



IMF Working Paper

Macro-Financial Implications of Corporate (De)Leveraging in the Euro Area Periphery

Manuela Goretti and Marcos Souto

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European Department

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Prepared by Manuela Goretti and Marcos Souto

Authorized for distribution by Abebe Aemro Selassie

June 2013

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Abstract

High corporate indebtedness can pose an important threat to the adjustment processes in some of the Euro area periphery countries, through its drag on investment as well as the possible migration of private sector losses to the sovereign balance sheet. This paper examines the macroeconomic implications of corporate debt overhang in recent years, confirming empirical evidence in the literature on the relationship between a firm's balance sheet position and its investment choices, especially beyond certain threshold levels. Building on an event study of past crisis experiences with corporate deleveraging, it also discusses the expected macro-financial impact of the ongoing deleveraging processes in these countries, presenting available policy options to facilitate an orderly balance-sheet adjustment and support a return to productivity and growth.

JEL Classification Numbers: E22, F34, G31, G34.

Keywords: Corporate Investment, Debt overhang, Deleveraging, Crisis, Euro Area

Authors' E-Mail Addresses: mgoretti@imf.org and msouto@imf.org

¹ We benefited from invaluable inputs and suggestions at different stages and on earlier versions of this paper from Antonio Antunes, Nuno Alves, Wolfgang Bergthaler, Stijn Claessens, David Grigorian, Kenneth Kang, Albert Jaeger, Luc Laeven, Ana Cristina Leal, Andrea Lemgruber, and Abebe Selassie. We are also grateful to seminar participants at the IMF and Banco de Portugal for the helpful comments. Jonathan Manning, Fernando Martins, and Upaasna Niman provided excellent research assistance. We remain responsible for any remaining errors and for the views expressed in this paper.

Contents

Abstract	1
I. Introduction	3
II. Testing the Relationship Between Corporate Debt Overhang and Investment.....	4
III. Corporate Deleveraging in Perspective: An Event Study of Past Crisis Cases	9
IV. Policy Implications	13
V. Concluding Remarks.....	16
References	22

Figures

Figure 1. EA Periphery: Evolution of Non-Financial Corporations Balance Sheets.....	18
Figure 2. Corporate Vulnerability Indicators.....	19
Figure 3. Corporate Balance Sheet Adjustment in Past Crisis Episodes	20
Figure 4. Macro-Economic Developments in Past Crisis Episodes	21

I. INTRODUCTION

1. The high debt overhang of many firms in the Euro area periphery¹ poses two important risks to the adjustment processes in these countries: first, the high debt burden serves as a drag on corporate profitability and investment growth; second, it poses a threat to banks' balance sheets and financial stability through increasing NPLs and corporate bankruptcies; third, an abrupt corporate balance-sheet adjustment can quickly lead to the migration of substantial losses from the private sector to the sovereign balance sheet. Therefore, reducing debt to more sustainable levels is crucial to allow resources to be redirected to the most productive and innovative segments of the economy and secure the long-term viability of the private sector. However, while deleveraging is needed, this ideally has to be gradual and orderly.
2. This paper aims at assessing the drag on investment and growth engendered by the increase in corporate sector debt overhang in many periphery countries in the run-up to the crisis. In line with the literature, the empirical results—based on aggregated firm-level data—show evidence of a negative relationship between firms' investment-to-capital ratio and their debt burden in selected Euro area countries over the 2000-11 period. Results point also to significant asymmetric effects beyond certain threshold levels of indebtedness.
3. The drag on investment associated with weak balance sheet indicators highlights the need to advance corporate deleveraging in the most indebted periphery countries. Nevertheless, lessons from an event study of past crisis episodes characterized by sizable corporate adjustment suggest that this process is expected to be protracted and entail sizable macro-financial costs upfront. Its impact on the Euro area periphery is already visible and could deepen further, especially given limited fiscal space, the constraints of the currency union, and weak external conditions. Although the migration of losses from corporate to public balance sheets has been contained in most cases, past crisis experiences suggest that risks can increase going forward and continued vigilance is needed. To mitigate these deleveraging costs, the policy mix needs to be supportive of an orderly and efficient adjustment process, aimed at restoring corporate productivity and growth.
4. The remainder of the paper is organized as follows: Section II analyzes the corporate leveraging up process in the pre-crisis period, testing empirically the relationship between corporate indebtedness and investment; Section III discusses the expected macro-financial impact of the ongoing deleveraging process in the periphery through an event study of past crisis episodes exacerbated by high corporate debt overhang; Section IV presents available policy options to promote an orderly deleveraging process and strengthen the long-term viability of the corporate sectors in these countries; Section V concludes.

¹ Throughout the paper, the Euro area periphery group comprises Greece, Ireland, Italy, Portugal, and Spain. This classification is mainly for presentational purposes, given the different characteristics and circumstances faced by these countries.

II. TESTING THE RELATIONSHIP BETWEEN CORPORATE DEBT OVERHANG AND INVESTMENT

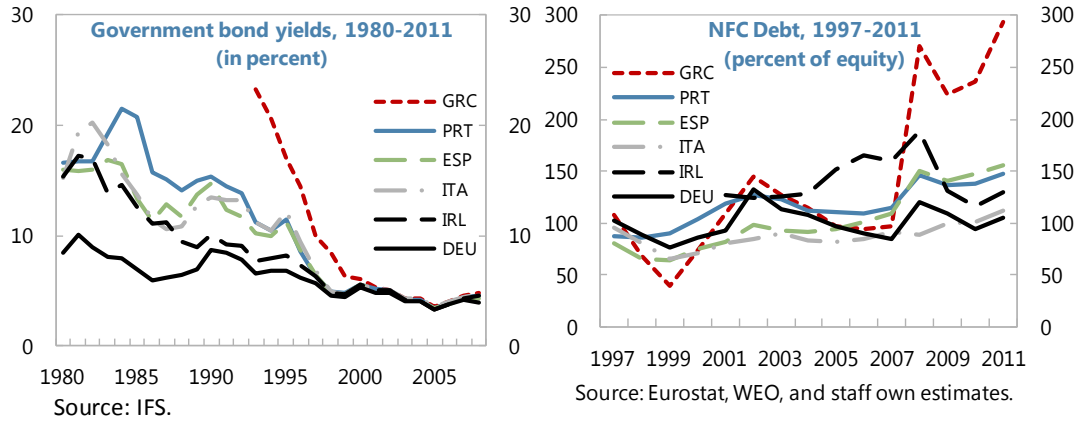
5. In a world of perfect capital markets, according to Modigliani and Miller (1985), the market value of a firm should be independent of its capital structure and, as a result, the firm's investment decisions should be completely unaffected by the type of security used to finance it. However, in the presence of market frictions, arising for example from asymmetric information between external investors and company managers, firms' capital structure would increasingly deviate from a well-defined leverage target at least in the short term, with firms favoring internal to external financing, debt to equity.² In this context, a firm's leverage position would matter for its investment decisions.

