London Speech. A decline in speculaive short euro currency positions and the improvement in the performance of periphery bank (and sovereign) bonds is consistent with the delcine, if not removal, of euro redenomination risks.

[1/] According to the ECB, Since the inception of the euro, the correlation between long contracts and the euro is 0.64, while that between short contracts and the euro is 0.42.

Box 2. Eurosystem Collateral

Throughout the crisis, the ECB has drawn upon the flexibility of the Eurosystem's collateral framework to provide increasing liquidity support to banks. Collateral policies have been relaxed on several occasions, including by broadening the base of eligible instruments to include additional credit claims and other non-marketable assets.[1] Along with the introduction of the three-year LTROs[2] the amounts of eligible collateral and average outstanding credit[3] have increased substantially through the crisis.

However, despite these accommodative actions, there are signs of increased strains on system wide collateral, particularly in the periphery. Indeed, against higher unsecured funding costs, banks have become heavily reliant on secured borrowing, particularly through official facilities. The pressures on funding are evident at both the Eurosystem and private bank funding levels, and transmit through several channels.

- The composition of pledged Eurosystem collateral has changed throughout the crisis, with a marked rise in the share of government securities and non-marketable assets (about three quarters of which are additional credit claims) and a fall in corporate and bank bonds. In addition, the pool of higher quality government securities has decreased with ratings downgrades, and there has been a trend away from the use of cross-border assets toward domestic collateral, reflecting increased financial market fragmentation and regulatory "home bias".

- At the same time, collateral in private funding markets appears increasingly encumbered for some. Apart from a few opportunistic periods following key euro area policy initiatives, the issuance of covered bonds and other asset-backed securities declined in the past year (Figure 6), while banks in the periphery have seen a marked rise in associated bond spreads. In addition, the euro-denominated securitization market has declined by over €250 billion to about €1 trillion since 2009, while the euro-denominated commercial paper market has dried up. Taken alongside the strains from official borrowing, the share of encumbered assets has increased during the crisis, notably for stressed economies.

- There are also systemic factors contributing to strains on collateral. In particular, the move to central counterparty clearing systems for OTC derivatives, and larger recourse to central bank liquidity (including through asset purchase programs by major central banks), add to the overall demand for high quality collateral.
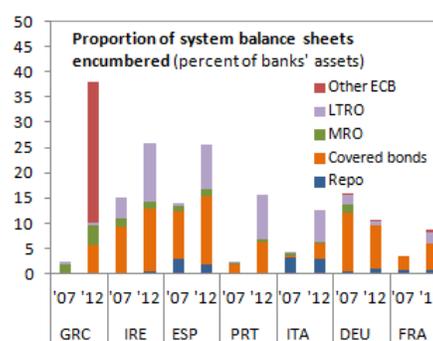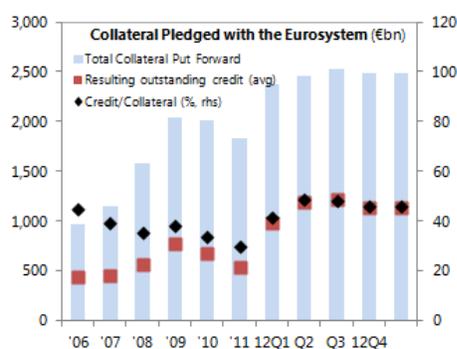
[1] According to the ECB, the eligibility of additional claims increased the collateral pool by approximately €600-700 billion, but this was only expected to result in about €200 billion of acceptable collateral due to stringent overcollateralization requirements.
[2] The ongoing repayment of three-year LTROs since the start of this year implies a release of collateral back into the system. However, this also implies a reduction in excess system liquidity.
[3] Banks can and do pre-pledge collateral with the Eurosystem. Therefore, the rise in credit to collateral seen shown here is likely understated, suggesting more credit became available for the given pool of collateral.

Box 3. Funding for Lending Scheme by the BoE [1]

The FLS was designed as a four-year collateral swap—participating banks placed their lower quality collateral with the BoE (with the usual haircuts and margins applied) in exchange for higher-quality gilts, which they could then use to obtain market funding at close to the policy rate. The initial FLS allowance was set at 5 percent of banks' loan books, but the allowance increased pound-for-pound with net lending (i.e., there was no ceiling on the scheme size). A pricing incentive was built in to encourage banks to lend (or minimize deleveraging), via an access fee that varied inversely with the volume of net credit extended.

Although the scheme has improved funding conditions, take-up has remained limited. The scheme has contributed to easing funding pressures on UK banks, with CDS spreads and deposit rates falling sharply since mid-2012. Some of this reduction has also translated into lower lending rates, particularly for mortgages. However take-up of the scheme has been limited and banks have not made full use of the program, even to draw down up to 5 percent of their existing loans. Overall private sector lending has not picked up. But there was a net increase in lending if one excludes banks facing deleveraging pressures (RBS, LBG and Santander UK), and FLS drawings contributed about two-thirds of that increase.

Limited impact could be explained by the following main factors.

- *Low cost advantage of accessing the scheme*: There is not a big cost advantage right now to draw down from the FLS. Banks face three costs: an access fee (ranging 25bps to 150bps depending on banks' net lending position), a BoE haircut on the collateral swapped to obtain the gilts, and the cost of market financing obtained using the gilts (essentially close to the policy rate). At present, these combined costs are not lower than what most banks would pay on wholesale or deposit funding raised directly, reducing the incentive to access the scheme. This, however, could also reflect the scheme's success in reducing banks' funding costs.

- *Abundant liquidity and weak/low quality demand for credit:* With households deleveraging and bigger corporations able to borrow directly from markets at cheap rates, demand for bank credit is weak. Moreover, banks' perceived credit risk, especially on lending to SMEs and unsecured credit to households, is likely to have been elevated, given weak aggregate demand and earnings prospects.

- *Health of UK banks*: There are still lingering concerns about the health of UK banks, especially asset quality and the adequacy of existing capital buffers. As a result, despite being flush with liquidity, some banks have eschewed credit origination, persisting with previous deleveraging plans, and using the cheaper funding to boost net interest margins instead.

- *Design of capital charge on FLS lending*: The scheme initially allowed banks to offset under Pillar-II the regulatory capital charge in respect of FLS-funded loans. However, the offset was done on the basis of average risk weight, which constituted a de facto incentive for banks to substitute increased secured lending, but reduce SME lending. This is unlikely to be a significant factor, and the April 2013 modification to the Scheme has addressed this by significantly improving the attractiveness of SME lending.

[1] See Annex 5 of the U.K. 2013 Article IV Staff Report for further details.

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Annex. Monetary Policy Transmission Channels

Change in monetary policy
(and money market rates)

Interest rate channel

Credit channel

Risk-taking channel

Real interest rate

Bank lending channel

(Funding, interest income, asset prices, bank capital)

Firm balance sheet channel

(cash flow and net worth affecting external finance premium)

Risk perceptions and aversion

Risk-taking behavior

Bank interest rate pass-through

Credit standards

Investment and consumption

Economic growth and inflation

REBALANCING THE EURO AREA: WHERE DO WE STAND AND WHERE TO GO?[1]

Relative price adjustments and current account improvements are taking place. But more needs to be achieved to correct the imbalances within the euro area. Improvements in export performance remain very dependent on external demand, including from within the euro area. Moreover, ongoing adjustment in current account balances is partly driven by cyclical factors, which suggests that more needs to be done to make it sustainable. Going forward, converging to net foreign asset positions considered safe elsewhere will prove challenging.

A. Introduction

1.   Background: Intra-euro area imbalances have been a key feature of the euro area, reflecting deteriorating competitiveness and domestic demand booms in some euro area economies (Greece, Ireland, Portugal, and Spain) and rising external surpluses in export-oriented economies (Germany, Netherlands) in the run-up to the crisis. Extensive collective efforts—such as the European Stability Mechanism (ESM), OMTs, and Banking Union—have helped restore the stability of the common currency area. But given downward pressures on demand (due to the need to achieve internal devaluations associated with public and private deleveraging) and the limited policy space, the challenge now for many euro area economies is to rebalance across (domestic and external) sources of growth.

Euro Area: Contribution to Growth
(Percent)
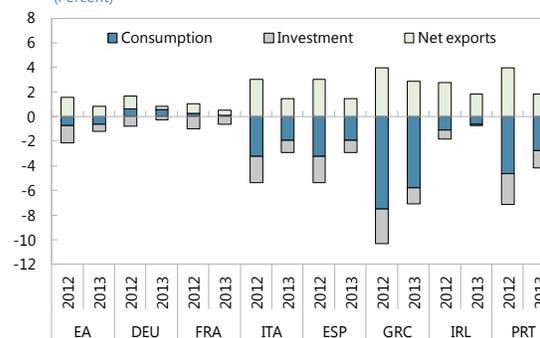
Sources: IMF WEO and staff calculations.

2.   What does rebalancing mean? Even before the crisis, there were significant structural differences amount EMU members, including in labor markets, productivity, production structure, competitiveness and specialization (Eichengreen, 2007). While there were few signs of convergence in the structure and performance of euro area economies, demand booms associated with intra-euro area capital inflows and the loss of export competitiveness in the periphery contributed to the accumulation of very large net foreign asset liabilities in these economies. Meanwhile, the core accumulated sizeable surpluses. Those have largely remained since the crisis, while current account deficits in the periphery economies have narrowed significantly. But it is an open question as to what extent the narrowing of current accounts in deficit countries reflects depressed demand domestically or more structural developments. Indeed, internal imbalances could still persist among euro area countries even if the euro area is

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[1] Prepared by Thierry Tressel and Shengzu Wang (EURAE).

broadly in balance with the rest of the world.

3.   Objectives: This note takes stock of the extent of the external adjustment in euro area countries; examines a battery of price and non-price indicators; analyzes the determinants of recent export performance and current account adjustments; and discusses the remaining gaps and expected path of adjustment going forward, as well as some policy implications.

4.   Key findings: Current account reversals and unit labor cost adjustments have been significant in the euro area periphery since the crisis, owing to both cyclical and structural factors. However, there is limited evidence of resource re-allocation from non-tradable to tradable sectors. Export performance is very dependent on external demand, which remains weak within the euro area. Looking ahead, relying only on relative price adjustments (which adversely affect households and firms) to converge to sustainable levels of net foreign liabilities could prove very challenging. Structural reforms will play an important role in the reallocation of resources to the tradable sector and associated relative price adjustment, while boosting non-price and price competitiveness. By focusing also on non-price competitiveness, structural reforms would improve overall productivity and trend growth without unduly weighing on domestic demand.

B.   How Much Adjustment Has Occurred?

5.   Adjustment in external balances: Euro area periphery countries have experienced large current account adjustments since the crisis (text figure and Panel 1). Between 2008 and 2012, the current account balance of Greece, Ireland, Portugal, and Spain improved by 11.6 percent of GDP, 10.6 percent, 11.1 percent, and 8.5 percent, respectively. These have significantly contributed to the reversal of the euro area current account balance, which reached 1.2 percent of GDP in 2012, the largest surplus since 2000.

6.   Drivers: The current account reversals in the deficit countries reflect a combination of lower imports and higher exports, as well as improved income balances in some economies. In Greece, the decline in imports was the main contributor to the current account improvement. In Spain and Portugal, exports had a larger contribution to the current account improvement than the decline in imports. In Ireland, the rebound of exports was associated with a rise of imports, likely as a result of the large import content of exports.

Sources: Haver and IMF Staff Calculations.
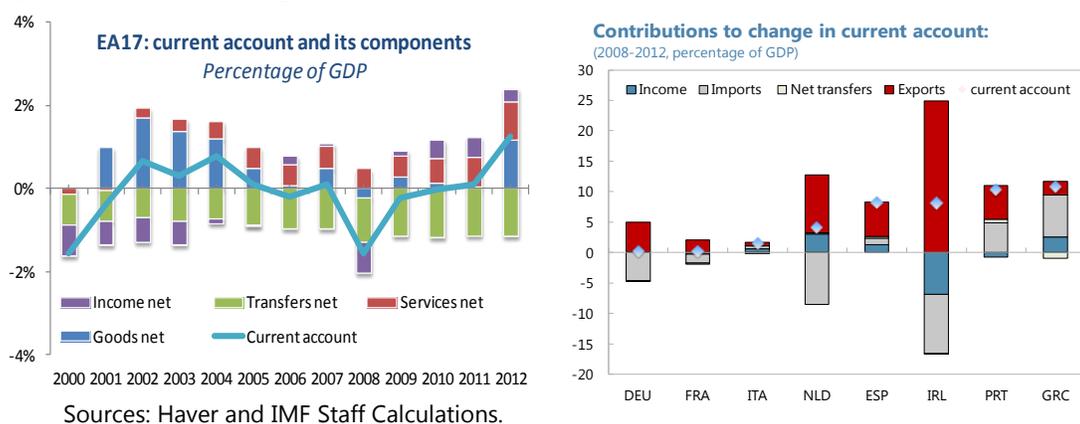
7. **Relative price adjustments:** The adjustment in relative prices has proceeded, although to a varying degree across different measures of cost competitiveness (Figure 1).

- *Real effective exchange rates.* Most periphery countries have experienced large ULC-REER depreciations since 2008. While Germany's REER has remained on a downward trend since the inception of the euro, REERs of periphery euro area countries are now close to their long-term average or back at the level that prevailed at the inception of the euro, mostly as a result of large declines of ULCs. On the other hand, CPI-based REER have generally adjusted less since the start of the crisis.

- *Unit labor costs.* Since 2008 there have been large corrections of ULCs in the periphery (Ireland, Spain, Greece, and Portugal), while unit labor costs have started to increase in Germany (ECB 2012). In France and Italy, ULCs have continued to rise on their pre-crisis trend. Sectoral evidence suggests that unit labor costs have fallen across sectors, and the decline has often been larger in tradable sectors than in non-tradable sectors, except in Italy, France and Germany (Box 1).

- *Relative price adjustments vis-à-vis euro area trading partners and the rest of the world.* Consumer price adjustments have been relatively modest, perhaps as a result of VAT hikes. They were mostly achieved vis-à-vis non-euro area trading partners (with the exception of Ireland which exhibit large consumer price adjustments). Greece, Italy and Spain experienced an increase in consumer prices relative to their euro area trading partners. However, since CPIs are not always a good measure of relative production costs, we also consider a GDP deflator-based REER.[2] In contrast to CPIs, relative GDP deflators have declined substantially in Spain, Greece, Ireland and Portugal, in particular vis-à-vis non-euro area trading partners.

Relative Price Adjustments Based on CPI, 2008Q3-2012Q4) (Percent)

Relative Price Adjustments Based on GDP Deflators, 2008Q3-2012Q4 (Percent)

Sources: EER facility; WEO; DTS.

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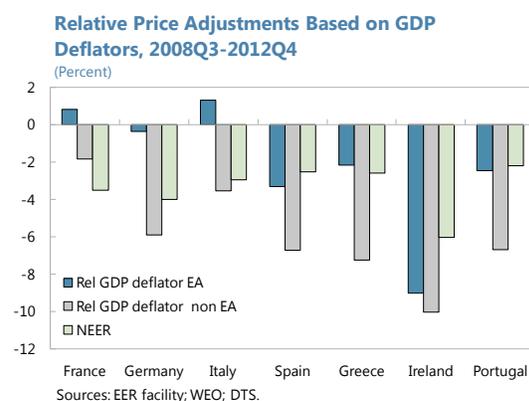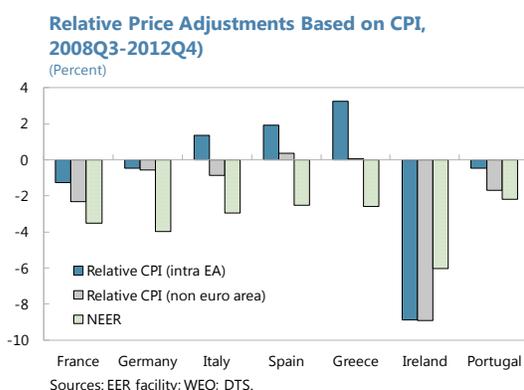
[2] GDP deflator based REER are good proxies for value-added REER that reflect the vertical integration of trade. See e.g., Rudolfs Bems & Robert C. Johnson, 2012. "Value-Added Exchange Rates," NBER Working Papers 18498.

Panel 1. Euro Area: REER and ULC Developments

REERs have declined substantially in the periphery, largely due to changes in ULCs and nominal adjustment...

...but more modest contributions from CPI, except in Ireland.