6. While financial deepening, through greater access to bank credit and securities, can help boost productivity levels and reduce macro volatility by diversifying firms' funding options, excess leverage can more than offset these benefits by raising corporate vulnerabilities and amplifying firms' sensitivity to income and interest shocks. This financial accelerator effect can in turn lead to larger and more persistent cyclical fluctuations in the economy, as discussed in the seminal work by Bernanke and Gertler (1989).

7. The experience of countries in the Euro area periphery provides useful evidence in support of these findings. While the sharp market losses faced by firms during the crisis explain a large share of the step-up increase in corporate leverage of recent years, in most countries firms' high indebtedness levels are a legacy of the pre-crisis period. In particular, although the leveraging up processes differed in magnitude and characteristics, the pre-crisis period tends to be characterized across countries by an increased reliance on bank credit.

8. As EMU membership became reality, interest rates in the Euro area periphery quickly converged to European levels, reflecting the sharp reduction in currency and country risk. By the time the euro was introduced, rates started tracking closely developments in Germany, leading many firms to increase their reliance on bank borrowing. While improved access to credit provided initially an important stimulus to the corporate sector, since the late 1990s resources were progressively channeled to the less-productive non-tradable sectors, notably construction and real estate.

² See Meyers (1984) for a discussion of the so-called "pecking-order" theory.



9. The flow-of-funds identity linking corporate funds' uses and sources provides a useful reference to understand the main channels of this corporate debt build up (ΔD):

$$\Delta D = (I + \Delta FA - IF) - \Delta E = \text{Corporate Gap} - \Delta E,$$

where I refers to capital investment, ΔFA to the change in net financial assets, IF to the firm's internal funds arising from its gross savings, and ΔE to the change in equity. As presented in Figure 1, firms' net borrowing in the periphery increased on average 3 percent of GDP per year over the pre-crisis period 2002-2008. This tended to reflect sustained declines in gross savings rather than an increase in investment, which remained sluggish in most countries, after the sizable increase in the 1990s. Moreover, the weak savings performance was associated with sizable increases in operating costs, notably compensation of employees, with net property expenses contributing to further deteriorate firms' internal funds in Portugal and Spain. In turn, the surge in corporate indebtedness generated high interest burdens for the most leveraged firms, despite record-low interest rates, further eroding corporate profitability and proving a drag on productive investment and growth, through vicious feedback loops.

Empirical Literature, Data, and Methodology

10. The empirical relationship between corporate indebtedness and investment has been widely tested in the literature, including for Euro area countries. Building on Fazzari et al. (1988) and Bernanke et al. (1999), Vermeulen (2000) finds evidence of a financial accelerator effect in Germany, France, Italy, and Spain over the period 1983-1997 showing that weak balance sheets tend to amplify adverse shocks on firm investment, especially during downturns and for smaller firms. Firm-level results for Portugal by Farinha (1995) and Barbosa et al. (2007), using similar sales-accelerator specifications, also show that firms tend to be affected in their investment decisions by their financial structure.

11. Building on the earlier work by Vermeulen (2000), we follow a panel-data approach to test the hypothesis that firms' investment decisions are indeed affected by their balance sheet position. The baseline specification for our investment equation is as follows:

$$IK_{it} = \alpha + \beta IK_{it-1} + \gamma SK_{it-1} + \delta D_{it-1} + \varepsilon_{it} \quad [1]$$

The dependent variable IK_{it} is the investment-to-capital ratio of the representative firm i at time t . The debt overhang variable D is proxied by a standard leverage measure, debt to equity, as well as the interest coverage ratio ICR. The latter is calculated as the ratio of EBITDA (earnings before interest, taxes, depreciation and amortization) to interest payments and provides a useful proxy of a firm's capacity to repay its debt. The specification includes the lagged sales-to-capital ratio SK to control for standard sales-accelerator effects.

12. The coefficient δ is the parameter measuring the sensitivity of the investment rate with respect to changes in the debt overhang variable. Rejecting the null hypothesis that the coefficient δ is equal to zero (as suggested by the perfect capital market theory) would indicate that firms' investment decisions are affected by their balance sheet position. Moreover, the coefficient should present a negative sign if debt overhang is proxied by the debt-to-equity ratio, while the sign should turn positive if the ICR is used instead.

13. Since specification [1] introduces lags of the dependent variable to control for possible endogeneity, the standard fixed effect estimator would be inconsistent. In order to address this issue while still allowing for a dynamic model, we use the GMM two-step system estimator by Blundell and Bond (1998), applying the STATA module by Roodman (2003). First differencing the initial specification removes the fixed effects and produces an equation that is estimable by instrumental variables (lags of the regression variables are used as instruments).

14. The empirical literature has also found evidence of important asymmetric effects in the relationship between firms' investment decisions and their balance sheet position. Jaeger (2003) finds substantial and persistent leverage effects on corporate investment for Germany and the US over the period 1971-2002, particularly if leverage exceeds threshold values (identified with the country sample averages). Similarly, IMF (2004), show significant asymmetric effects in seven EU countries and 15 activity sectors over the period 1982-2001 for debt-to-assets or debt-to-equity ratios above median levels and during economic downturns. More recent work by Coricelli et al. (2010) endogenously identifies for a group of emerging European countries over the period 2001-05 a threshold level of leverage beyond which further increases in leverage lower TFP growth. Finally, evidence of asymmetric effects is also found at macro-level by Cecchetti et al. (2010). The authors—based on a sample of 18 OECD countries from 1980 to 2010—find evidence that corporate debt becomes a drag on growth for levels beyond 90 percent of GDP, especially if combined with high government debt.

15. In line with these empirical findings, as a second step, we use the same dynamic panel data approach to test for the existence of non-linearities in the relationship between investment and debt burden as the latter exceeds certain threshold levels, τ .

$$IK_{it} = \alpha + \beta IK_{it-1} + \gamma SK_{it-1} + \bar{\delta} D_{it-1} \times 1\{D_{it-1} \geq \tau\} + \underline{\delta} D_{it-1} \times 1\{D_{it-1} < \tau\} + \varepsilon_{it} \quad [2]$$

16. In line with Vermeulen (2000), we use the BACH (Bank for the Accounts of Companies Harmonized) database, focusing our analysis on the post-Euro adoption period, 2000–2010. The database contains aggregated firm-level data for 21 sectors of activity and eight Euro area countries (Austria, Belgium, France, Germany, Italy, Netherlands, Portugal and Spain), although data availability varies greatly across sectors and countries.

BACH Database: Summary Statistics of Regression Variables

		Mean	Std. Dev.	25 th Perc.	Median	75 th Perc.
IK: Investment to capital ratio	Euro area	15.48	12.28	8.70	14.64	22.08
	Italy	14.16	8.26	8.55	13.72	18.33
	Portugal	8.83	13.04	5.17	9.27	13.46
	Spain	10.10	6.67	3.64	10.01	13.74
SK: Sales to capital ratio	Euro area	3.45	3.74	1.14	2.32	3.96
	Italy	4.01	3.76	1.46	2.71	4.79
	Portugal	2.25	2.34	0.71	1.22	2.88
	Spain	2.24	1.66	1.10	1.62	2.99
DE: Debt to equity ratio	Euro area	2.08	2.70	1.24	1.74	2.39
	Italy	2.34	1.04	1.64	2.11	3.15
	Portugal	2.45	4.71	1.11	1.63	2.54
	Spain	1.43	0.52	1.08	1.36	1.77
ICR: Interest coverage ratio	Euro area	5.20	5.42	2.73	4.34	6.44
	Italy	6.07	3.57	3.77	5.49	7.52
	Portugal	4.21	8.26	1.88	2.86	4.34
	Spain	4.76	2.17	3.66	4.79	5.97

Source: BACH database and staff own estimates.

17. Given the aggregate nature of the database, each country-sector pair in the sample corresponds to a “representative firm” i in the specification. Therefore, while the dataset provides a useful and tractable resource for cross-country analysis, given that all the accounting data are harmonized across countries in a single format, a word of caution is needed about its aggregated nature, since each representative firm can contain averages of very different firms in terms of balance sheet indicators, which might bias the results.

18. The Table below provides summary statistics across sectors of the variables used in the specification. The Euro area countries in the sample tend to show on average relatively high leverage levels (debt to equity ratios) over the sample period, notably in the case of Portugal and Italy. While interest coverage ratios tend to appear adequate (with average ratios above 4), the sizable standard deviations indicate that several firms in the sample have ICR below 1. Against high leverage levels, Portuguese companies also show on average lower investment and sales to capital ratios compared to other Euro area countries in the sample.

Empirical Results

19. The empirical results confirm the negative sensitivity of firms' investment-to-capital ratio to their debt overhang, after controlling for their sales performance and lagged investment behavior. The estimated coefficients on all the balance sheet variables in the regression are significant and enter with the expected sign. Most importantly and in line with the literature, higher debt overhang—whether proxied by higher debt-to-equity leverage or lower capacity to repay—is found to significantly reduce investment in the Euro area countries in the sample (i.e. the perfect capital markets hypothesis that δ is equal to zero is rejected). Moreover, robustness tests on subsamples of the dataset suggest that the negative sign of the leverage and investment relationship is largely driven by firms in periphery countries. In all the estimations, there is no evidence of second order serial correlation of the first-differenced residuals (according to the Arellano-Bond test). Moreover, all regressions pass the Hansen test of over-identifying restrictions.³

Corporate Debt Overhang and Investment Ratio

	D=DE		D=ICR	
	(1)	(2)	(1)	(2)
Constant	8.58***	7.53***	5.32***	5.60***
IK_{it-1}	0.05***	0.06***	0.05***	0.05***
SK_{it-1}	1.83***	2.07***	2.11***	2.01***
D_{it-1}	-0.23***		0.37***	
$D_{it-1} \times 1\{D_{it-1} < \tau\}$		0.30***		-1.81***
$D_{it-1} \times 1\{D_{it-1} \geq \tau\}$		-0.19***		0.39***
AR(1) test	-2.43**	-2.43**	-2.43**	-2.44**
AR(2) test	0.44	0.59	0.53	0.61
Hansen test	53.54	65.38	58.43	62.59
Obs.	965	965	965	965

Notes: Dynamic panel data with GMM two-step system estimator. ***, **, * indicate significance at 1, 5, and 10 percent level.

20. As a second step, we test for the existence of asymmetric effects between investment and corporate debt overhang, as per specification [2]. We find evidence of significant non-linearities once the debt to equity threshold exceeds the 25th percentile of the representative Euro area firms in the sample.⁴ Interestingly, the estimates in column 2 suggest that for relatively low leverage levels (below Euro area first-quartile levels or around 125 percent of

³ Robustness tests for reverse causation from investment to debt give statistically significant results of the expected sign (lower investment is associated to higher leverage and weaker capacity to repay), although they are not economically significant (the impact is quantitatively negligible).

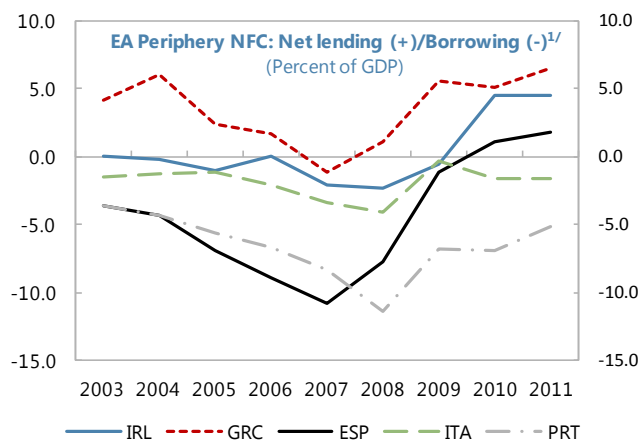
⁴ We tested initially for threshold effects beyond Euro area median levels of the debt burden indicators. Firms with above-median ICR levels show, as expected, significantly higher investment ratios. However, above-median leverage levels are not significantly associated with lower investment ratios than below-median ones—possibly due to the already relatively high leverage levels for the median Euro area firm but also subject to the caveats mentioned earlier on the use of “representative firms” data.

equity) higher borrowing and indebtedness can actually support firms' investment behavior, as shown by the positive coefficient. Similarly, the relationship between firms' capacity to repay presents a negative sign for ICR levels below a threshold of 1—the break-even point when a firm's earnings are equal to its debt service needs and a widely-used threshold in the literature to measure firms' debt at risk and their viability (Glen, 2005).