ULC-based REER Changes and Its Components: 2008-12
Relative to 36 trading partners

CPI-based REER Changes and Its Components: 2008-12
Relative to 36 trading partners
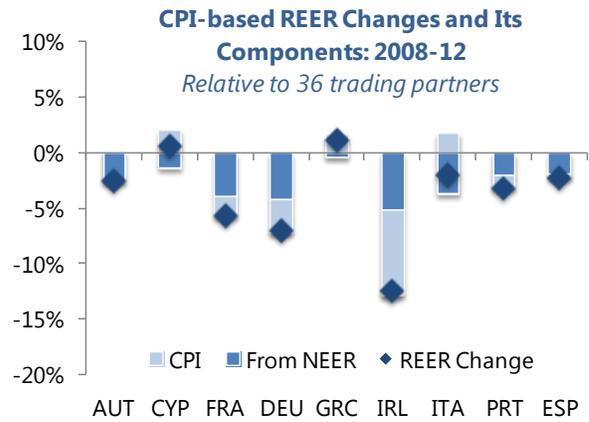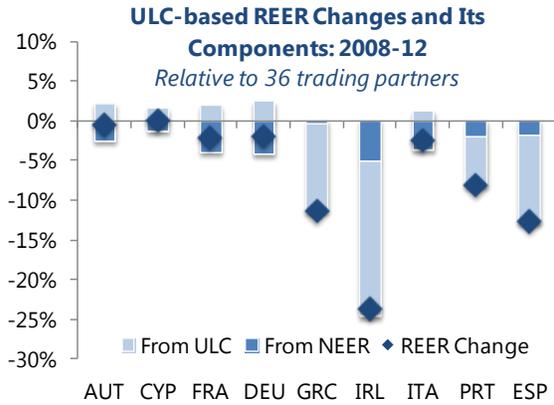
The ULC gap between the core and periphery is closing...

...with France and Italy still trending upward.

Total Economy ULC Developments: 2000=100

Total Economy ULC Developments: 2000-2012
Ireland in 2000 = 100
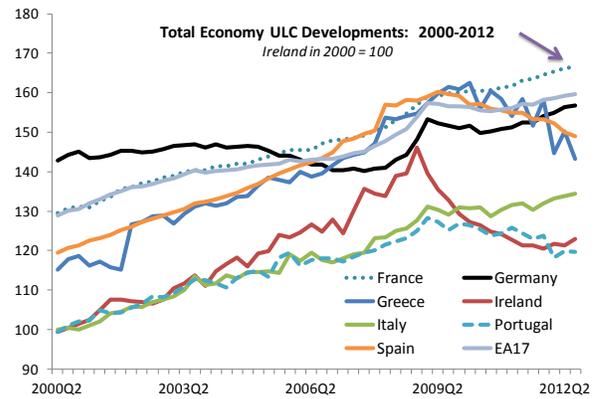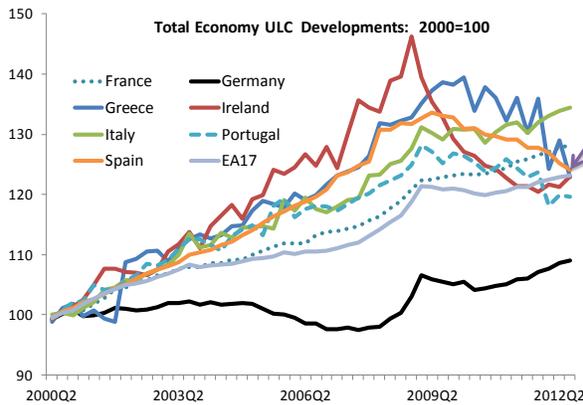
Sources: Haver, Eurostat, and IMF staff calculations.

- *Wages.* Since 2008, wages have declined in many periphery countries relative to the euro area average. The adjustments have been particularly important in Ireland, Greece or Portugal. Manufacturing wages declined the most in Ireland and Greece and grew at a similar pace as the euro area average in other periphery countries.

Annual Wage Inflation: Total Economy
Relative to EA 17

Annual Wage Inflation: Manufacturing
Relative to EA 17
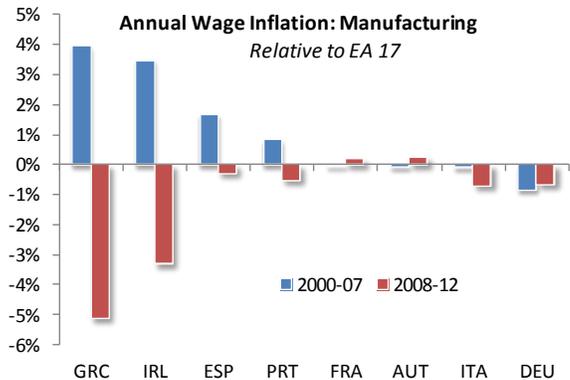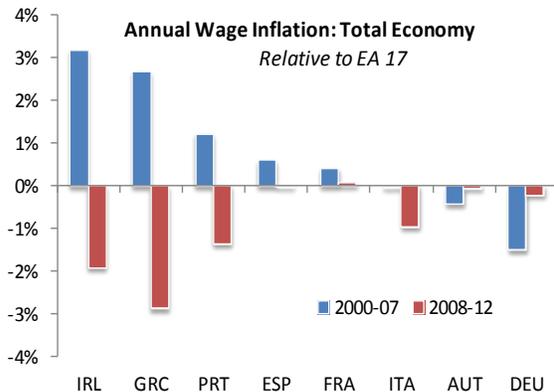
Sources: Eurostat and IMF staff calculations.

8. **Drivers of ULC reversals:** The evolution of ULC can be broken down into contributions from labor costs and from labor productivity. Labor productivity reflects changes in employment (a positive value means increasing ULC), and in output (negative value means increasing output and negative contribution to ULCs).[3] ULCs have corrected in the periphery since 2008, although the sources of reversals have varied across countries.

ULC Total Economy Growth Relative to EA 17: Since 2008

Note: The distance between the dots and bars represents changes from 2008 to the latest available data, in general 2012 Q4.
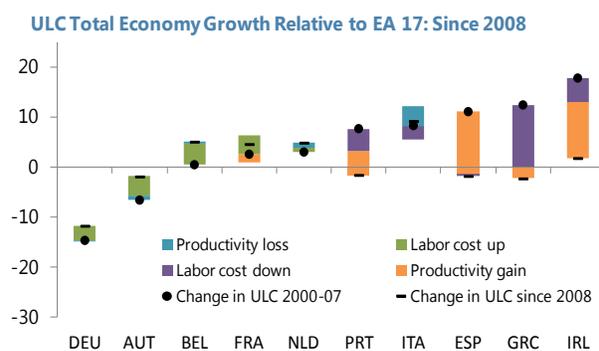
- In Spain, productivity gains were achieved largely through labor shedding exceeding the decline in output; and the decline in wages relative to the euro area average was small.

- In Italy, the poor performance of labor productivity is explained by labor hoarding in a period of output decline.

- Ireland shows evidences of good relative price adjustment, e.g., labor costs came down along with labor shedding, in the context of a moderate growth recovery.

- In Greece and Portugal, combinations of wage declines and large labor shedding were the main drivers of ULC adjustments.

- Meanwhile, in Germany, labor costs rose mainly because of higher wages, but its effect on ULC was mitigated by relatively strong output growth.

- At the sectoral level, periphery countries experienced large declines in tradable sectors ULC, with the exception of Italy. However, the decline was mostly driven by large labor productivity gains, as reductions in employment exceeded the decline in output. Ireland is the exception, as tradable output also expanded (Box 1).

9. **Export performance:** Evidence suggests that labor cost adjustments have modestly improved price competitiveness.

- *Volumes.* Export growth picked up significantly after the crisis, mostly as a result of a rebound in external demand (section III). Germany, Ireland and Spain experienced relatively solid export recoveries. But export recoveries have

Sources: WEO

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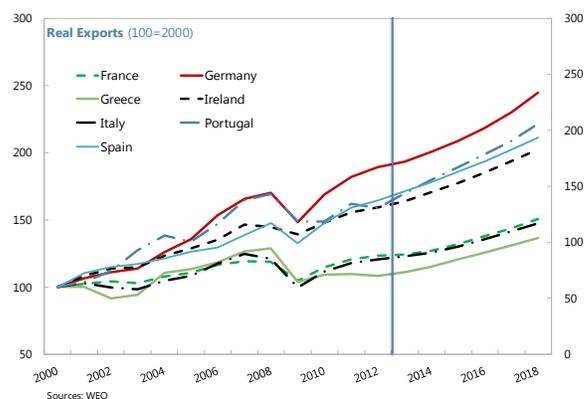
[3] Figure 2 also shows contribution to declining ULCs from its peak for several EA deficit economies.

been (and are forecasted to remain) weak in Italy, Greece, Portugal, and France.

- *Export prices.* Substantial unit labor cost and wage adjustments have not been followed by gains in price competitiveness.[4] In Greece, Ireland, Portugal, and to some extent in Spain, the margins of exporters have risen since the crisis. This could be because exporters have attempted to increase profitability, reversing the pre-crisis trends of margin erosion. By contrast, the erosion of exporters' margins in Italy and France has continued since the crisis. In Germany, exporters increased price margins before the crisis, perhaps to reverse previous trends, but margins seem to have declined somewhat in recent years. Price competitiveness (relative to production costs in export markets) has improved in Spain, Ireland, and to some extent in Germany, but it has declined in Greece and Portugal, and has remained stable in France and Italy.

Change in ratio of export deflator to tradeable ULC
(Goods, in percent)

Sources: IMF WEO and DOTs.

Export Prices / GDP Deflators of Trading Partners
(Percent change)

Sources: WEO, DOTS
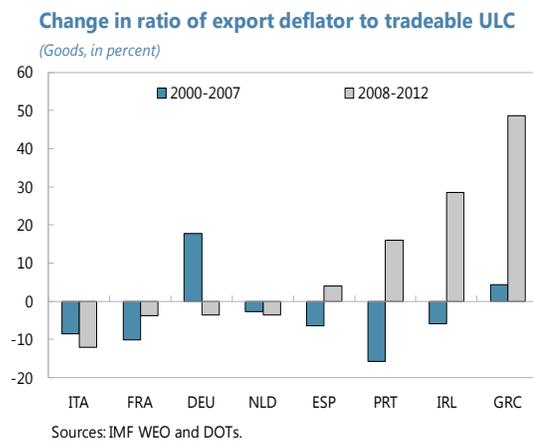
- *Non-price competitiveness.* Indicators of market shares suggest that in general, competitiveness on that front has not improved since the crisis. Most euro area countries (including periphery countries, but also core countries) have lost market shares in the world market. This loss in world market shares could be explained by unrelated global

Change in share of exports to World
(In percentage points)

Source: IMF DOTs.

Change in share of world exports to euro area
(in percentage points)

Source: IMF DOTs.

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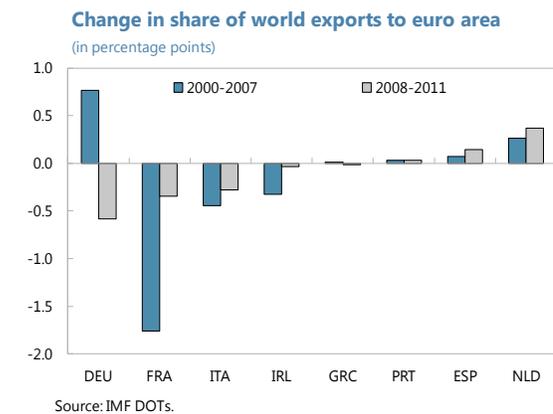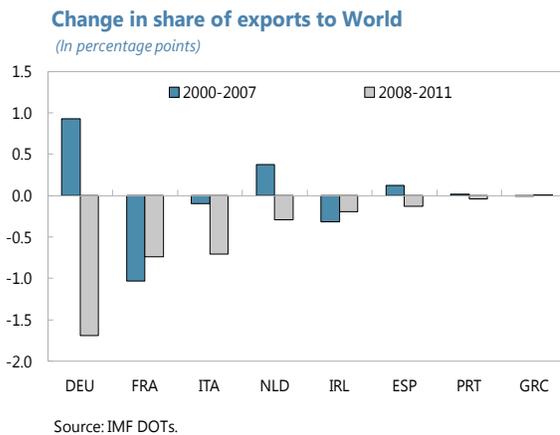
[4] Some measurement errors could exist since the proxy of export price is the unit export value for goods actually sold, which may not fully capture pricing-to-market behaviors or cover transaction prices.

developments in world trade, such as growing trade among emerging markets. However, several euro area countries, including Italy, Ireland, France and Germany, have also lost market shares within the euro area since the crisis. By contrast, market shares of Greece and Portugal or Spain have remained stable.

10.   Composition of adjustment: The evidence suggests that while ULC adjustments have had large impacts on real disposable income, gains in price competitiveness have played a more limited role in supporting net exports. While wages (relative to the euro area average), GDP deflators and employment have declined in periphery countries , consumer prices have remained sticky, adjusting much more slowly (with the exception of Ireland), and even in the opposite direction (e.g., Greece). Hence, rising unemployment and wage adjustments are causing significant reductions in households' real disposable income, dampening domestic demand in the periphery. At the same time, the wage and employment adjustments have not clearly resulted in price or non-price competitiveness gains, as exporters have used part of the wage moderation to reconstitute their profit margins in Greece, Portugal, and Ireland.

11.   Adjustment across sectors: There is only limited evidence that adjustment between tradable and non-tradable sectors has so far taken place.[5]

- *Both price and quantity adjustments are needed.* To rebalance, periphery countries must re-allocate resources from non-tradable sectors to tradable sectors; such a reallocation must be associated with a decline in the price of non-tradable goods relative to tradable goods. But external adjustment also requires a drop in tradable prices to improve external competitiveness. Sectoral labor reallocation to tradable sectors would then respond to improved profitability (resulting from cuts in costs and improvement in relative prices of tradable versus non tradable products), along with higher export demand (resulting from the absolute decline in tradable prices). This will ensure a structural change in the external balance, associated with lower imports and higher exports. But such reallocation could take time and be impeded by rigidities.

- *But adjustments have yet to take hold in the tradable sector.* ULCs have declined both in tradable and non-tradable sectors. In addition, export margins have increased in several countries with declining labor shares,[6] making these sectors in principle more attractive for producers. But, as a result, exports prices have not adjusted much compared to trade partners, which could prevent export demand from picking up. Indeed, evidence from sectoral labor flows and value-added growth show that labor (and output) have declined across sectors (both tradable and non-tradable), and that the decline has often been more

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[5] See Appendix for a definition of traded and non traded sectors.

[6] Labor shares in the gross value-added have been declining in the past decade in the euro area, with sharp spikes during the 2008/09 crisis period when output and trade collapsed. In the periphery such as Spain, labor share has been declining since the crisis, reflecting both labor shedding and rising profit margins in the tradable sectors.

pronounced in the tradable sector (with the exception of Ireland), reflecting the general collapse in domestic demand. Evidence from bank credit in Ireland and Spain suggests however a sharper decline in the non-tradable sectors and recent data point to a pick-up of credit in the tradable sector.

Employment Changes inTradable and Non-tradable Sectors

GVA Changes in Tradable and Non-tradable Sectors
(Percentage change)
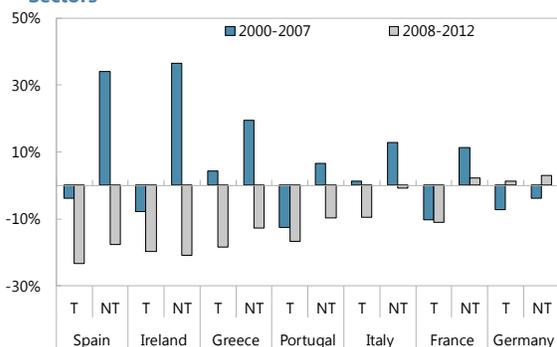
Ireland
(Credit to Small and Medium-sized Enterprises, 100= 2010 Q2)
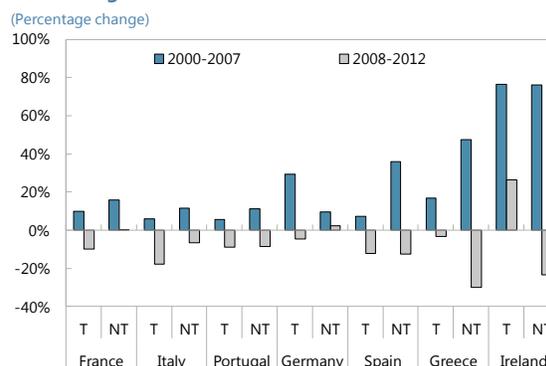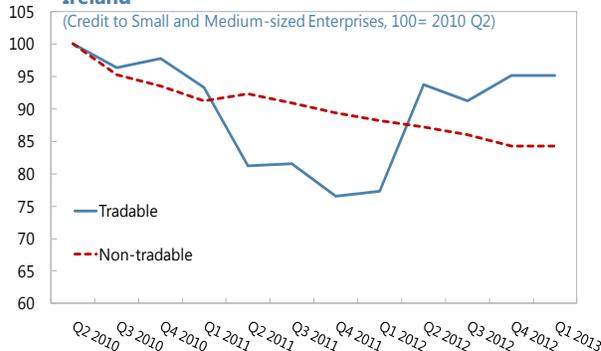
Source: Central Bank of Ireland
Note: Index of notional stocks constructed from transactions.
Tradable sector includes manufacturing, non-tradable sectors include construction, trade, travel & food, and real estate.