III. CORPORATE DELEVERAGING IN PERSPECTIVE: AN EVENT STUDY OF PAST CRISIS CASES

21. Currently, average corporate debt leverage in the Euro area periphery stands at about 134 percent of equity (as of end-2011) on a consolidated national-accounts basis, with a large share of firms well above the high-debt thresholds identified in the empirical analysis. The global and European crises have exposed the vulnerabilities of companies' over-leveraged balance sheets in these countries. Due to their heavy dependence on the domestic banking sector, weak domestic and external environment, and the sharp tightening in credit conditions, firms' key balance-sheet indicators are rapidly deteriorating. In particular, the weak tail (or 25th percentile) of the firms in Italy, Spain, and Portugal had an ICR equal or less than 0.25 in 2011, according to the BACH database, compared to 1.35 in 2007.

22. Nevertheless, the leverage picture is quite varied across and within countries. Firms operating in the over-leveraged real estate and construction sectors are reportedly facing much tighter financial conditions than those ones in manufacturing and other tradable sectors. Moreover, corporate profitability is significantly lower for the smaller firms. This tends to have important implications also for less-leveraged countries, like Italy, where micro firms and SMEs account for over 95 percent of the total number of firms and 60 percent of corporate value added. While some firms can rely on cash and liquid financial assets to meet their debt obligations, these tend to be limited, at 7.4 percent of total financial liabilities for Ireland or 8.8 percent for Italy and 9.9 percent for Portugal.



Source: Eurostat and staff estimates.

1/ A negative (positive) value corresponds to a decline (increase) in net lending, i.e., an increase (decline) in net borrowing.

23. Against these vulnerabilities, the credit contraction and recession triggered by the Euro area crisis are forcing rapid balance sheet adjustment. Nevertheless, as expected, the pace and size of this process tends to vary across countries, depending on both pre-crisis and current conditions. In particular, while firms are rapidly bringing their financial position back to balance (see also Figure 1), the deleveraging process (i.e. the reduction in the corporate debt stock) is proceeding only gradually in countries with highly indebted corporate sector,

which are less able to diversify their funding sources and have been exposed to greater asset losses from the crisis.

24. This section of the paper compares the ongoing corporate deleveraging process in the Euro area periphery to previous crisis episodes to shed more light on its macro-financial costs. The analysis is, however, subject to important caveats: (i) the event analysis abstracts from country-specific circumstances, including the crisis triggers; (ii) the choice of the peaks/troughs (e.g. in presence of double dips) may affect the results; (iii) the timing and composition of the balance sheet adjustment varies across countries and sectors; and importantly (iv) the analysis is subject to significant data constraints.⁵

25. The event study focuses on ten past crisis episodes, characterized by high corporate debt levels and sizable post-crisis macro-financial adjustment, over the period 1990-2011, subject to data availability.⁶ All the selected episodes were preceded or coincided with a banking crisis. Moreover, they were all associated with a deleveraging of the total economy, with the only exception of the Japan episode (where stimulative fiscal policies led to an increase in public debt).

26. In terms of starting conditions, the level of corporate indebtedness faced by countries in the Euro area periphery is comparable to past crisis cases (Figure 2). In particular, corporate leverage in Portugal and Spain (and more recently Greece) is only lower than that one of Turkey and the East-Asian countries among the ten crisis countries covered by the event study.

27. Moreover, the relatively slow adjustment process currently experienced by high-debt companies is consistent with past and more recent deleveraging experiences. The deleveraging episodes in the sample tended to last for a protracted period of 7–8 years, with an adjustment in the leverage ratio of about 8 percent of assets for the median country. Shorter deleveraging episodes in the sample were normally associated with deeper crises and sharp exchange rate corrections.

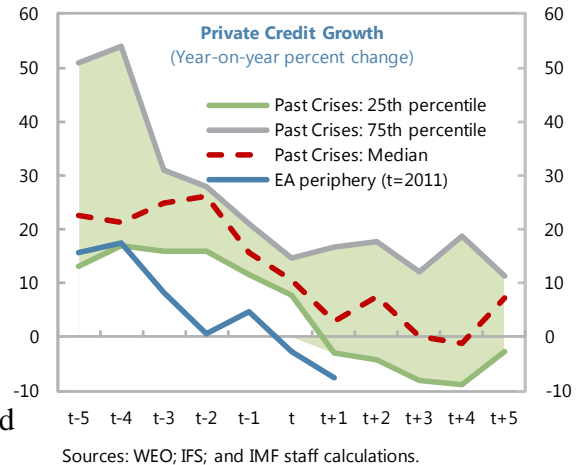
28. As in the present episode, past corporate adjustments were often triggered by banking sector deleveraging, with increases in borrowing rates and shortening of maturities. The contraction in private credit growth for the median country was about 20 percent from peak to trough over 6 years, and normally with a 2 year lead with respect to the corporate

⁵ The event study relies on alternative data sources: UN, OECD, and Eurostat sectoral accounts statistics, IMF databases (International Financial Statistics, Financial Soundness Indicators, Corporate Vulnerability Utility), and National Authorities.

⁶ Crisis countries include Brazil (1998), Czech Rep. (1997), Finland (1990), Indonesia (2000), Japan (1997), Korea (1998), Mexico (1995), Sweden (1990), Thailand (1997), and Turkey (2001). The Argentina and Uruguay experiences of 2002 are not included given the specific crisis characteristics. See also McKinsey (2010) for a review of historic public and private sector deleveraging episodes.

deleveraging episode. Reinhart and Reinhart (2010) estimate, over a broader crisis sample, a decline in private sector credit of about 38 percent of GDP over a 6 to 8 years.

29. However, in contrast with previous crisis cases, in many periphery countries banks' deleveraging is already advanced (in Ireland, the credit reduction has already reached about 20 percent of the pre-crisis expansion since 2003). While demand pressures remain the predominant driver of firms' deleveraging decisions, according to the ECB Investment Survey, credit conditions have tightened significantly in some segments. Available BACH data for Portugal, Spain, and other Euro area countries suggest that the deleveraging process is proceeding more rapidly for smaller firms, consistently with their higher indebtedness levels and more limited access to funding.