Spain
(Credit to Non Financial Corporations, 100=2010 Q2)
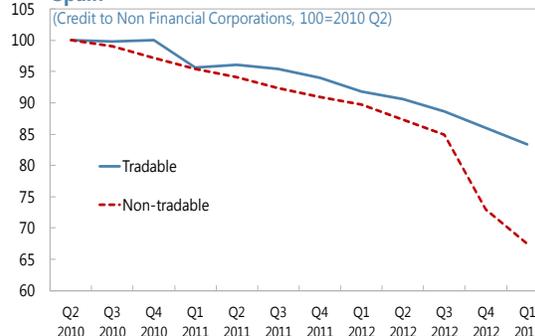
Source: Bank of Spain
Note: Tradable sector includes manufacturing, non-tradable sectors include construction, trade, travel & food, and real estate.

Sources: Eurostat and IMF staff calculations.

C. What Explains the Performance of Exports since the Start of the Crisis?

12.   **Empirical analysis:** We analyze the determinants of export performance in the euro area, using standard panel export regressions. The sample comprises 11 euro area countries during the period 1990-2010. The export regressions are estimated in levels to capture a stable long-term relationship between real exports and a set of determinants. Specifically, the following regression is estimated for bilateral exports of goods vis-à-vis the top 20 export partners:

$$logExport_{ijt} = \alpha \cdot logDemand_{jt} + \beta_{nonEA} \cdot logNER_{ijt} + \gamma \cdot logRel.CPI_{ijt} + \varepsilon_{ijt} \ (1)$$

where the dependent variable is the log of real exports of goods from country i to country j during year t (converted into real values using the aggregate export price deflator); the determinants are respectively: the log of real domestic demand (total volume of domestic

demand) in country j during year t; the log of the bilateral euro nominal exchange rate for non-euro area trading partner j; and the log of the relative CPI between euro area country i and trading partner j.[7]

13.   Decomposition: The regression coefficients are used to decompose the quarterly performance of real exports of goods and services as follows:

$$\Delta \log ExportG\&S_{it} =$$
$$\alpha \cdot (Share_{EA}) \cdot \Delta log(Demand_{EA_{it}}) + \alpha \cdot (Share_{nonEA}) \cdot \Delta log(Demand_{nonEA_{it}}) + \beta_{nonEA} \cdot$$
$$(Share_{nonEA}) \cdot logNEER_{ijt} + \gamma \cdot (Share_{nonEA}) \cdot lognonEARel.CPI_{ijt} + \gamma \cdot (Share_{EA}) \cdot$$
$$logEARel.CPI_{ijt} + RES \tag{2}$$

Where:

- $Share_{EA}$ is the share of euro area countries in total exports of goods

- $Share_{nonEA}$ is the share of non-euro area countries in total exports of goods

- $Demand_{EA_{it}}$ is a quarterly weighted average of euro area trading partners domestic demand where trade weights are the shares of bilateral exports to country i in total exports of goods to the euro area.

- $Demand_{nonEA_{it}}$ is a quarterly weighted average of non-euro area trading partners domestic demand where trade weights are the shares of bilateral exports to country i in total exports of goods to the euro area.

- $NEER_{ijt}$ is the nominal effective exchange rate.

- RES is the residual.

14.   Export demand: Since the start of the crisis, euro area countries have experienced significant differences in the demand for their export. For example, between 2008 and 2012, total trading partners' demand for Germany's export grew by 4.7 percent, compared to 2.8 percent for

Export Demand Growth, 2008-2012
(Percent)

Sources: IMF, World Economic Outlook database; IMF, Directions of Trade Statistics database; and IMF staff calculations.

Share of Euro Area in Total Exports
(Exports of goods)
(percent)

Source: IMF, Directions of Trade Statistics database.

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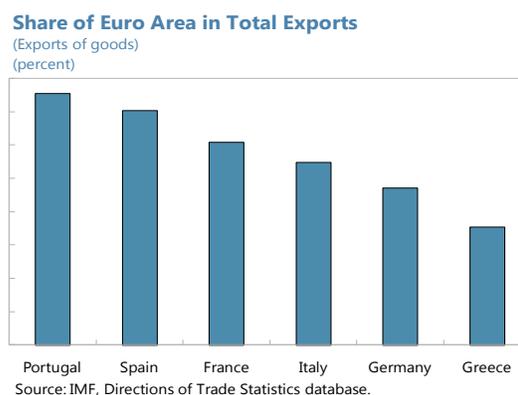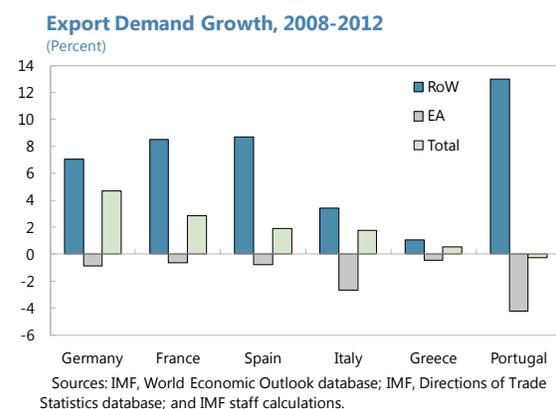
[7] An alternative analysis (work in progress) uses relative GDP deflators as indicators of relative price adjustment.

France, 1.8 percent for Spain, 1.7 percent for Italy, 0.5 percent for Greece, and -0.3 percent for Portugal. These differences reflect the country's initial geographical specialization. Germany's relatively large share of exports outside the euro area and in fast growing emerging markets contributed to relatively stronger rebound in exports. In contrast, export demand growth was more sluggish in periphery countries as a result of either specialization in slower growing markets outside the euro area (Italy and especially Greece) or lower share of exports to non euro area countries (Spain, Portugal). In all countries, demand from other euro area countries has been declining during the period, contributing to slower export growth.

15.   Determinants of export performance: Export demand from the rest of the world and changes in nominal effective exchange rates provided the strongest contributions to export performance, while weak demand from within the euro area dampened exports (Figure 3).

- *Initial trade specialization is important.* It helps understand the extent to which euro area countries' exports have rebounded. Germany's relatively large share of exports outside the euro area and in growing markets contributed to relatively stronger rebound in exports, and made its export performance less dependent on intra-euro area demand than that of Southern EA countries. In the case of Greece, specialization in slow-growing markets has constrained export growth.

- *Demand from the rest of the world is the main pull factor.* It contributed to 47 percent and 42 percent of the relatively strong rebound of Germany's and Spain exports, and to 80 percent of France's exports. It cushioned the headwinds on Italy's exports and was the main driver of Portuguese exports (including to fast-growing African countries).

- *Relative price adjustments also matter, although there is uncertainty about the precise effect.* When measured with CPIs, relative price adjustments (vis-à-vis euro area trading partners or others) appear to have had a small effect on the exports of the periphery, France, and Germany. Although the small contributions of relative prices are partly a result of the relatively small elasticity of exports to relative prices, the impact also depends on the relative price considered. As demonstrated in Section II, CPI adjustments have been relatively small (either relative to euro area trading partners or relative to non euro area trading partners), although relative price adjustments as measured by GDP deflators have been more substantial.[8] In this case, the contribution to export performance of GDP deflator adjustments was large for Germany, Spain and Portugal. For the latter two countries, the changes in relative prices account for 20 and 35 percent of real exports growth between 2008:Q3 and 2012:Q4.

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[8] We replicate the analysis, using the same relative prices elasiticities, but with GDP deflators instead of CPIs as measures of relative prices. Using the same elasiticities allows us to assess the impact of using GDP deflators instead of CPIs on the contribution of each variable to export performance.

- *The nominal exchange rate also played a role.* The nominal effective exchange rate contributed as much as external demand to France's exports, and to 30 percent, 17 percent and 28 percent of the exports of Germany, Spain, and Portugal.

- *Weak euro area demand was a drag.* The euro area crisis had a direct impact on the export performance of euro area countries, as demand from euro area trading partners declined during the early phase of the crisis in 2008-09 but also more recently. The impact was particularly large for Italy and Portugal.

- *Unexplained factors.* The export performance of Greece was significantly weaker than predicted by the developments of external demand and relative price adjustments. There could be various explanations, such as lower than average demand or relative price elasticities (which could be related to structural impediments and non-price competitiveness) or a substantial loss in non-price competitiveness. In contrast, in Spain, Portugal, and Germany, the unexplained residual is relatively large and positive, suggesting that non price factors could have helped support export performance.

Cumulative Contributions to Export Performance GDP Deflator Based Relative Prices, 2008Q3-2012Q4

Sources: IMF staff estimations.

Cumulative Contributions to Export Performance CPI Based Relative Prices, 2008Q3-2012Q4
(Percentage points)

Sources: IMF staff estimations.
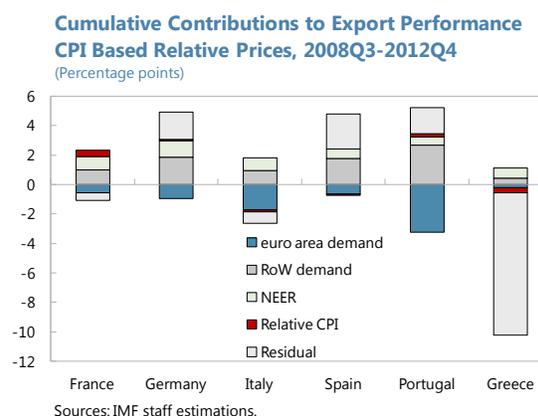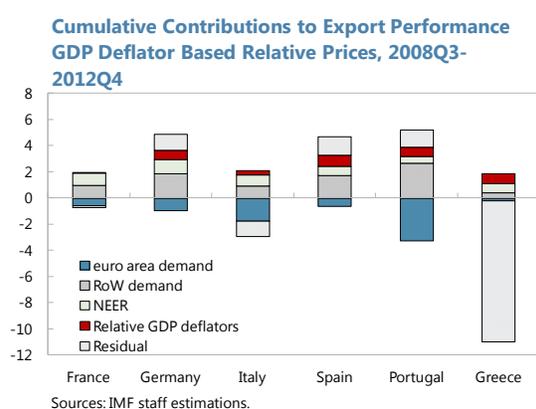
D.   External Adjustment: Cyclical or Structural?

16.   Nature of adjustment: A key remaining question is whether recent current account adjustments reflect cyclical or structural factors, or a mixture of both.

17.   Regression analysis: Panel regression analysis allows us to assess the contribution of structural and cyclical factors to the evolution of current accounts. Our approach builds on the existing literature, based on the standard inter-temporal approach to the current account emphasizing saving and investment decisions (Chinn and Prasad (2003), Lee and al. (2008), Christiansen et al. (2009)). In particular, we follow the method used in the IMF's 2012 External Balance Assessment (EBA) analysis of 50 AEs and EMs, with the period coverage extended to 1986-2012. The standard fundamental determinants of savings and investment decisions include: (i) demographics (population growth; old age dependency ratio; and aging speed); (ii) initial wealth (lagged NFA); (iii) long-term growth and neoclassical catch-up (five-year ahead real GDP growth and gap to US GDP per capita); (iv) other structural factors (cyclically adjusted fiscal

balance, public health spending);[9] and cyclical factors (output gap, global capital market conditions, commodity terms of trade).

18.   Potential output: The standard regression is augmented to capture the impact of changes in potential output on the current account. An unanticipated and permanent decline in the level of potential output should cause a decline in consumption and investment, thereby resulting in an improved current account balance. Indeed, consumption adjusts immediately by the permanent amount of the decline in productivity also reflecting lower investment going forward (and thus exceeds the initial decline in output), causing a temporary increase in saving, while investment also declines. The standard current account regression does not capture this effect well. The expected growth term captures the inter-temporal effect of changes in productivity growth (case (A)), but not the effect of changes in productivity levels (case (B) on the chart). The gap relative to the US GDP per capita level captures the neoclassical convergence term, which has the opposite effect on the current account (e.g., a lower GDP per capita relative to the US results in a lower current account balance). Therefore, it is not well suited to capture the impact of an unexpected drop in potential output. We include as additional explanatory variable the PPP potential output level per capita relative to the world average to account for this effect.
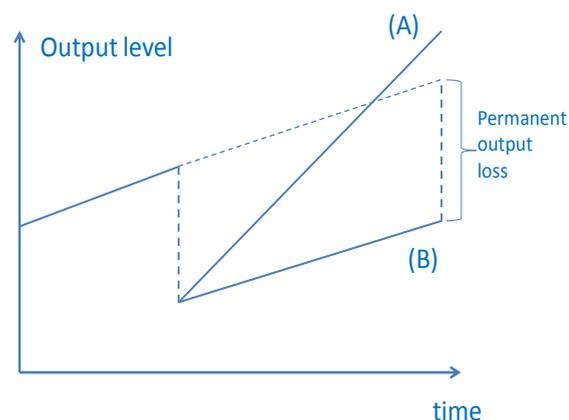
19.   "Periphery factors": We also account for common factors underlying the evolution of external balances in the euro area periphery that are over and above the impact of observed cyclical and structural determinants. These common patterns could be structural or cyclical in nature. The literature has shown that countries in the periphery of the euro area experienced common current account patterns related to the reduction in risk premiums, the removal of exchange rate risks, overly optimistic convergence expectations, and regulatory factors after the creation of EMU.[10] These

External Adjustment
Contributions to change of CA 2007-2012
(Percent of GDP)
Sources: WEO, EER, DOTS, and IMF staff

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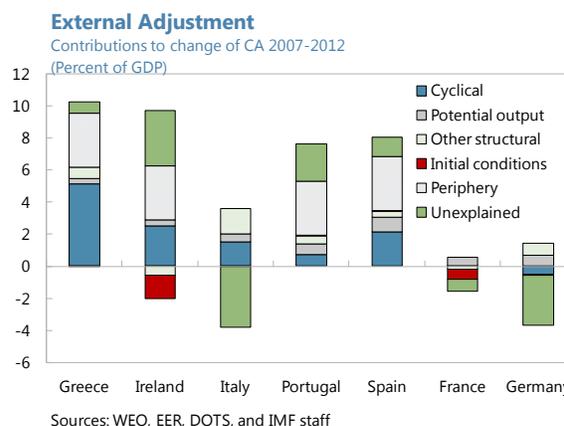
[9] Other factors considered structural, but of little relevance for this analysis include capital controls, reserve accumulation, whether the country is a financial center. The regression also includes the oil trade balance for a few countries where it exceeds 10 percent of GDP.

[10] See for instance Blanchard and Giavazzi (2002), Blanchard (2004), and Chen, Milesi-Ferretti and Tressel (2012).

factors led to a surge of intra-euro area capital flows, contributing to domestic asset bubbles and worsening external positions.[11] In the aftermath of the crisis (and particularly since 2011), the periphery of the euro area has experienced sharp reversals of these private capital flows (Laeven and Tressel 2013). To control for these unobserved (and difficult to measure) determinants of the current account, we include time effects in the regression that are common to all periphery countries.

20.   Findings: The empirical results suggest that both cyclical and structural factors have contributed to the recent improvement in current account balances (appendix table).[12] Cyclical factors have played a significant role in the current account reversals of Greece, Ireland and Spain. The impact of measured structural factors (potential output, demographics, etc.) has generally been more modest.[13] However, "periphery factors"—which arguably reflect both structural and cyclical underlying forces—account for a significant portion of the external adjustments. The unexplained part of the adjustment remains large in some cases (e.g., Italy).

E. The Adjustment Going Forward

21.   Additional adjustment: Further adjustment in relative prices would be needed to complete the adjustment (based on current account or REER targets). According to the forthcoming 2013 IMF External Sector Report, additional adjustment of real exchange rates by *5-10 percent* is desirable for the GIIPS.

22.   Structural adjustment: To improve competitiveness, resources need to be reallocated to more productive sectors; countries need to move up in the value chain; and labor markets need to become more flexible. More specifically,

- *Re-allocation of labor to traded sectors.* The reallocation of labor from non-traded to traded sectors has not occurred so far (section II). As the recession lingers in the periphery, human capital and potential output are lost, making structural adjustment even more difficult to achieve when relative prices start adjusting.

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[11] International Monetary Fund, Regional Economic Outlook: Europe. May 2011.

[12] The assessment is based on the output gap and potential output estimates of each WEO vintage. There is an ongoing debate on how potential output and output gap should be estimated in real time, included to better capture financial cycles. See for instance Borio C., Disyatat, P., and M. Juselius, 2013, "Rethinking Potential Output: Embedding Information about the Financial Cycle", BIS WP 404. Our analysis does not enter in those considerations.

[13] The impact of a decline in the output level on the current account is theoretically and empirically ambiguous as noted above: while the neoclassical effect tends to lower the CA balance (as the distance to the TFP frontier increases), the decline in potential output has the opposite effect (as consumption falls by the permanent component of the reduction in income). In the case of Greece, the first effect decreases the CA to GDP ratio by 0.11 percentage points, while the second effect increases the CA to GDP ratio by 0.45 percentage points. See appendix table for details.

- *Moving up the value chain.* Countries of the periphery produce goods that are closer substitutes of goods produced by fast-growing emerging market economies (such as China), hence facing additional structural challenges to their external rebalancing (Figure 4). Evidence from Trade Correlation Index (TCI) suggests that this is the case for several euro area members (Italy, Portugal, Slovakia, Slovenia, and Spain), e.g., a relatively high correlation of the composition of a country's merchandise exports with China.[14] This means that internal devaluation in these countries (relative to other euro area countries) would help export competitiveness only to a limited extent, since competitiveness gains may have to be vis-à-vis emerging markets.

- *The role of service exports.* The euro area is the largest service exporter in the world (a third of world market share) and most euro area members have relatively higher service export ratios, in particular Greece (tourism and transport) and Ireland (Insurance and IT). Some service exports (such as tourism) have stronger links within the euro area and may benefit more from internal devaluation through ULC improvements and wage cuts. Other service exports are more sensitive to non-price factors (labor and product market regulations or other regulations such as taxes) (Figure 5).

Export shares as pecentage of GDP: 2008-2012

- *Structural reforms*. While relative price adjustment is important to rebalance and enhance competitiveness, it may be insufficient to fully eliminate the external deficits and reverse the net external position, given the weak demand in the euro area. In this regard, pursuing structural reforms effectively at the national level would not only help in the long run, but can also help maximize the benefits of recent policy actions in the euro area to spur growth. Indeed, staff analysis of the impact of non-price indicators on export performance since the crisis suggests that, after accounting for external demand and real effective exchange rates, lower business costs or lower employment protection are associated with stronger export growth (text box). Meanwhile, increasing productivity in non-tradable sectors in surplus economies, would improve disposable incomes and consumption in these economies and lead to higher external demand, which could support the rebalancing efforts of the deficit countries.

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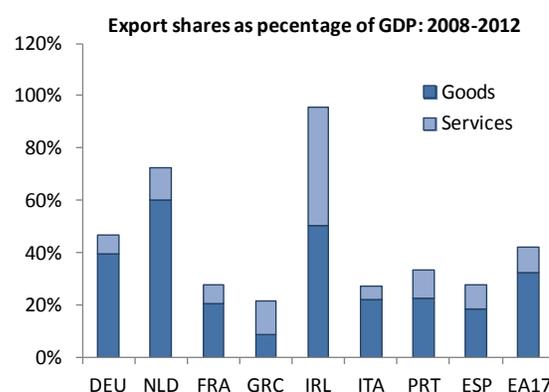
[14] It is also interesting to see that Greece's top three competitors in the world market are Spain, Portugal, and Italy, with very low correlations of trade specialization with China or Hong Kong.

Text Box: The Role of Non-price Factors

A simple approach is applied to assess export growth performance beyond the effect of world demand and relative price changes.

Model. The underlying panel regression takes the form

$$\Delta x_t = \alpha \mu_t + \beta \Delta (P_t/P_t^*) + \delta y_t + \varepsilon,$$

where export growth is a function of relative prices (expect β to be negative) and external demand y_t, with μt capturing non-price factors such as costs of doing business, regulatory compliance, etc.

Panel regressions are performed over 2008-2012 for 13 euro area economies using a combination of 23 measures of non-price indicators chosen from (i) the World Bank: costs of starting a business; costs of enforcing contracts and costs of insolvency; (ii) the OECD: levels of regulation (PMR); employment protection (EPL); state control; barriers to entry and entrepreneurship; trade and investment.

Results: The largest elasticity is attributed to external demand. Relative price matters with the relative price elasticity ranging from 0.3 to 0.5 across various specifications (also confirmed by quantile regression on medians). Among the non cost indicators, two stand out: lower business cost and lower employment protection come out positively as factors explaining export growth. Other non-price costs are generally less significant, but their importance for long-term adjustment may not be well captured given the post-crisis period considered.

Table 1. Euro area economies export regressions: selected results					
Dependent variable: real export growth					
Specification 1/		Unrestricted Panel			Quantile
External demand	0.97	0.94	0.98	1.01	1.01
	(13.76)	(23.36)	(14.43)	(20.78)	(12.50)
ULC-REER change	-0.40		-0.47	-0.41	-0.42
	(-2.73)		(-3.21)	(-4.26)	(-2.38)
CPI REER change		-0.32			
…		(-3.27)			
Cost to start a business (WB)			-0.26		
…			(-2.36)		
Employment protection (OECD)				-2.66	
…				(-1.75)	
R^2	0.79	0.77	0.82	0.80	0.56
Obs	70	70	70	126	70

1/ Selected variables are listed.

Source: IMF Staff estimations.

23. **Reducing external liabilities**: Going forward, achieving convergence of NFAs to more stable levels to reduce external vulnerabilities will prove very challenging. Reducing net external liabilities to levels considered healthy elsewhere would likely require much larger relative price adjustments than implied by the need to reverse unit labor costs appreciations or to achieve current account surpluses.

- *Outlook.* Under the baseline WEO projections, and assuming no valuation effects, the NFA positions of Greece, Ireland, Portugal, and Spain will remain below -80 percent by 2018.

Moreover, to undo half of the worsening of the NFA during 2000-12, it will take respectively 15 years for Greece, 11 years for Ireland, 37 years for Portugal and 12 years for Spain under the current baseline. Reaching the EU Commission scoreboard threshold (of -35 percent of GDP) will take even longer. In contrast, for Germany, the NFA is expected to continue growing under the current baseline.

Net Foreign Asset Postion
(Percent of GDP)

Note: NFA/GDP implied by WEO projections, assuming no valuation effects going forward.
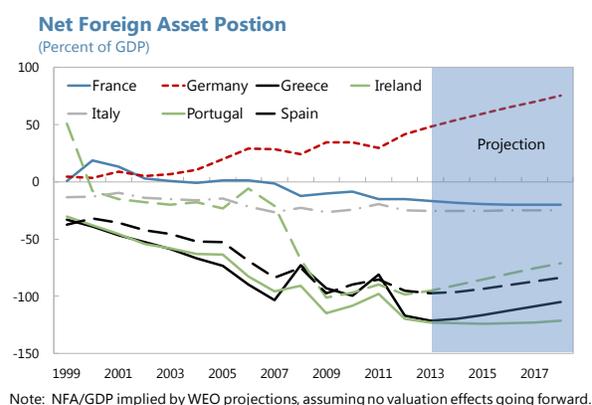
Table 2. NFA Positions in the Core and Periphery: Projected Adjustments

	NFA/GDP 2000	NFA / GDP 2012	NFA/GDP 2018 [2]	Numbers of years to:	
				Reverse half of 2000-12 decline of the NFA /GDP [3]	Reach EC scoreboard threshold [3] [4]
France [1]	18	-15	-20	.	.
Germany	3	42	75	.	.
Greece	-39	-117	-105	15	32
Ireland	-8	-98	-71	11	18
Italy	-13	-25	-25	.	.
Portugal	-38	-120	-121	37	73
Spain	-32	-95	-83	12	20

Notes:

[1] 2011 instead of 2012;

[2] Implied by WEO projections, assuming no valuation effects;

[3] Assuming constant real GDP growth, inflation and current account balance from 2018 onward;

[4] European Commission Macroeconomic Imbalance Procedure scoreboard target of -35 percent of GDP.

F. Concluding Remarks

24. **Summary**: Relative price adjustments and current account improvements are taking place. But improvements in export performance remain very dependent on external demand, including from within the euro area. Moreover, ongoing adjustment in current account balances is partly driven by cyclical factors, which suggests that more needs to be done to make it

sustainable. Going forward, converging to net foreign asset positions considered safe elsewhere will prove challenging.

25. **Policies**: Further policy actions in both surplus and deficit economies are necessary to rebalance the euro area. Structural policies will improve flexibility and smooth the adjustment process across sectors, including by fostering job creation and access to credit, boost competitiveness and enhance regional integration (by for instance introducing a single labor contract across countries and portable unemployment benefits and pensions).

- In *surplus economies*, increasing productivity in non-tradable sectors would improve disposable incomes and consumption in these economies and lead to higher external demand, which could support the rebalancing efforts of the deficit countries. In addition, reducing euro area uncertainty would support a recovery in private investment, which would help narrow current account surpluses (notably in Germany).

- In *deficit economies*, continuing structural adjustment would deliver a shift of resources to tradable sectors where consumption booms led to excessive growth in non-tradable sectors in the run-up to the crisis.

- At *the euro area level*, repair of bank balance sheets and implementation of the Banking Union will enhance the allocation of credit to more productive sectors and firms, and therefore help support the internal reallocation of resources.

Box. ULC Developments in Tradable and Non-tradable Sectors[1]

Relative price adjustments are taking place in tradable and non-tradable sectors, although it is quite uneven at the national level. In particular,

- Several periphery countries experienced large reversal of ULCs in traded goods sector than in non-traded ones, namely Ireland, Portugal, and Greece. However, saving in ULCs are sometimes achieved by large scale labor shedding, e.g., in Greece and Portugal.

- Ireland has been a good example of external adjustment, e.g., output in the tradable sectors is now recovering and supporting growth.

- Spain has a bigger drop in ULC of its non-traded goods sector and has relatively sticky labor costs. Most of the adjustment is through output loss and unemployment.

- Divergence of competitiveness in the large economies: France and Italy's ULC of tradable trade continues to rise since the crisis, reflecting deterioration of external competitiveness.

Contributions to ULC Changes: 2000-07

Contributions to ULC Changes: 2008-12
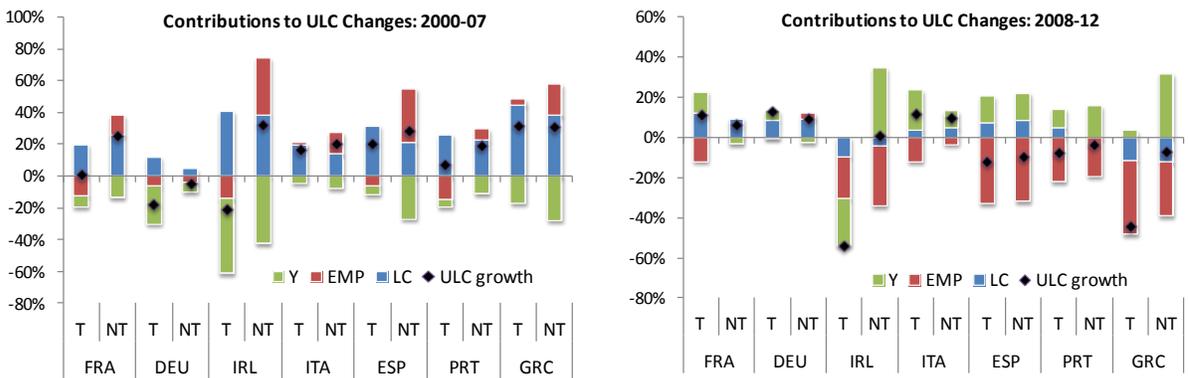
Sources: Eurostat, Haver, and IMF staff calculations.

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[1] Traded sector: manufacturing. Non-traded: construction, whole sale and retail, hotel, transportation. See ECB (2012)

Figure 1. Euro Area: Current Account and Its Components

Germany: current account and its components
Percentage of GDP

France: current account and its components
Percentage of GDP

Netherlands: current account and its components
Percentage of GDP

Spain: current account and its components
Percentage of GDP

Ireland: current account and its components
Percentage of GDP

Italy: current account and its components
Percentage of GDP

Greece: current account and its components
Percentage of GDP

Portugal: current account and its components
Percentage of GDP

Sources: Haver, Eurostat, and IMF WEO.

Figure 2. Contributions to Changes in Unit Labor Cost

Germany: changes in unit labor costs
(percentage change, y/y)

Labor costs · Output · Employment · Unit labor costs

France: changes in unit labor costs
(percentage change, y/y)

Labor costs · Output · Employment · Unit labor costs

Spain: changes in unit labor costs
(percentage change, y/y)

Labor costs · Output · Employment · Unit labor costs

Italy: changes in unit labor costs
(percentage change, y/y)

Labor costs · Output · Employment · Unit labor costs

Portugal: changes in unit labor costs
(percentage change, y/y)

Labor costs · Output · Employment · Unit labor costs

Ireland: changes in unit labor costs
(percentage change, y/y)

Labor costs · Output · Employment · Unit labor costs

Greece: changes in unit labor costs
(percentage change, y/y)

Labor costs · Output · Employment · Unit labor costs

Netherlands: changes in unit labor costs
(percentage change, y/y)

Labor costs · Output · Employment · Unit labor costs

Sources: Eurostat and IMF staff calculations.

Figure 3. Determinants of Quarterly Export Performance
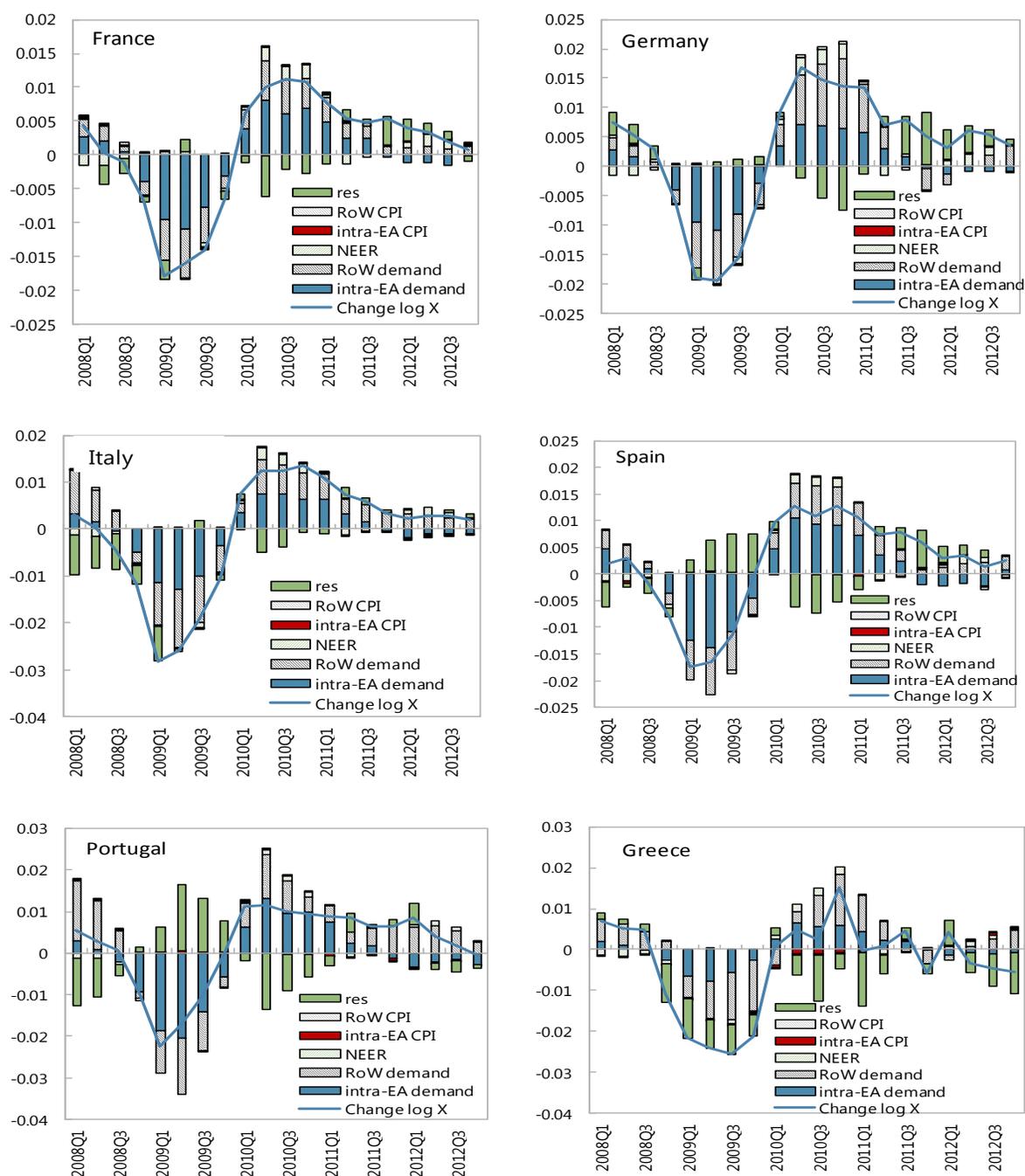
Note: Contributions to quarterly real export growth of intra-euro area demand, demand from the rest of the world, the nominal effective exchange rate and relative price adjustments (based on CPIs) vis-à-vis euro area trading partners and non-euro area trading partners. Demand and price elasticities are those estimated in regression (1). Moving averages of each variable over 4 quarters are considered.

Figure 4. Correlation of Trade Specialization Index: 1995 and 2011

Greece: Correlation of Trade Similarity Index 1995-2011

China: Correlation of Trade Similarity Index 1995-2011

Germany: Correlation of Trade Similarity Index 1995-2011

Italy: Correlation of Trade Similarity Index 1995-2011

France: Correlation of Trade Similarity Index 1995-2011

Spain: Correlation of Trade Similarity Index 1995-2011

Sources: UNCTAD and IMF staff calculations.

Note: Trade correlation index is a simple correlation coefficient between economy A and economy B's trade specialization index. The resulting coefficient can take a value from -1 to 1. A positive value indicates that the economies are competitors in global market since both countries are net exporters of the same set of products. Consequently, a negative value suggests that the economies do not specialize in the production / consumption of the same goods, and are therefore natural trading partners.