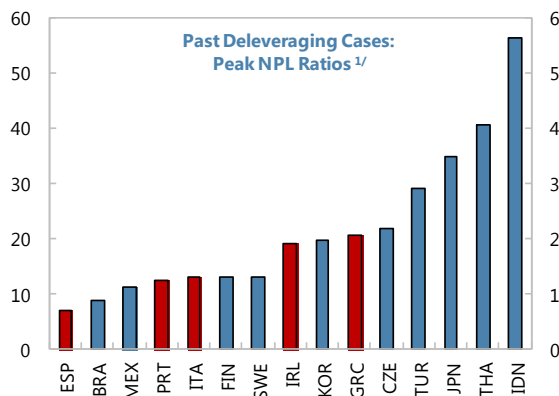


30. Experience from past crisis cases suggest that the ability of firms to liquidate assets under depressed market conditions tends to be limited, as well as the scope for sizable equity increases. This has left the burden of the adjustment on increasing internal funds and/or reducing corporate investment. Although most firms achieved savings in operating costs— notably through reductions in compensation of employees, the main driver of the improvement in gross savings in past crises was firms' ability to boost profits by diversifying abroad. The sizable increases in foreign sales were largely supported by strong external demand and upfront gains in competitiveness through adjustments in the nominal exchange rate. As a result, while the deleveraging process affected firms' investment decisions,⁷ the overall macroeconomic impact could be partly mitigated by the strong export performance.

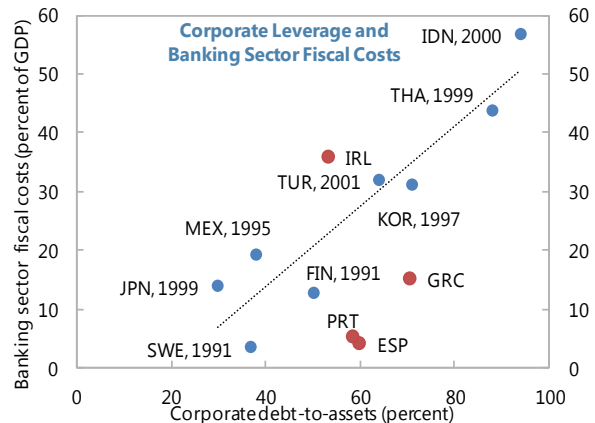
31. Since the onset of the global crisis in 2008, firms in the Euro area periphery have made sizable adjustments to their operational balances, including through reductions in wage costs. Despite the substantial effort made by some firms to diversify abroad, as evidenced by sustained export growth, their ability to boost foreign sales as in past cases has so far been constrained by the weak external demand in the Euro area and, in many cases, the need to achieve productivity and competitiveness gains through a more gradual internal devaluation process. As a result, the cumulative decline in firms' fixed investment has been sizable, comparable in the case of Ireland, Spain, and Greece to some of the most severe adjustment episodes of the past. At the macro-level, this has translated into a sharp contraction in domestic demand and historically-high unemployment rates.

⁷ While most companies experienced only a temporary slowdown in fixed capital formation, the investment decline reached over 20 percent in the case of Korea and Finland, the latter with sustained contraction in the 4 years after the crisis.

32. The role of corporate defaults on countries' aggregate sectoral adjustment should also not be underestimated. By 1998, 35 percent of companies in East Asia had non-viable financial structures with an interest coverage ratio below one (Claessens, 2005). NPLs for Indonesia and Thailand reached over 40 percent, with substantial increases in most of the other cases within the first 2–3 years since the onset of the crisis. This compares to a median NPL ratio of about 13 percent in the periphery, ranging from 7.1 percent in Spain (as of June 2012) to up to 20.7 in Greece (as of September 2012). In Portugal, for some of the non-tradable sectors, this share reaches up to 25 percent, close to severe crises cases like Indonesia (at 37 percent) and Korea (at 24 percent).



Sources: Claessens (2005); IMF FSI Database; Laeven and Valencia (2008). ^{1/2} Data are not fully comparable due to differences in data sources and classification. The figure for the EA periphery refers to the latest available data for 2012.

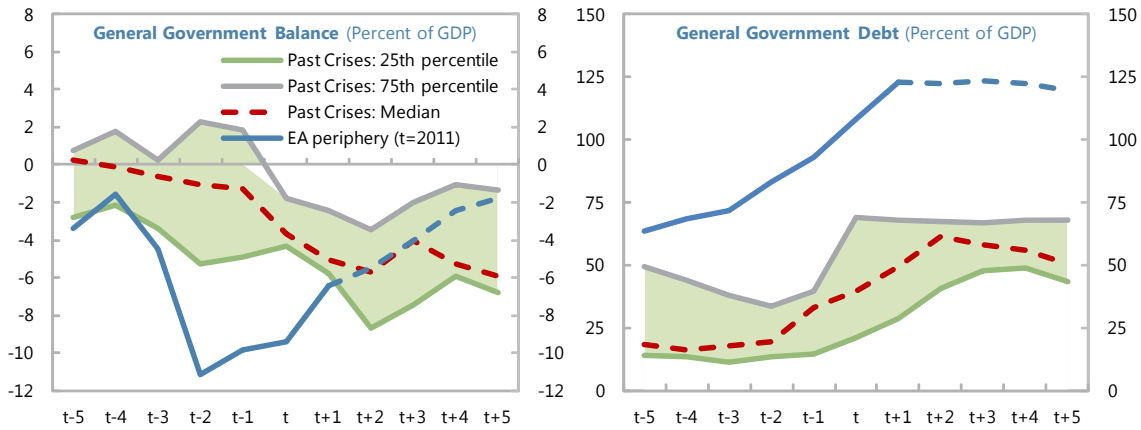


Sources: Claessens (2005); Laeven and Valencia (2008); Spring 2013 Fiscal Monitor (table 5); Eurostat; National Authorities; and IMF staff estimates.

33. The elevated NPL levels in past deleveraging processes had important implications for financial and, ultimately, public sector balance sheets. Almost all the corporate adjustment cases in the sample were associated with or preceded by a banking crisis, with a sizable migration of losses from private to public sector balance sheets, which resulted in a delay of at least 2–3 years in public sector deleveraging. In the periphery, the fiscal costs arising from the banking sector have been sizable (and amplified by the sovereign debt crisis, notably in the Greek case). Nevertheless, in the case of Portugal and Spain the banking sector fiscal costs incurred to date (net of recovery) remain significantly lower than in past crisis episodes, despite comparable level of corporate indebtedness, suggesting need for continued vigilance.