Figure 5. Service Exports in the Last Decade: Trends and Shares
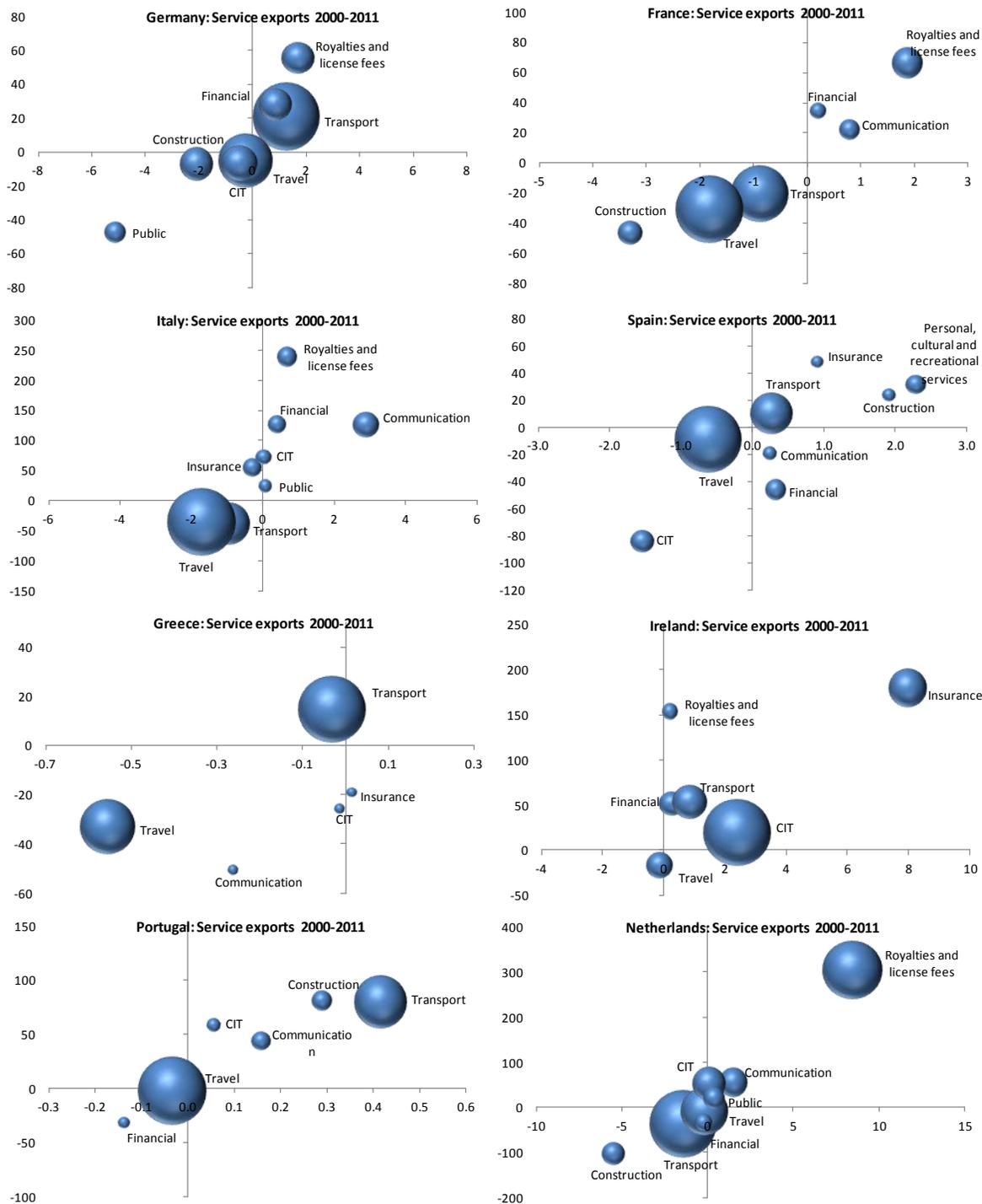
Note: Bubble size represents the share of sectors in total service exports.

X-axis: change in country's world market share of a specific market from 2000 to 2011; Y-axis: Relative growth rate of sector exports to total world growth in exports of that sector from 2000 to 2011 (percentage points).

Sources: UNCTAD and IMF staff calculations.

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Appendix. Technical Notes

Decomposition of ULC changes

ULC = Labor cost/Labor productivity, where Labor cost = Compensation per employee/Total employees (in persons), and Productivity = Real output (or gross value added) / Total employment. See ECB DG Statistics

http://sdw.ecb.europa.eu/browseExplanation.do?node=2120786

Traded and non-traded sectors

No standard definition can be derived from NACE2 (European Classification of Economic Activities, rev. 2) to have a clear cutoff line between traded and non-traded sectors. This note applied the definition used by an ECB Occasional Paper (ECB 2012) as follows:

Tradeable sector: Manufacturing.

Non-tradeable sectors: Construction; Wholesale and retail trade; Travel and food service; Financial and insurance; Real estate.

Appendix table

Contributions to Current Account Adjustment: 2007-2012

(Percentage of GDP)

	CA	Cyclical	Demograph	LT development and growth	NFA	Other structural	Potential output	Periphery effect	Unexplained
Greece	10.19	5.13	0.43	-0.11	-0.02	0.25	0.45	3.38	0.69
Ireland	7.63	2.48	0.19	-0.19	-1.49	-0.76	0.58	3.38	3.43
Italy	-0.23	1.48	0.61	0.07	-0.03	0.98	0.45	.	-3.79
Portugal	7.60	0.70	0.33	0.38	0.04	0.15	0.31	3.38	2.31
Spain	8.02	2.14	1.02	0.58	0.04	-0.66	0.33	3.38	1.20
France	-0.73	0.02	-0.17	0.46	-0.61	-0.06	0.36	.	-0.74
Germany	-2.02	-0.53	0.57	0.76	-0.05	0.17	0.19	.	-3.13

Note: cyclical includes contribution of output gap, financial conditions, and commodity terms of trade. Potential growth includes the contributions of neoclassical catch up term and expected medium-term growth. Other structural include contributions of the fiscal balance, capital controls, social spending.

INDEBTEDNESS AND DELEVERAGING IN THE EURO AREA[1]

High private and public sector debt is holding back growth in the euro area. Simultaneous deleveraging across all sectors represents an immense challenge. Negative feedback loops between high debt and a weak financial sector are constraining economic growth and credit conditions. Policies that directly support the workout of bad debt in the financial and private sectors in the euro area could yield important benefits. The negative impact of private sector deleveraging on growth could be further reduced through a more supportive policy mix.

A. Motivation and Introduction

1.   High debt in the euro area is weighing on growth. Countries that experienced a rapid increase in private sector debt in the run-up to the global financial crisis of 2008/09 have had worse economic outcomes, some are still in the middle of deep recessions, and their medium term growth outlook is weak.

2.   Balance sheet adjustment in the euro area at the current juncture may prove more challenging than in other regions or in other episodes in the past. The simultaneous deleveraging of the public and private sector in some countries appears increasingly daunting. And a fragmented financial sector with its own balance sheet problems amplifies the effect of private sector balance sheet stress on economic outcomes. Furthermore, there is significant heterogeneity across countries in the euro area, suggesting that a one-size policy mix is unlikely to fit all. Countries in need of adjustment may be constrained by a common monetary and exchange rate policy, leaving them little space for maneuver. Finally, simultaneous deleveraging in several euro area members can lead to negative spillovers effects, further amplifying the negative impact of a country-specific deleveraging on economic activity.

3.   This paper evaluates indebtedness in the euro area and its implications for growth. We ask the following questions: (i) Why does private sector indebtedness matter for growth? (ii) In which euro area countries is private sector indebtedness and leverage high? and (iii) What do we know from past experiences of deleveraging and what lessons can we draw for the euro area? Section B outlines how balance sheet stress can rise from high indebtedness, and discusses the feedback loops at play across sectors. Section C takes stock of indebtedness across the euro area, identifying vulnerabilities across sectors and countries. Section D looks at historical episodes to gauge the extent of deleveraging that can be expected and the macroeconomic environment that supported previous deleveraging episodes. The section also presents econometric evidence linking high debt in the private and public sector to growth outcomes. Section E offers policy considerations for the euro area, while section F concludes.

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[1] Prepared by Fabian Bornhorst and Marta Ruiz Arranz.

B. Why Debt Matters

Balance Sheet Stress

4.   **Indebted private sector agents are more susceptible to react to sudden asset price shocks or increased volatility.** Large and sudden drops or swings in asset prices (e.g., houses or equity) can cause balance sheet stress in a context of high debt, because liabilities remain unchanged as the valuation of assets falls or fluctuates. High debt makes agents more vulnerable to sudden changes in macroeconomic conditions (interest rates and growth), while changing financing conditions make it more difficult to roll over debt. Households and firms start focusing on repaying debt and strengthening their balance sheets (e.g., through improving equity ratios, building liquidity buffers), while life-cycle consumption smoothing or expected returns on investment become secondary. This shift in behavior depresses demand and creates self enforcing feedback loops across sectors.

5.   **In that context, declines in asset prices have economy-wide consequences.** Falling asset prices go beyond one sector of the economy, as they impact both borrowers and creditors. For example, falling house prices reduce household wealth, decrease the value of collateral held by banks, increase non-performing loans, and, when weak banks require public support, ultimately impact the public sector's balance sheet. Public finances are also impacted by lower tax revenue derived from transactions in this asset (e.g., stamp duties). Likewise, equity prices not only determine a firms' valuation (raising the cost of capital) and increase financial vulnerabilities such as the debt-to-equity ratio, but they also determine the value of households' financial assets (equity and shares).

6.   **Feedback loops exacerbate downturns, in particular in cases of simultaneous deleveraging of the private, financial, and public sector** (Figure 1). The impact of asset price shocks has secondary effects. Faced with the need to repair balance sheets, agents give more importance to debt reduction over profit maximization, which reduces economic activity, and, in turn exacerbates the initial drop in asset prices. Managing deleveraging becomes particularly challenging when all sectors of the economy, including the public and the financial sector, deleverage simultaneously. This can depress activity further as no sector is able to expand its balance sheet, even temporarily. The following feedback loops can be at play in a balance sheet recession with a weak financial sector:

- Indebted households that need to repair their balance sheet consume and invest less, reducing firms' profitability and the public sector's tax revenue.

- Firms faced with a slump in household demand begin to reduce the debt burden by increasing margins, reducing wage costs and scaling back investment. This, in turn, feeds into lower household income through lower wages and higher unemployment, and into lower tax revenues.

- The government's own consolidation effort requires higher taxes and lower spending, which reduces households' disposable income—exacerbating the households' debt servicing

capacity and firm profitability. In turn, public balance sheet weakness limits the scope for further assistance to the financial sector (e.g., bank recapitalizations)

- The banking sector—faced with increasing non-performing loans from households and firms, and a high exposure to a potentially weak sovereign—sees its capital being eroded. To rebuild its capital position, it tightens lending standards and increases lending rates, in turn depressing demand for investment and consumption loans.

Figure 1. Feedback Loops from Balance Sheet Effects
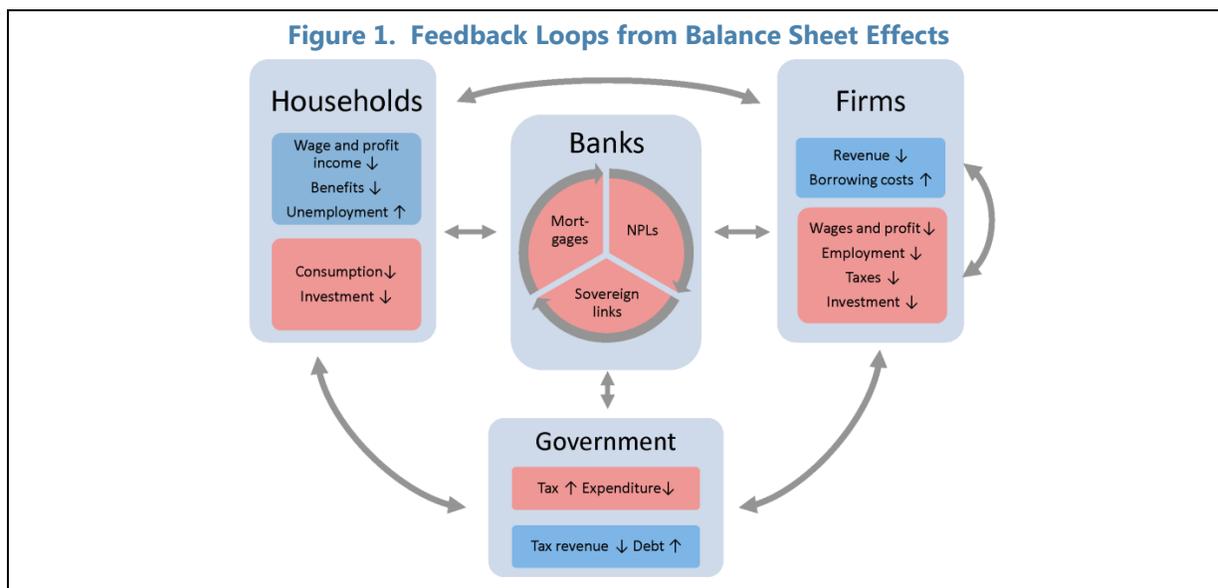
Diagnosing Balance Sheet Stress

7.   Gross debt matters, but so do other indicators. A sector's indebtedness is a key variable driving balance sheet stress and the ability of the sector to absorb shocks. But focusing exclusively on gross debt is not sufficient. The level of indebtedness a sector can sustain varies across countries with initial conditions, including the characteristics of the housing market or the degree of intermediation provided by the banking sector. While scaling debt to income is useful to gauge a sector's capacity to service debt obligations, leverage ratios that link debt to assets are relevant to assess debt in relation to a sector's own balance sheet. Assets, including housing and financial wealth, can also be important buffers as they allow agents to draw down savings and they are relevant in assessing debt sustainability. More importantly, because debt stocks tend to move slowly over time, financial flows can be useful to detect changes in behavior that signal balance sheet stress. This would happen for example when agents revert to financial surplus and when their debt service burden becomes too high relative to income. Other considerations that may alter the implications of the debt overhang include the characteristics of the debt profile, such as the composition, redemption profile, and structure of the investor base.

8.   Analysis of aggregate balance sheet data has its limitations. It cannot identify pockets of vulnerability that may exist within sectors, and abstracts from distributional aspects. For example, assets and liabilities could be concentrated in different subsets of the population, and conclusions from an aggregate perspective can be misleading. This paper provides an overview of indebtedness in the euro area, but it also takes into account more detailed country and sector specific analysis made available in other studies.[2]

C. Indebtedness and Deleveraging in the Euro Area: Stylized Facts

The Euro Area Level

9.   Debt levels for the euro area as a whole are at par with those in the U.S. or the U.K, but the deleveraging process has yet to translate into debt reduction (Figure 2). In the aggregate, household debt is lower than in the U.S. or the U.K. Corporate debt appears higher in the euro area and the U.K. than in the U.S., though important differences in the size of intercompany loans and trade credit complicate comparisons in levels.[3] Government debt in the euro area is also at comparable levels, and increased less since 2003 than in the U.S. or the U.K.

The euro area also enjoys a comfortable net international investment position. Yet, since 2009 the U.S. and the U.K. have seen a reduction in household debt, and the U.K. has also experienced a reduction in corporate debt, while the deleveraging process in the euro area has not yet translated into an area-wide reduction in debt. Looking at flows in the euro area shows the private sector's deleveraging effort, with firms and households in a contractionary net lending position vis-à-vis other sectors (Figure 3, ECB 2013a).

Figure 2. Financial Surplus in the Euro Area

The private sector has increased its financial surplus

Euro area: Net lending/borrowing
(by sector, percent of GDP)

Sources: ECB.

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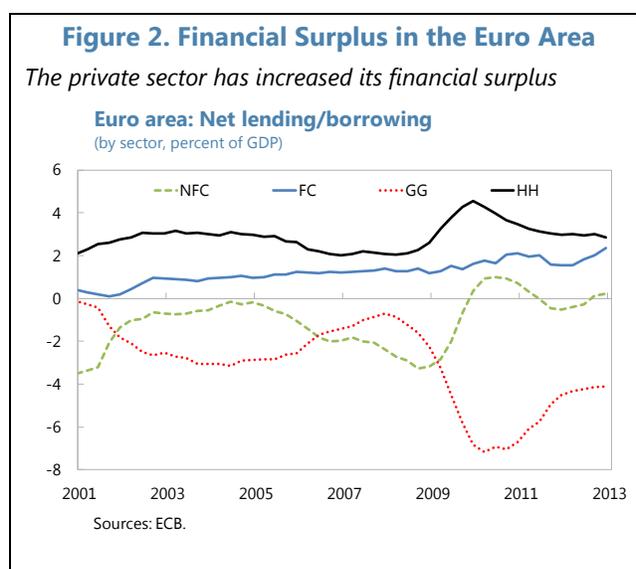
[2] For example: IMF 2012a, IMF 2012d, IMF 2013b, IMF 2013d, and ECB 2013b.

[3] See Cussen and O'Leary (2013) for a discussion of consolidated vs. non-consolidated corporate debt in the euro area.