34. As regards fiscal policy, the response in past episodes has varied across countries. In the case of Japan, sustained fiscal deficits during the 1990s supported GDP growth and employment, despite substantial private sector deleveraging, but at the cost of an unprecedented increase in public debt. In the case of Sweden, the government consolidation efforts following the initial fiscal deterioration helped maintain public debt under control, while structural reforms helped boost productivity growth and attract foreign direct

investment.⁸ Today, high public debt and resulting financing constraints limit scope for countercyclical fiscal policy in many countries. Nevertheless, structural reforms aimed at removing business bottlenecks, promoting market-friendly labor reforms, and supporting skills and capacity buildup can play a critical role, especially in the medium term.



Sources: WEO; and IMF staff estimates.

IV. POLICY IMPLICATIONS

35. Past crisis experiences point to sizable risks and macro-financial costs that are often associated with the deleveraging processes needed to reduce corporate debt to more sustainable levels. To mitigate these costs and the resulting migration of losses to financial and public sector balance sheets, the policy mix needs to be supportive of an orderly and efficient deleveraging process, aimed at restoring corporate productivity and growth.

36. This concluding section reviews available policy options to promote prompt debt restructuring of distressed firms, while ensuring enough credit will continue to flow to the most productive sectors of the economy. Building on past successful experiences, it also explores the potential role of tax policy and macro-prudential supervision to strengthen countries' institutional framework and set the right incentives to prevent a new build-up of corporate imbalances once market conditions stabilize.

Corporate restructuring

37. Corporate restructuring is widely recognized as an essential element for a sustainable recovery and firms' long-term viability. In general, it entails the re-organization of the financial and operational structure of distressed but still viable firms, as well as the liquidation of non-viable ones. In past episodes, restructuring processes have followed different approaches depending on country-specific circumstances and the severity of the

⁸ See Koo (2011) and McKinsey (2010) and (2012) for a review of the Japan and Swedish experiences as well as other deleveraging episodes.

problem at hand. These have ranged from government-directed models, such as the establishment of centralized Asset Management Companies (AMC) in Czech Republic, Turkey, and many East Asian countries, to government-sponsored market-based models, such as the introduction of guidelines for out-of-court debt workouts (along the so-called London Approach).⁹

38. Most Euro area periphery countries are taking important steps to strengthen the legal framework for corporate debt restructuring and insolvency resolution:

- *In-court restructuring.* Insolvency laws have been amended in Greece, Portugal, Italy and Spain to better support early rescue of viable firms, including in some cases through “fast track” court approval procedures.¹⁰ In Italy, for example, pre-packaged out-of-court procedures have been introduced which provide for expeditious court approval of pre-negotiated restructuring plans that bind minority creditors.¹¹
- *Out-of-court restructuring.* In Portugal, to give guidance to creditors and debtors who engage in out-of-court restructuring, specific guidelines were also adopted to facilitate voluntary out-of-court workouts and avoid overwhelming the judicial system in line with international best practices.¹² Moreover, a government agency with a focus on SMEs can act as mediator to facilitate out-of-court workouts.¹³

39. More intrusive and tailored approaches to promote swift corporate debt restructuring have been common in past crisis cases, especially in the case of SMEs.¹⁴ For example, in Thailand during the crisis, the Corporate Debt Restructuring Advisory Committee introduced a simplified process for SMEs (accounting for 40 percent of NPLs), and identified more than 12,000 cases for monitoring and follow-up, of which, by 2001, 73 percent were completed or in process of being completed, with the remaining 27 percent subject to legal action. In parallel, Bank of Thailand set targets for financial institutions to resolve a certain number of SME cases each month. This and other experiences to monitor and target progress with debt restructuring may be usefully transposed to the Euro area context, also in view of the rising portfolios deterioration and related risks for banks.

⁹ See also Laryea (2010) as well as Grigorian and Raei (2010) for more details on the different approaches to corporate debt restructuring in past cases.

¹⁰ Fast track court approval procedures refer to procedures under which the court expeditiously approves a debt restructuring plan negotiated between the debtor and its main creditors in a consensual manner before the initiation of insolvency proceedings. This technique draws upon the most significant advantage of a court-approved restructuring plan (i.e., the ability to make the plan binding on dissenting creditors or cram down), while leveraging speedy out-of-court negotiation process.

¹¹ See Liu and Rosenberg (2013) for further details.

¹² <http://www.insol.org/page/57/statement-of-principles>.

¹³ In the past (e.g. Turkey in 2001), these types of initiatives have tended to be more structured and also included agreement by all or most financial institutions to follow specified procedures and actions in out-of-court restructurings; formal arbitration with specific deadlines; and penalties for non-compliances.

¹⁴ See Claessens (2005) for a review of past experiences with special programs for SMEs.

Alternative Funding Sources

40. While the deleveraging and restructuring processes take their course, policies need to be in place to secure adequate liquidity to the viable and productive firms in the economy, thus avoiding an abrupt adjustment and ensuring the necessary conditions to restore productivity and growth. In the Euro area periphery, several factors have been at play mitigating the risk of an even sharper credit contraction. These have included continued liquidity support by the Eurosystem and the resources released by national governments as part of capital augmentation exercises. Nevertheless, credit segmentation remains worrisome in the periphery, posing important constraints on firms and hampering their competitiveness.

41. To promote continued access to funding at affordable rates for productive and innovative firms, national governments have been actively engaged in developing funding alternatives to bank credit, especially for the more-exposed SME segment. These have included measures to incentivize firms' access to capital markets, promoting corporate bonds issuances, venture capital, and other instruments especially targeted to SMEs (e.g. pooled issuance of commercial paper by SMEs in Italy). In addition, governments in the periphery have sought to alleviate the high credit risk premia and collateral requirements embedded in new bank loans, by offering guarantees to be attached to special bank credit lines.

42. Nevertheless, in establishing new measures and initiatives, the additional fiscal burden and risks for the sovereign should be carefully evaluated. For example, past experiences with guaranteed lines in Korea (1998 and 2004) suggest that the scope for these programs should remain limited given the important contingent liabilities for the State and the risk of creating perverse incentives for the banks not to restructure corporate debt, especially in presence of inadequate burden sharing (see also IMF, 2006).