Figure 3. Indebtedness in the Euro Area, U.S. and the U.K.

Households in the Euro area are not highly indebted, and overall debt has decreased only very little

Non financial corporate debt in the euro area is somewhat higher than in the U.S.

Household sector debt
(percent of GDP)
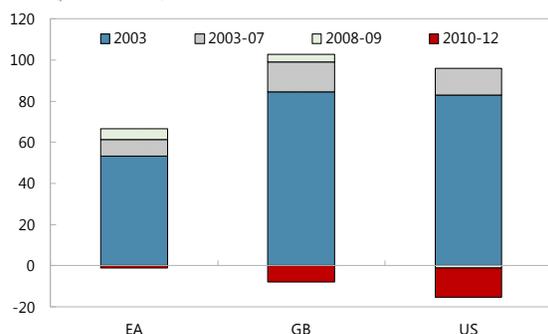
Source: ECB, Haver Analytics.

Non-financial corporate sector debt
(percent of GDP)
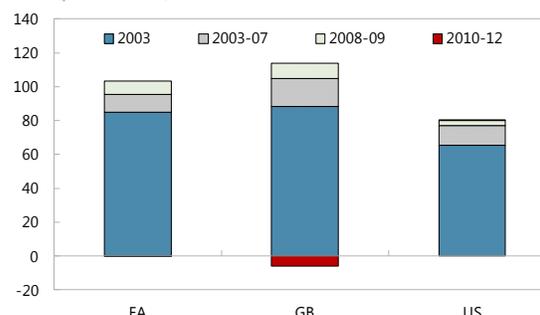
Source: ECB. Includes intercompany loans and trade credit which can differ significantly across countries.

General Government Debt
(percent of GDP)
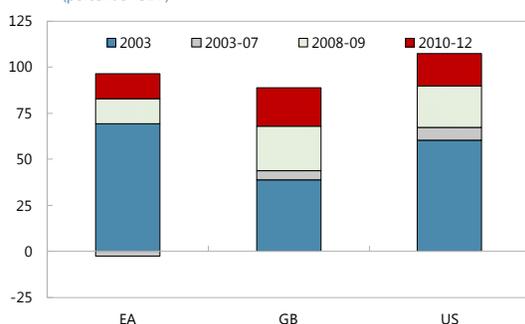
Sources: WEO.

Net International Investment Position
(percent of GDP)
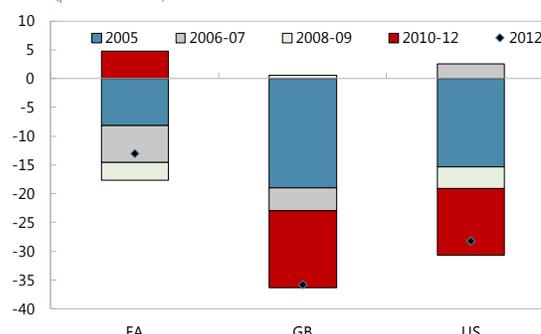
Sources: IFS, WEO.

Variation Across Countries

10. **Indebtedness varies across countries and sectors** (Figure 4). Since the early 2000s, private and public debt increased most sharply in countries now under stress. Debt is particularly high in Ireland, Portugal, and Spain, where households, the non-financial corporate sector and the government are all highly indebted compared to their euro area peers. In addition, a number of other countries have high debt in one or two sectors.[4] And when all sectors are highly indebted, sizeable net external liabilities have accumulated (Figure 12).

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[4] See also Cuerpo et al. (2013) for an identification of countries currently facing private sector deleveraging pressures based on various indebtedness indicators. For an overview, see also Buiter and Rahbari (2012) and McKinsey (2012).

Figure 4. Indebtedness Across the Euro Area

Private and public indebtedness has increase sharply in periphery economies

Indebtedness in the Euro Area
(percent of GDP, 2003, 2008, 2012)

And many economies have high debt in more than one sector of the economy

Indebtedness in the Euro Area
(by country and sector, in sphere if debt higher than 60th percentile)

Note: For the Netherlands, first observation is 2005.
Sources: ECB, IMF staff estimates.

Sources: ECB, Haver Analytics, and IMF Staff estimates.

Non-financial Corporates

Corporate debt and leverage

11.   Corporate indebtedness and leverage have increased. Indebtedness of euro area firms increased substantially in the first decade of EMU, on the back low real interest rates and prospects of high growth. Higher bank debt, combined with falling equity valuations, has boosted corporate leverage during the crises, threatening debt sustainability. While more recently firms' leverage ratios have fallen they remain elevated in a number of countries (Figure 5). Firm level data suggests that in some euro area economies up to 20 percent of corporate debt may not be sustainable (IMF 2013c).

12.   Pro-cyclical financial conditions are weighing on corporate balance sheets. Higher bank lending rates resulting from financial fragmentation are felt strongly in the bank-dependent small and medium-sized enterprises (SME) segment, which has a large share in value added. Lending conditions are tight, further reducing available financing for solvent firms.

Figure 5. Corporate Debt

Non-financial corporate sector debt
(percent of GDP)

Source: ECB. First observation for the Netherlands is 2005.

Corporate Leverage in the Euro Area
(Non-financial corporates, debt to equity ratio, percent)

Source: Haver Analytics, IMF Staff calculations.

Corporate Insolvencies
(Index, 2007/08 = 100)

Sources: Creditreform.

Increase in Corporate Insolvencies
(2008-11 growth, in percent, by sector)

Sources: Creditreform, IMF Staff estimates.

Corporate insolvencies and vulnerabilities

13.   Insolvencies have increased markedly where corporate debt is high (Figure 5). In most crisis economies, the increase in insolvencies in the non-tradables sector is somewhat higher than in the tradables sector, indicative of initial stages of economic rebalancing. This increase is noteworthy in view of the fact that, despite recent reforms, insolvency regimes in many euro area countries are generally lengthy, costly, and the recovery rate of claims is very low (Figure 6 and World Bank (2013)).

Figure 6. Insolvency Regimes

Average time needed to close a business
(Years)

Sources: World Bank Doing Business.

Cost of insolvencies
(percent of estate's value)

Sources: World Bank Doing Business

Recovery rate
(cents on the dollar creditors, tax authorities, and employees recover from an insolvent firm)

Sources: World Bank Doing Business

Distance to Frontier
(100=best performance in resolving insolvency)

Sources: World Bank Doing Business

14.   Pockets of vulnerabilities in the corporate sector. While the overall level of indebtedness in some countries may not be alarmingly high, high debt increases the vulnerability of corporates to changes in the business cycle, including interest rate fluctuations (ECB, 2012). In addition, a confluence of other factors can make indebted firms more vulnerable. In **Spain**, corporate indebtedness problems are concentrated in the real estate and construction sectors, where firms are highly leveraged and very reliant on bank financing. But firms in other sectors are also highly leveraged, making them vulnerable to interest rate and earnings shocks. In 2010, about a quarter of a sample of 7,000 firms was financially distressed (IMF 2012d). In **Portugal**, firm profitability is low, particularly for SMEs and micro firms, which account for nearly two thirds of corporate value added. As a result, the share of debt at risk is increasing, with 20 percent of firms in financial distress, concentrated in the non-tradable sector (IMF 2013d). In **Italy**, the corporate debt-to-income burden is not particularly high, but leverage is high and the sector relies heavily on short term bank financing, in particular in the important SME sector (IMF 2013b).

Households

Household debt and the housing boom

15.   The turn of the housing cycle triggered sector-wide deleveraging where real estate bubbles had driven debt up (Figure 7), especially in those countries where declining real interest rates and rapidly rising incomes encouraged households to contract debt. Mortgages represent the largest share of household debt in euro area countries (Cussen et al., 2012), and they have been the most significant driver in the increase of household debt since the start of the euro. When the housing boom burst around 2007-08, households were left with high debt and overvalued assets, in particular in Ireland and Spain. While the price adjustment has gone far in some countries (e.g., Ireland), house prices remain high in some others (e.g., Spain, France, Netherlands).[5] As house prices started to adjust, households moved from a financial deficit to a financial surplus position. In Ireland and Spain, for example, households have now begun to dispose financial assets and repay debt, and have slashed the acquisition of non-financial assets (Box 1). Despite these efforts to repair balance sheets, household debt continued to increase until 2009. It has since started to decline in Ireland, and, to a lesser extent, in Portugal and Spain.

Buffers and vulnerabilities

16.   Household assets are important buffers, but often illiquid. In Spain, for example, high levels of assets and low wealth dispersion—a result of high ownership rates—have been important mitigating factors, because households can dispose of assets to smooth consumption. But in a depressed housing market with high owner occupancy rates, disposing of housing wealth is often difficult. Indebted households have less liquid financial assets in periphery economies (Figure 8 and ECB (2013b)), although the sector as a whole has in many countries moved toward safe and liquid financial assets since the crisis (Cussen et al., 2012).
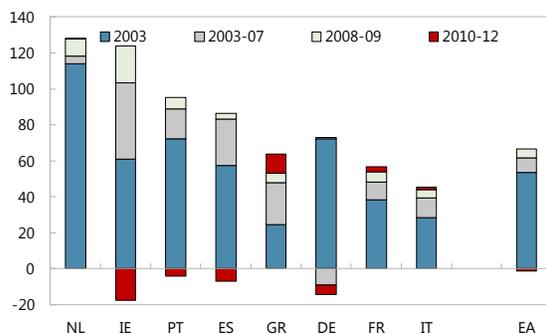
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[5] A full assessment of house prices would have to go beyond affordability ratios (price-to-income and price-to-rent ratios) and include other fundamentals, including supply constraints. See IMF 2012d, IMF 2013a, IMF 2013f.

Figure 7. Household Debt

Household debt has increased rapidly until 2009

And adjustment in EA countries has just begun

Household sector debt
(percent of GDP)

Source: ECB. First observation for the Netherlands is 2005.

Household Debt
(percent of GDP, long term average=100, peak at t=0, quarters)

Note: long term average since 2000 but varies with data availability.
Sources: ECB, IMF staff estimates.
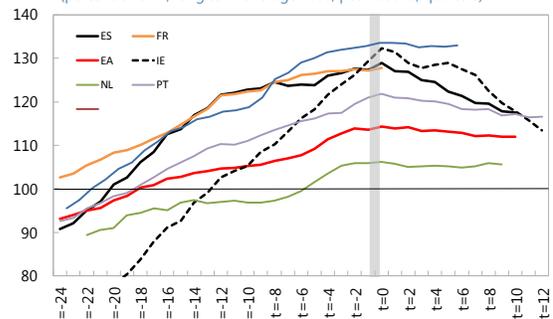
House Prices: Boom and Bust
(distance from long term average of price-to-rent and price-to-income ratio)

Sources: OECD, IMF Staff estimates.
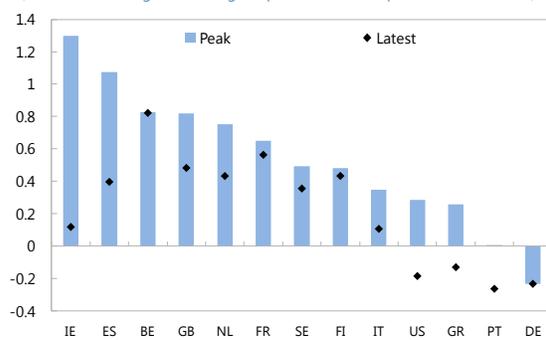
House price adjustment and Household net borrowing
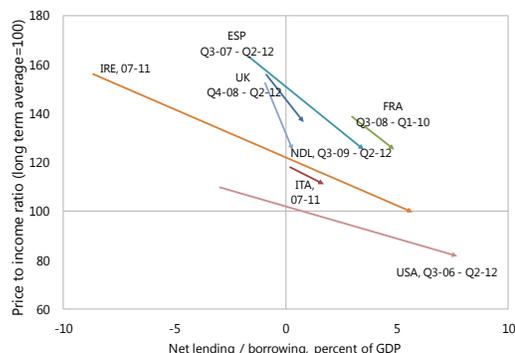
17.   Household balance sheets are vulnerable to income uncertainty, further asset price corrections, and, down the road, to interest rate increases. In most countries with high household debt, sustainability indicators such as debt-to-income, or debt service-to-income ratios have deteriorated (Figure 8), owing to falling incomes, with young and low income households particularly vulnerable. For example, in **Spain**, 22 percent of households are estimated to be vulnerable to stress, but the shares are much higher among poor and young households, where debt service to income ratios can reach 80 percent. The main risk for Spain arises from a further adjustment of housing prices and an increase in interest rates, as most mortgages are indexed to the Euribor (IMF 2012d). In the **Netherlands**, house prices are still overvalued based on range of metrics, and young cohorts would be especially vulnerable to a further drop in prices (IMF 2013f).

Box. The Savings Rate and Household Balance Sheets

The rise in the household saving rate during 2007-09 in many advanced economies can be explained by the sharp decline in asset prices and increase in fiscal deficits.[1/] The decrease in wealth associated with the decline in housing and asset prices prompted households to lower consumption and increase savings. In turn, the deterioration in the fiscal position had a strong positive impact on savings—partly reflecting Ricardian equivalence where the expectation of future tax increase drives households' savings relative to their income today.

Figure B1: Household Savings Rate

Household Savings Rate
(percent of disposable income)

Household Savings Rate
(percent of disposable income)

Sources: ECB, Haver Analytics.

Sources: ECB.
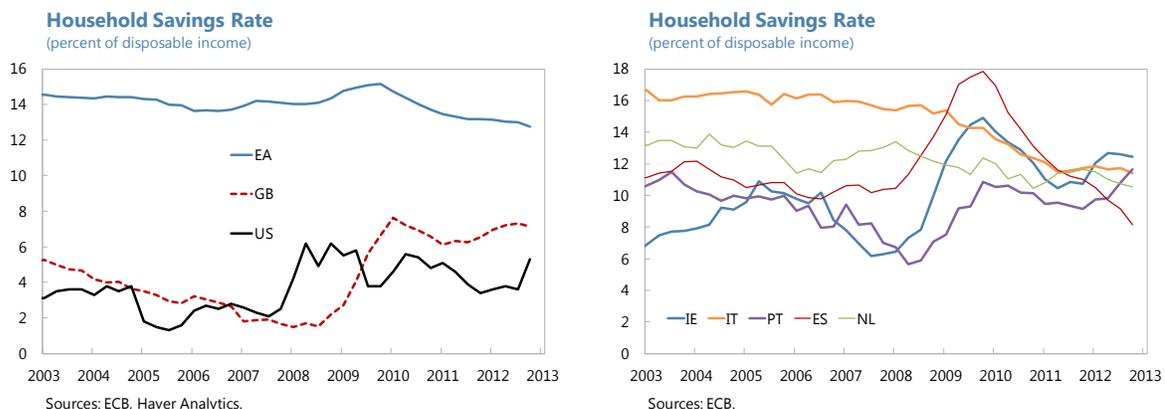
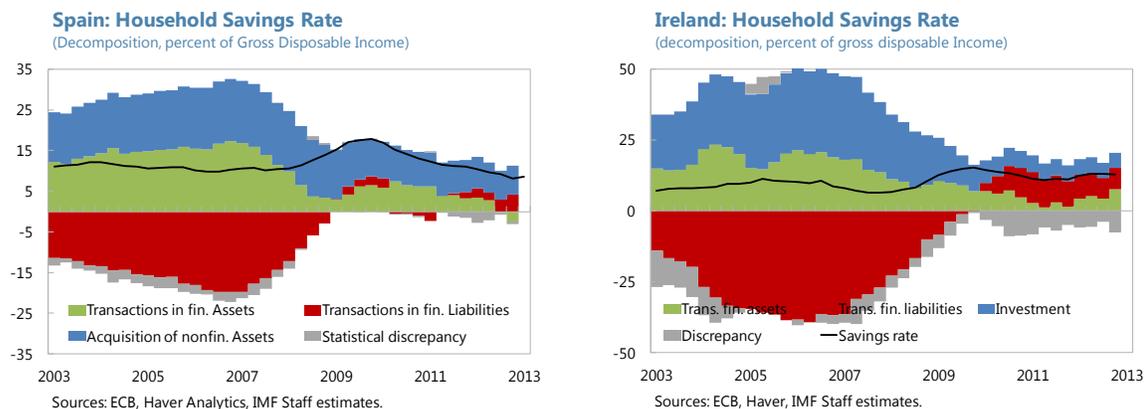**Since 2009, the deteriorating macroeconomic environment, lower disposable incomes and higher unemployment have caused a decline in households savings.** Cyclical factors such as higher unemployment lowered the household saving rate as households run down accumulated assets to smooth consumption. In fact, pre crisis, households were acquiring financial and nonfinancial assets, and at the same time incurring debt. Post crisis, households have slashed their acquisition of non-financial assets, and are repaying debt by disposing of financial assets. In sum, households may still be saving a similar fraction of their income, but they are doing so by reducing their wealth and investing less, with negative consequences for the broader economy.

Figure B2: Financial Account Decomposition of the Household Savings Rate

Spain: Household Savings Rate
(Decomposition, percent of Gross Disposable Income)

Transactions in fin. Assets
Transactions in fin. Liabilities
Acquisition of nonfin. Assets
Statistical discrepancy

Sources: ECB, Haver Analytics, IMF Staff estimates.