Measures to Promote Firms' Long-Term Viability

43. Intense supervision, through regular stress tests and on-site inspections, is crucial to secure banks' recognition of losses and to promote prompt recourse to debt restructuring. Looking forward, as market conditions stabilize, a broader set of macro-prudential measures can also be considered to avoid new build-up of risks in specific niches of the economy. Beyond standard balance sheet tools (including the forthcoming Basel III requirements on leverage and net stable funding ratios), sectoral capital requirements, or variable risk weights, can help target specific sectors showing signs of exuberance, by requiring banks to hold additional capital buffers—e.g. as the use of the higher risk weights on commercial real estate loans in Australia in 2004 and on corporate lending in India in 2005–06.¹⁵

44. The authorities can also play a critical role in promoting transparency and information sharing on the corporate sector. Public and private credit bureaus can play an important role

¹⁵ See Bank of England (2011) for a review of macro-prudential tools.

in providing as much information as possible to properly assess credit standing of firms and thus facilitating the link between creditors and borrowers.¹⁶ For example, in the case of Portugal, Banco de Portugal is stepping up its efforts to broaden information sharing on credit and firms' balance sheet indicators, leveraging on its comprehensive public databases. This is particularly relevant given the predominance of SMEs in the country but the relatively small coverage of its private credit bureau (only 23 percent compared, for example, with 100 percent in Ireland).

45. Finally, evidence from past episodes suggests that targeted tax measures, with limited budget implications, can help strengthen balance sheets and improve the medium-term viability of the corporate sector in the long run.¹⁷ For example, in the past, time-bound tax incentives—over 2–3 years—have been introduced by governments (e.g. Thailand, and more recently, Iceland and Latvia) to accelerate corporate debt restructuring.¹⁸ Provisions for tax-free mergers have been also used in past episodes to promote balance-sheet consolidation.

46. Fiscal measures to strengthen firms' balance sheets can also focus on minimizing the distortions resulting from the different tax treatment of debt versus equity. “Thin capitalization rules” can be introduced to limit the amount of interest expenditure deductions allowed for over-leveraged firms, while minimizing any undesired impact on capital investment. Allowances for new corporate equity (the so-called ACE) can also be effective in enhancing tax neutrality, while avoiding pro-cyclicality, along recent experiences in Latvia and Italy.

V. CONCLUDING REMARKS

47. The paper assesses the drag on investment and growth engendered by corporate sector debt overhang in many periphery countries in the run-up to the crisis. The empirical results—based on aggregated firm-level data—confirm earlier evidence in the empirical literature of a negative relationship between firms' investment-to-capital ratio and their debt burden in selected Euro area countries over the sample period 2000-11. We also find evidence of significant asymmetric effects beyond certain threshold levels of indebtedness.

48. While the vicious feedback loops between investment and weak balance sheet indicators highlight the need to advance corporate deleveraging in the most indebted periphery countries, lessons from an event study of past crisis episodes characterized by sizable corporate adjustment suggest that this process is expected to be protracted and entail sizable upfront macro-financial costs. Its impact on the Euro area periphery is already visible

¹⁶ See IMF (2006).

¹⁷ See Pomerleano (2005) and Claessens et al. (2001) for a review of tax policy measures in past episodes.

¹⁸ It is important to make tax incentives conditional on completion of the restructuring to avoid misuse. In Turkey, commencement of the legal proceedings to recover the debt was sufficient to qualify for the tax incentives, creating perverse incentives for banks to pursue cosmetic legal action rather than real restructuring.

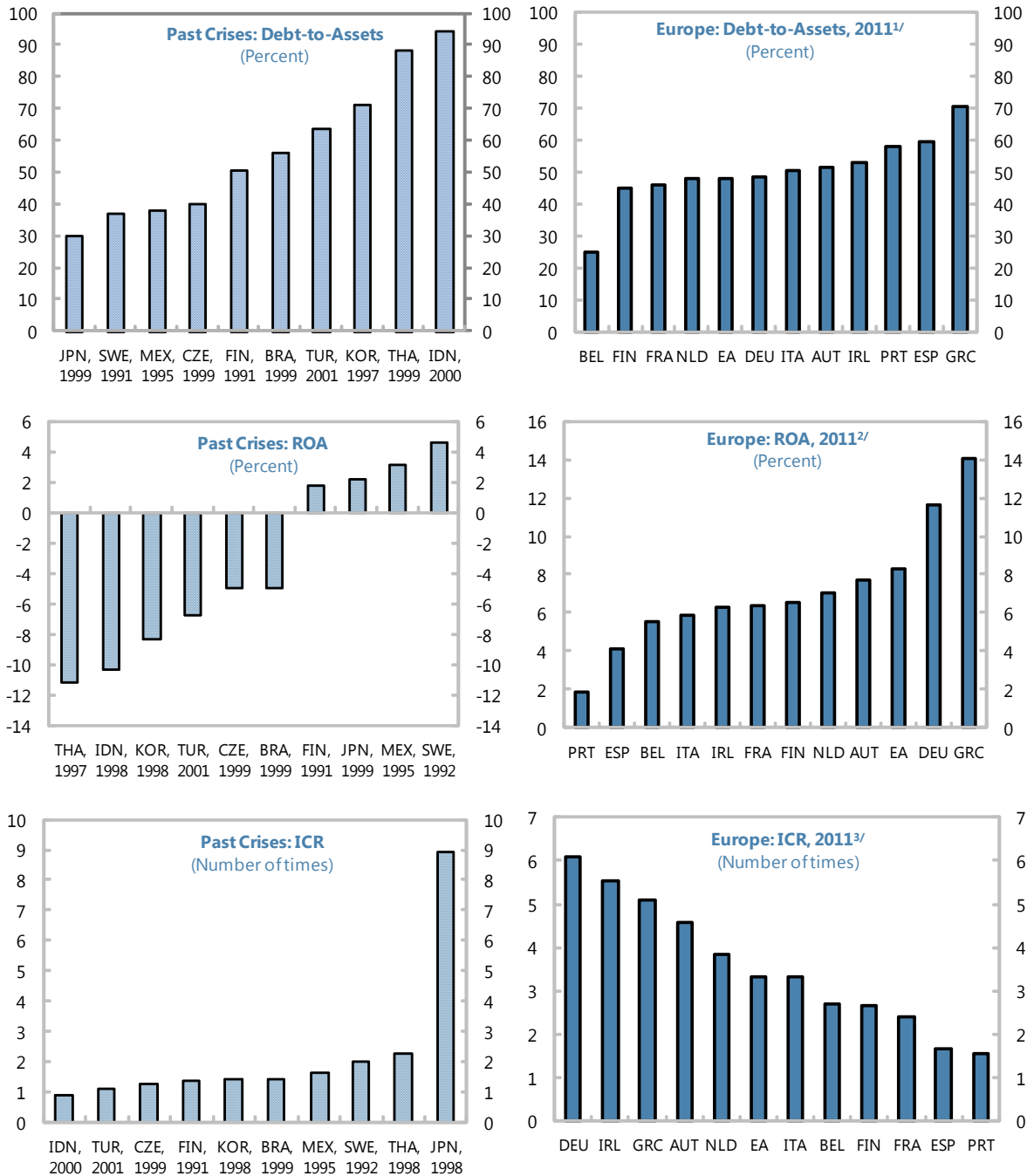
and could deepen further, especially given limited fiscal space, the constraints of the currency union, and weak external conditions, compared to past crisis cases.