Ireland: Household Savings Rate
(decomposition, percent of gross disposable Income)

Trans. fin. assets
Trans. fin. liabilities
Investment
Discrepancy
Savings rate

Sources: ECB, Haver, IMF Staff estimates.

[1/] Econometric results are based on a sample comprising of Canada, France, Germany, Ireland, Italy, Japan, Spain, the U.S., and the U.K. from 1980-2012. The correlates to explain household saving behavior include wealth, fiscal policy, interest rates, cyclical factors, and demographic factors (see IMF 2013h).

Figure 8. Household Balance Sheets – Survey Results

The share of indebted households is high in the Netherlands but low in Italy

Indebted Households
(percent of total)
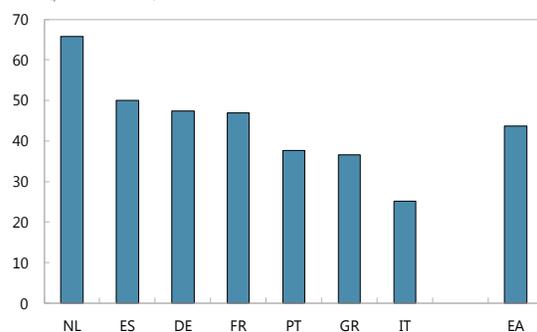
Sources: ECB.

In the Netherlands, Portugal and Spain debt is high compared to income

Debt to income ratio of indebted households
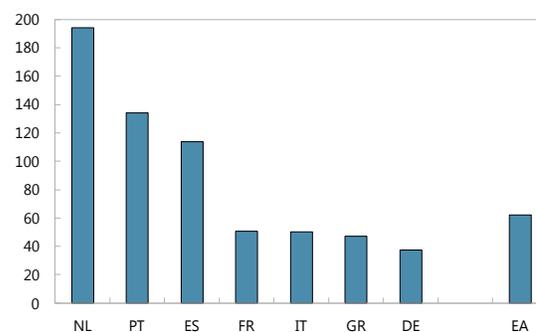
Source: ECB.

Buffers are low in some periphery countries

Net liquid assets as
(percent of annual gross income)
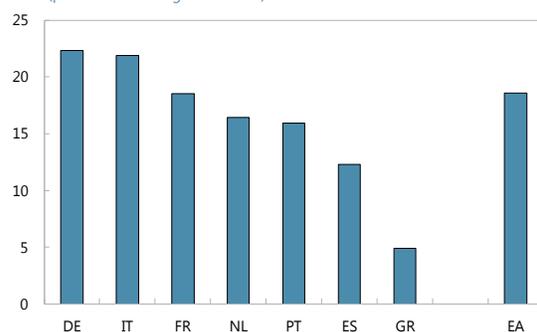
Source: ECB.

And debt service is high

Debt service to income ratio of indebted households
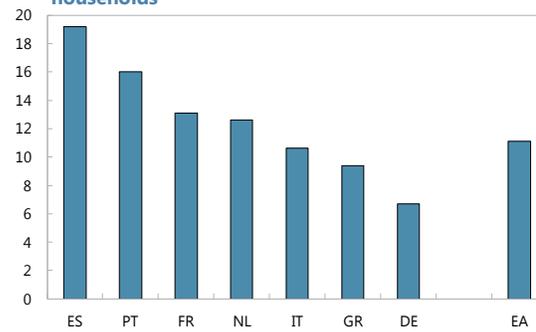
Source: ECB.

Financial Sector

18.   **In many euro area countries, a highly leveraged financial sector impairs intermediation and burdens the sovereign**. Many banks in periphery economies had traditionally relied on wholesale funding, and have built large exposures to sovereigns and the real estate market (IMF 2013g). The share of non-performing loans (NPLs)—both from households and corporates—has risen rapidly, increasing uncertainty surrounding the banks' asset quality, and in turn increasing funding costs and driving share prices down (Figure 9). In a fragmented European financial market, such banks face an uphill battle to strengthen their capital position, so as to provision for NPLs, buffer their sovereign exposure, and meet new regulatory requirements.

Figure 9. A Weak Financial Sector

Non performing loans
(percent of total loans)

Return on Equity
(percent)

Sources: Financial Soundness Indicators, IMF.

Sources: Financial Soundness Indicators, IMF.
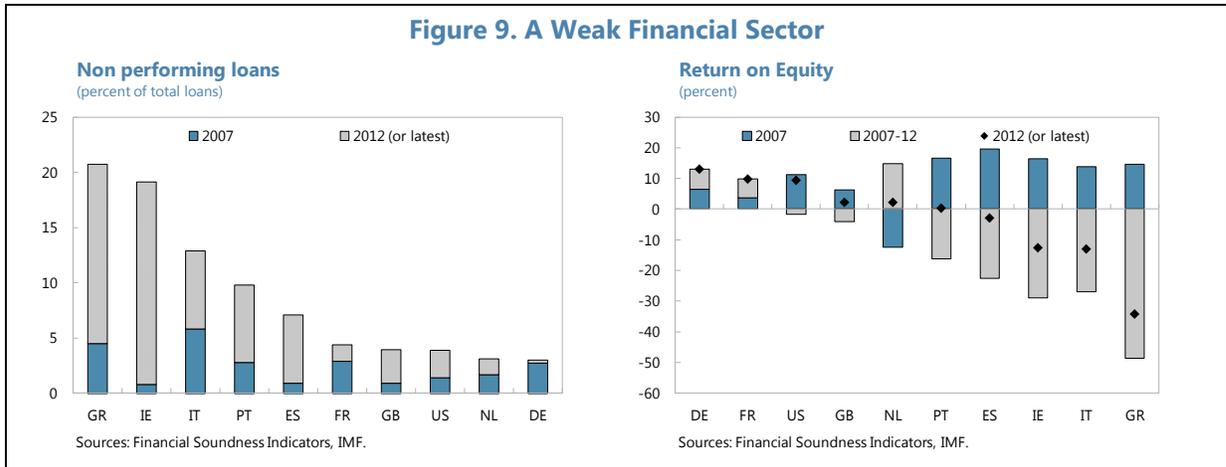
Public Debt and the Migration of Debt

19.   Debt migration from the private to the public sector has played an important buffer role in the euro area. In the boom phase, the private sector, in particular financial corporates increased their indebtedness while governments were able to reduce debt. As the private sector entered the deleveraging cycle, debt "migrated" to the public sector—through bank recapitalization or debt financed fiscal demand support—while other sectors moved to reduce their debt burden (Figures 10 and 11). But with savings being lower than investment across all sectors for a number of years, many periphery economies accumulated sizeable external debt (Figure 12).

Figure 10. Sovereign Debt

General Government Debt
(percent of GDP)

Sources: WEO.

Figure 11. Debt Migration

Pre crisis the financial sector debt share expanded

Domestic Debt Shares, 2000-07
(change of each sector's share in total debt, percent)

Post crisis debt migrated to the public balance sheet

Domestic Debt Shares, 2008-12
(change of each sector's share in total debt, percent)

Source: Haver

Source: Haver

Figure 12. External Indebtedness

Net International Investment Position
(percent of GDP)

Sources: IFS.
1/ Data for France is 2011.

High Debt and Economic Outcomes

20.   Balance sheet stress has been associated with weaker economic outcomes (Figure 13). Where private sector debt increased rapidly to a high level until 2007, growth outcomes have been weaker since then. This association also holds for household debt and consumption, as well as for corporate debt and investment. Moreover, where the corporate sector was highly leveraged in 2007, the increase in unemployment since the crisis has been higher.[6] Finally a highly leveraged financial sector pre-crisis has also been associated with higher lending rates post crisis, creating pro-cyclical financial conditions. Looking ahead, fiscal policy is tightening most where private sector balance sheet stress was the highest, creating pro-cyclical fiscal conditions.

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[6] In the euro area, high corporate debt is also associated with lower per capita GDP growth during the period from 1999-2011 (ECB 2012).

Figure 13. Balance Sheet Stress and Economic Activity

Private Sector Balance Sheet Stress and Output

Sources: OECD, WEO, IMF Staff estimates

Non-financial Corporations Balance Sheet Stress and Unemployment

Sources: Oecd, WEO, IMF Staff estimates.

Private Sector Balance Sheet Stress and Fiscal Tightening

Sources: OECD, WEO, IMF Staff estimates.

Pre-crisis Leverage and Current Lending Rates
(loan-to-deposit ratio and SME lending rates)

Sources: Haver Analytics, ECB.

D.   Experience with Previous Deleveraging Episodes

Household Deleveraging

21.   The magnitude of the post-2000 credit boom was unprecedented. A look at historical precedents can illustrate the scale of the present challenge. In the run-up to the crisis, the increase in household indebtedness in many advanced economies was on average 20 percentage points of GDP higher than in other credit cycles in the past.[7] As a result, the level of household

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[7] Historical episodes include: Canada (1979-1984), Denmark (1987-1994), Germany (2000-11), UK (1990-96), Finland (1989-1997), Japan (2001-11), Norway (1988-1995), and Sweden (1989-95). In the last four, household deleveraging was associated with a banking crisis. These episodes were selected among advanced economies that experienced a reduction in the household debt-to-disposable income ratio of more than 10 percentage points.

debt today and the need to deleverage is exceptionally large, compared to historical episodes.[8]

22. **Household debt reduction has barely started**. Most banking crises preceded by rapid credit expansions are followed by a protracted period of debt reduction (Tang and Upper, 2010). Historical episodes suggest that the extent of deleveraging after the bust matches almost one-to-one the size of the debt built-up during the boom period. That is, in most cases, household debt returned to the pre-credit boom level after a protracted period of deleveraging (lasting between 5 and 10 years). With household debts barely off their peak levels, the deleveraging process in euro area countries is expected to take many more years if debt is to return to the 2000 level. A notable exception is the US, which is two-thirds of the way through the pre-crisis level (Figure 14).


Figure 14. Household Deleveraging Episodes

Household Deleveraging Episodes
(household debt, percent of GDP)

Sources: Eurostat; Haver; national statistical agencies; and IMF staff calculations.
1/ September 2012, except for Ireland , Denmark, Netherlands (June 2012) and Cyprus and Norway (end-2011).
2/ 1970 for Canada, 1990 for Japan and Germany, 1980 for others.

Decomposition of Household Debt Reduction
(percentage points of disposable income)

Sources: WEO, Haver, OECD

23. **In most historical episodes, household deleveraging was facilitated by higher inflation, and an expansionary fiscal policy**:

- Most deleveraging episodes in the past were passive, in the sense that households did not actively pay down debt; it was instead eroded by inflation and income growth. The median contribution of inflation to the reduction in debt to disposable income was almost 70 percent in episodes associated with a banking crisis. The contribution of real income growth was about a quarter, while the reduction in the stock of debt was small, except for Japan. In episodes without a banking crisis, the stock of debt even increased during the deleveraging period (Figure 14).

- Fiscal policy was expansionary during the deleveraging period, supporting growth. The magnitude of the fiscal impulse varied across countries, but the cumulative impact was over

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[8] Historical experience offers one possible benchmark. Model based approaches can also be employed to derive optimal levels of leverage or indebtedness to gauge deleveraging needs, see e.g., Cuerpo et al., 2013.

10 percentage points in Sweden and almost 8 percentage point in Finland. The fiscal support was generally larger where deleveraging was the result of a banking crisis.

24.   Projections suggest that the macroeconomic context this time around will be more challenging. Euro area inflation is expected to undershoot the price stability objective. In that context, the role of inflation in assisting the deleveraging process will be much more limited than in the past.[9] Similarly, the contribution of growth in real disposable income is expected to be small. This implies that deleveraging will have to rely more on paying down debt and, therefore, is likely to put additional stress on households. Likewise, fiscal policy will be less supportive of private sector deleveraging than in past episodes, because public debt levels are significantly higher in most countries now than in the past. At the current juncture, market pressures and institutional factors constrain fiscal policy; the countercyclical role of public debt is projected to end in 2014 with a turn to primary surpluses in many countries (Figure 15).
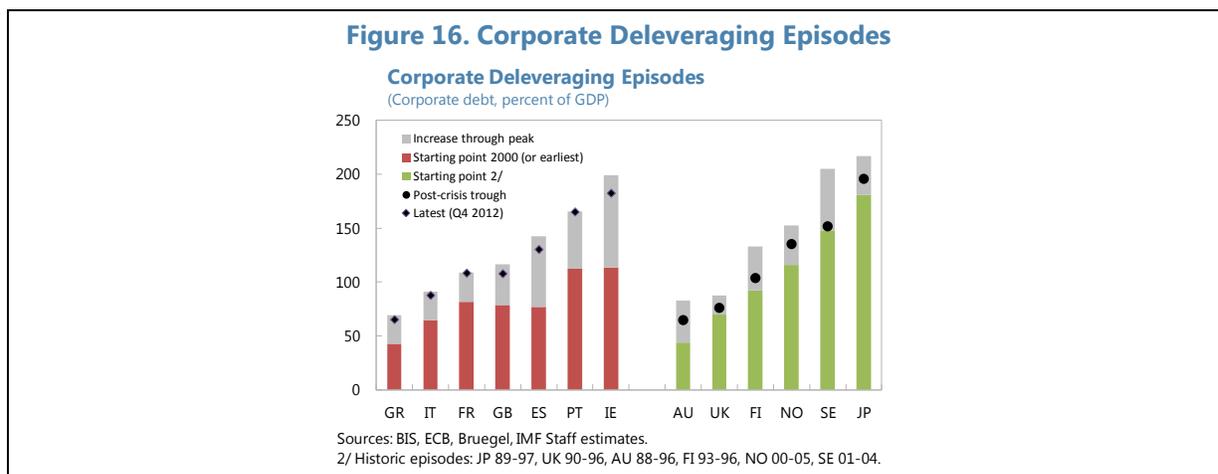

Figure 15. Fiscal Policy During Deleveraging Episodes
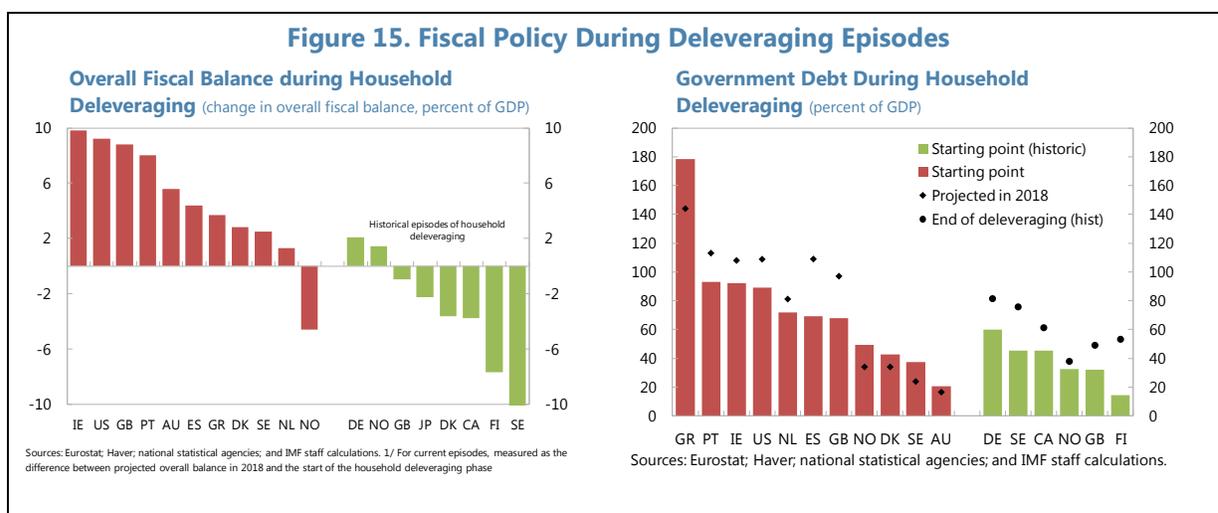
Corporate Deleveraging

25.   Corporate debt levels are not much higher compared to the beginning of historic episodes of corporate deleveraging, but debt reduction has barely started. While the levels of debt are comparable to previous episodes, the *increase* in corporate debt in the boom cycle was particularly large in Ireland and Spain, compared to historic episodes (Figure 16).[10] Episodes of significant corporate deleveraging suggest that after large booms, an average of two thirds of

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[9] For a discussion of the role of inflation in assisting the deleveraging process, including its costs, see IMF Fiscal Monitor (April 2013).

[10] Identification of historic corporate deleveraging episodes is based on Ruscher and Wolff (2012), who use the sector's net lending/borrowing data as a marker, combined with indebtedness data from Cecchetti et al. (2011). It comprises of episodes with a significant debt reduction (10 percent of GDP or more), which, on average, lasted 6 years. A number of shorter episodes of corporate deleveraging identified by Ruscher and Wolff (2012) did not result in a significant debt reduction.

the increase in debt is subsequently reduced. In the euro area, corporate leverage has receded from the crisis peak in some countries; but debt-to-income ratios remain high.

Figure 16. Corporate Deleveraging Episodes

Corporate Deleveraging Episodes
(Corporate debt, percent of GDP)

Sources: BIS, ECB, Bruegel, IMF Staff estimates.
2/ Historic episodes: JP 89-97, UK 90-96, AU 88-96, FI 93-96, NO 00-05, SE 01-04.
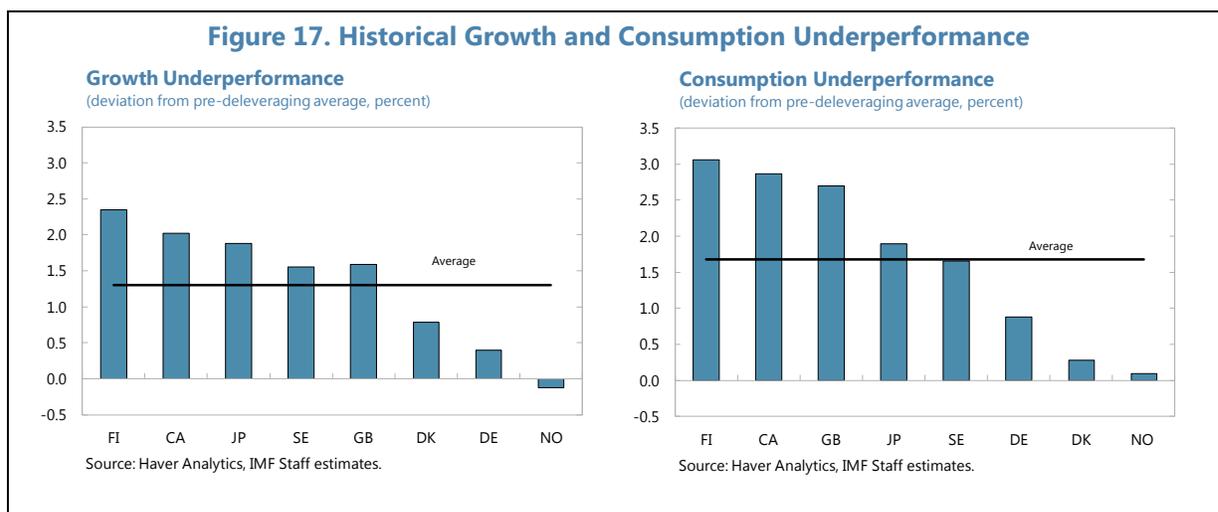
The Debt and Growth Nexus

26.   The debate about the relation between high public debt and growth remains very much open. A large body of research concludes that high public debt leads to higher interest rates and slower growth.[11] Some of these studies find that high debt levels (above 80-90 percent of GDP) have a negative effect on growth. High debt also makes public finances more vulnerable because it constraints government's ability to engage in countercyclical policies. An opposing school of thought argues that weak growth causes high debt and not the other way around. Panizza and Presbitero (2012) reject the hypothesis that high debt causes lower growth, once they tackled the causality issue. More recently, Herdon et al. (2013) have challenged the findings of the influential papers by Reinhart and Rogoff, which argued that there is a threshold effect whereby debt above 90 percent of GDP leads to dramatically worse growth outcomes.

27.   Fewer studies have attempted to quantify the impact of private sector debt on growth. A notable exception is Cecchetti et al, 2011, who find that corporate debt beyond 90 percent of GDP and household debt beyond 85 percent of GDP become a drag on growth. A recent IMF *World Economic* Outlook concludes that recessions that are preceded by a run up in household debt tend to be more severe and protracted (IMF 2012b).This section looks at the growth performance in previous household deleveraging episodes and presents econometric evidence of how high private sector debt hampers growth.

28.   Historical experience suggests that household deleveraging in the euro area will continue to weigh down on growth. Average annual real GDP and consumption growth were

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[11] Kumar and Woo (2010), Reinhart and Rogoff (2010, 2012), Cecchetti , Mohanty and Zampolli (2011), Baum, Checherita and Rother (2013), among others.

about 1.5 percent lower during the deleveraging period than in the preceding period. The growth underperformance is not found to be higher in those countries where household deleveraging was also associated with a banking crisis (Figure 17). Although history is not destiny and the number of historical episodes to draw lessons from is limited, the analysis above suggests that headwinds from high debt and deleveraging are likely to persist.

Figure 17. Historical Growth and Consumption Underperformance

Growth Underperformance
(deviation from pre-deleveraging average, percent)

Source: Haver Analytics, IMF Staff estimates.

Consumption Underperformance
(deviation from pre-deleveraging average, percent)

Source: Haver Analytics, IMF Staff estimates.

Econometric Analysis

29.   An econometric analysis suggests that the negative growth impact of debt in one sector depends on the level of indebtedness in the other sectors (Figure 18). [12] When the three sectors—government, households, and corporate—have above average debt levels, the negative growth impact of debt is highest. Results support the hypothesis that the confluence of debt in more than one sector exacerbates the negative feedback loops that arise in times of crisis. Therefore, headwinds are likely to be particularly strong in some periphery countries, where all sectors are highly indebted.
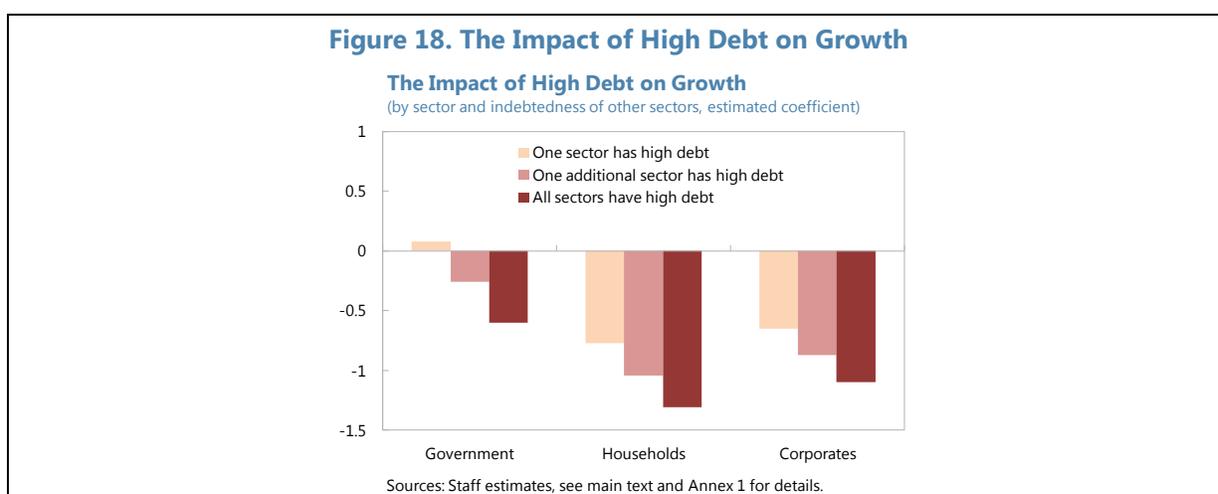
30.   The analysis also suggests that private sector debt may be more detrimental to growth than public sector debt. Regressions identify a stronger and more statistically significant association between private sector debt and growth than between government debt and growth.

• High corporate debt and household debt are associated with negative growth even if they are the only sector indebted in the economy. The negative impact becomes larger the higher

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[12] See Annex 1 for details on the econometric analysis. Debt is considered to be "high" if it is above the mean value in the sample. The mean values are 73 percent of GDP for government debt, 48 percent of GDP for household debt, and 98 percent of GDP for corporate debt. The thresholds identified in Cechetti et al. (2011) are also used as a robustness test. The main results hold but the higher thresholds relative to the mean, particularly for household debt imply that there are very few observations when debt is high in all sectors at the same time.

the number of sectors with high debt. In particular, a 10 percentage point increase in the corporate debt-to-GDP ratio beyond the 98 percent average level is associated with a subsequent reduction in average annual growth between 7-11 basis points, depending on whether the other sectors are highly indebted. Similarly, a 10 percentage point increase in the household debt-to-GDP ratio beyond the 48 percent average level is associated with a subsequent reduction in average annual growth between 8-13 basis points.

- High public debt is negatively associated with growth only when both the household and corporate sectors are also indebted. In this case, a 10 percentage point increase in the government debt-to-GDP ratio beyond the 73 percent of GDP average level is associated with a 6 basis point reduction in subsequent average annual growth. In contrast, when only the government is indebted or only one additional sector has high debt, the relationship becomes not statistically significant.

Figure 18. The Impact of High Debt on Growth

The Impact of High Debt on Growth
(by sector and indebtedness of other sectors, estimated coefficient)

Sources: Staff estimates, see main text and Annex 1 for details.

E. Policy Options

Dealing with High Debt in the Euro Area

31.   Experience suggests that decisive and properly sequenced policy actions can support deleveraging. Where private sector deleveraging is more advanced (e.g., U.S.), measures were taken early on to strengthen balance sheets of financial institutions. Bank and private debt restructuring mechanisms have been used more widely, facilitating the workout of nonperforming loans and dispelling doubts over asset quality. These processes were supported by appropriate legislation and institutions. Historical debt restructuring episodes also show that policies can help facilitate the deleveraging process, including through: government-sponsored programs, direct government purchases of distressed assets, and the use of asset management companies to resolve distressed assets. In all such cases, the sequencing and country-specific circumstances are important (see Laryea, 2010). Two successful cases of household debt

restructuring are the US Home Owners Loan Corporation Program in 1933 and the experience in Iceland in the recent crisis.

Targeted Policies

32.   Progress on improving insolvency frameworks in the euro area could help, but it has so far been uneven. Reforms to insolvency frameworks take time, and effective implementation is often most difficult but key to success. A number of countries have moved to strengthen insolvency frameworks and institutions (see Liu and Rosenberg, 2013) including Austria, Germany, Greece, Ireland, Italy, Portugal, and Spain. But despite this progress, procedures are not widely used and the insolvency regimes remain inefficient and costly in many countries (Figure 8). National insolvency regimes may need to be made more effective e.g., by facilitating out-of-court settlements, reducing time for insolvency proceedings and providing more flexibility to deal with personal or corporate bankruptcy. Stronger institutions—experienced judges and insolvency administrators—would also help support insolvency processes. In many cases, the stigma associated with bankruptcy also needs to be overcome.

33.   Debt restructuring comes at high costs. Debt re-profiling, debt restructuring, or debt default in the private sector and financial sector can reduce private sector indebtedness, with overall macroeconomic benefits. Indeed, when creditor seniority is respected and common principles are applied, the work out of bad debt can catalyze new economic activity. But debt restructuring also comes at the cost of damaging creditor-debtor relations, imposing losses on other agents, and creating moral hazard.

34.   Policies can help guide this restructuring process, thereby mitigating its costs. Repairing the financial sector is, however, essential to address the balance sheet problems in the corporate and household sectors.

- **Strengthening bank balance sheets and working out non-performing loans is a precondition.** The work out of private debt requires adequate provisioning and capital buffers in the banking system to absorb losses. Only then will banks have incentives to restructure their exposures to distressed borrowers. This could further be helped by providing tax incentives (or removing tax disincentives) for debt write offs. Policies to encourage debt write-offs and help facilitate the transfer of non-performing assets to new owners would also support the repair of bank balance sheets. A pan-European backstop for solvent banks would help break the negative feedback loop between banks and sovereigns and reduce fragmentation. Overall, a clean-up of banks' balance sheet would strengthen the banking system and help credit flow.

- Debt restructuring in the **corporate sector** could further be supported by making more use of debt-equity swaps and out–of-court procedures to support the early rescue of viable firms. Asset Management Companies (AMCs), private or with some government participation, could help accelerate the restructuring of corporate debt, while taking weak assets off the banks' balance sheet (see Laryea, 2010).

- In the **household** sector, direct debt service support (e.g., through guarantees or deferred interest) can help vulnerable households avoid bankruptcy in the face of unemployment while minimizing moral hazard. Government sponsored programs can also encourage banks to reschedule household debt (see Laeven and Laryea, 2009. Wealth encumbrance could be modified where needed, for example, by easing mortgage payments for highly indebted, low income households whose property has been foreclosed. Personal insolvency frameworks should be geared towards facilitating a fresh start for financially responsible individuals.

Policy Mix and Structural Policies

35.   A measured pace of fiscal adjustment, and monetary policy actions to reduce fragmentation would further facilitate balance sheet adjustment. Countercyclical fiscal policy is effective in balance sheet recessions but debt sustainability and market access considerations constrain its use. But getting the pace of consolidation right is essential. Monetary policy should aim at addressing the impairments to the normal transmission of the monetary policy stance. This would help reduce corporate and household borrowing costs, especially in the periphery.

36.   Structural policies could also help to support private sector deleveraging or mitigate its impact. For example, facilitating the substitution away from bank to nonbank financing by developing capital markets could reduce the reliance of firms on bank financing. And labor market reforms could increase firms' flexibility to absorb demand shocks, through an adjustment in working hours and pay rather than through labor shedding.

F.   Conclusion

37.   Balance sheet adjustment in the euro area is an uphill battle at the current juncture. In other deleveraging episodes, high nominal and real growth, exchange rate depreciation, and monetary easing have supported balance sheet adjustments. For many euro area economies, however, the policy space is much more constrained: exchange rate devaluations can only happen internally, and if successful, put *downward* pressure on prices. The real growth outlook is weak throughout region and beyond. Finally, as the monetary transmission is impaired, monetary easing is not, at present, effective in lowering interest rates, and a fragmented financial sector amplifies the negative effects of protracted private sector deleveraging.

38.   An accelerated clean-up of private and financial sector balance sheets can help avoid a protracted period of stagnation. Delays and resistance to work out nonperforming loans in the banking system, and lengthy procedures for personal and corporate bankruptcies increase uncertainty over the extent of the problem, and put further downward pressure on asset prices and firm performance. At the aggregate level, such feedback loops can trigger debt deflation dynamics. Therefore, in addition to providing a supportive macroeconomic environment, targeted policies to support the debt workout should be considered.

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Annex. Econometric Analysis

Econometric analysis builds on Cechetti et al. (2011), which uses a new dataset on debt levels for a group of 18 OECD countries, based primarily on flow of funds data. The paper uses data over the period 1980-2006, but since the authors had compiled data through 2009, this analysis uses the full sample.

The empirical specification is derived from the neoclassical growth model of Solow, where per capita income growth depends on the initial level of physical and human capital, savings rate, population rate, and technology. In addition to these standard regressors in the growth literature, measures of public and private sector debt are added to the specification to see whether they have an impact on growth independent of other determinants. Panel data regressions are estimated using country-specific and time-specific time effects. More specifically:

$$g_{i,t+1,t+k} = \emptyset y_{i,t} + \beta' X_{i,t} + \alpha' D_{i,t} + \mu_i + \gamma_t + \varepsilon_{i,t,t+k}$$

where:

- $g_{i,t+1,t+k}$ is the k-year forward average of annual real GDP per capita growth between years $t+1$ and $t+k$. The analysis uses $k=5$

- $y_{i,t}$ is the log of real per capital GDP at time t;

- $\mu_i \ and \ \gamma_t$ are country-specific and time-specific dummies;

- $X_{i,t}$ includes gross saving as a share of GDP; population growth; number of years spent in secondary education, as a proxy for the level of human capital; the dependency ratio; openness to trade measured by the sum of exports and imports to GDP; CPI inflation as a measure to macroeconomic stability; the ratio of liquid liabilities to GDP, as a measure of financial development, and a dummy to control for banking crises.

- $D_{i,t}$ includes, depending on the specification, the ratio of debt to GDP of public and/or private sector (household and corporate sector) as well as interactions with dummy variables indicating whether the debt ratios are above a threshold level.

Least squares (LSDV) estimation is used. The presence of a lagged dependent variable in the right hand side (dynamic panel) implies that the estimates may be biased. However, it has not been proved that generalized methods of moments (GMM) or instrumental variables (IV) outperforms LSDV in small size panels, like the one this analysis uses (N=18).

The analysis tries to assess whether the growth impact of high debt in one sector depends on the level of indebtedness in other sectors. Debt is considered to be "high" if it's above a certain threshold identified as the sample mean. The thresholds are 73 percent of GDP for public debt, 98 percent of GDP for corporate debt and 48 percent of GDP for household debt. For instance, in the specification to estimate the impact of public debt on growth and its differential impact depending on the level of indebtedness in the private sector, the regressor $\alpha' D_{i,t}$ becomes:

$$\alpha_1 D_{i,t}^P + \alpha_2 D_{i,t}^P H^P + \alpha_3 D_{i,t}^P H^H + \alpha_4 D_{i,t}^P H^C$$

where $D_{i,t}^P$ is the ratio of public debt to GDP, H^P is a dummy variable taking the value of one if public debt is above the sample mean, H^H is a dummy variable taking the value of one if household debt is above the sample mean, H^C is a dummy variable taking the value of one if corporate debt is above the sample mean. Given the above specification, $\alpha_1 + \alpha_2$ is the estimated impact of high public debt on growth when the household and corporate sectors are not highly indebted. Similarly, $\alpha_1 + \alpha_2 + \alpha_3$ is the estimated impact when the household sector, in addition to the public sector, is highly indebted. When all sectors are highly indebted, the estimated impact of government debt on growth is given $\alpha_1 + \alpha_2 + \alpha_3 + \alpha_4$.