49. To mitigate these deleveraging costs, the policy mix needs to be supportive of an orderly and efficient adjustment process, aimed at restoring corporate productivity and growth. Among the menu of policy options necessary to weather the crisis, countries need to have in place an efficient corporate debt restructuring framework and promote funding alternatives to bank credit for viable and productive companies at affordable and competitive conditions. Looking forward, as market conditions stabilize, a self-reinforcing institutional framework needs to be in place to prevent the build-up of new imbalances, aiming at a capital structure that is more conducive to growth. This includes initiatives to enhance governance and transparency, targeted macro-prudential tools, and tax policy measures to limit debt bias and other distortions in the corporate sector.

Figure 1. EA Periphery: Evolution of Non-Financial Corporations Balance Sheets
(In percent of GDP)



Figure 2. Corporate Vulnerability Indicators



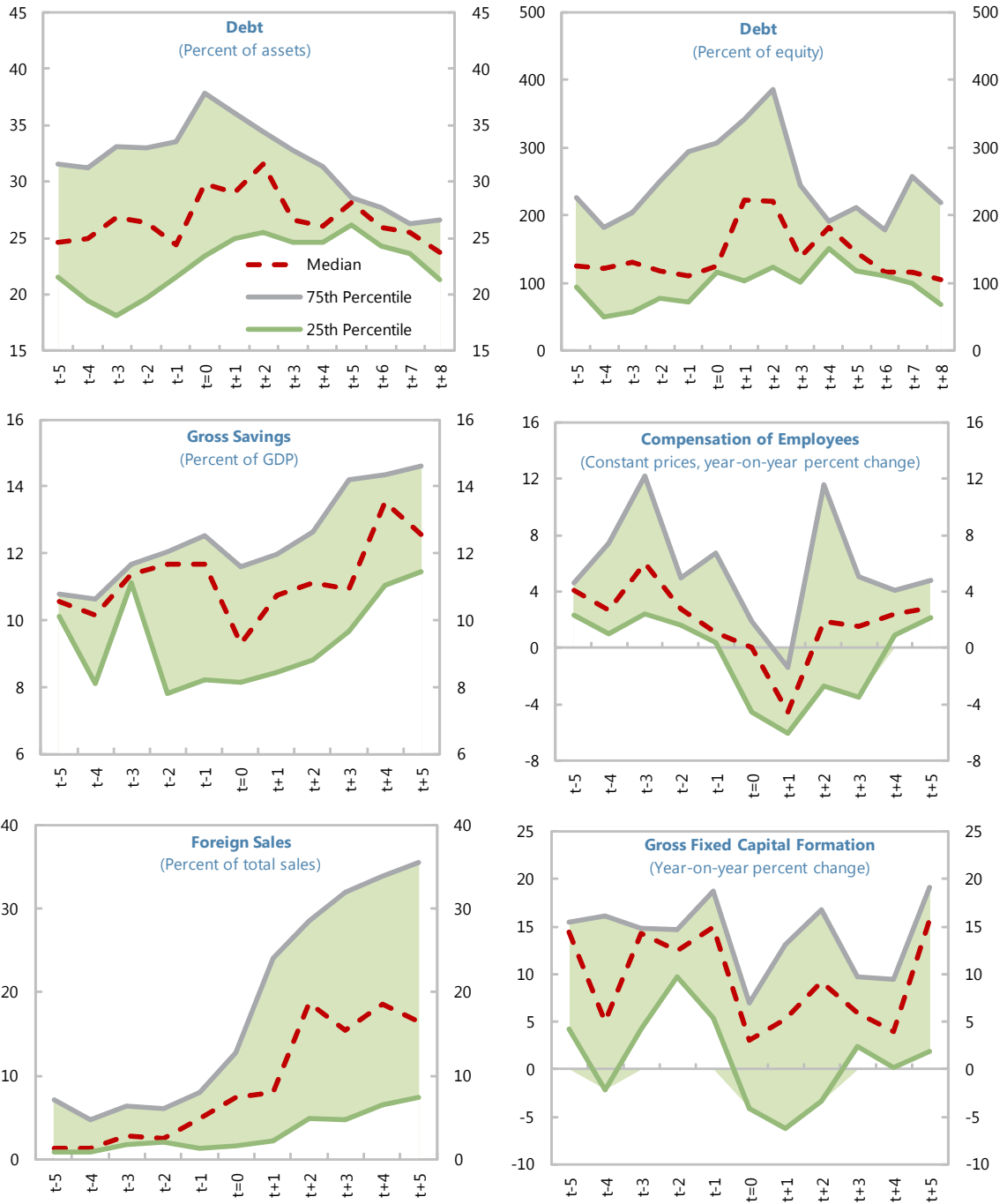
Sources: Claessens (2005) and Glen (2005) for past episodes; Eurostat and national sources for Europe in 2011.

^{1/} Total debt includes securities other than shares, loans, insurance technical reserves, trade debt and other accounts payable. Total assets is defined as total debt plus total equity.

^{2/} Net entrepreneurial income is used as net income to estimate ROA. Net entrepreneurial income equals net value added plus subsidies on production and property income receivable from financial assets owned by non-financial corporations (including profits of foreign subsidiaries), minus compensation of employees, taxes on production, interest and (land) rents payable.

^{3/} EBITDA estimated as net entrepreneurial income plus taxes and interest.

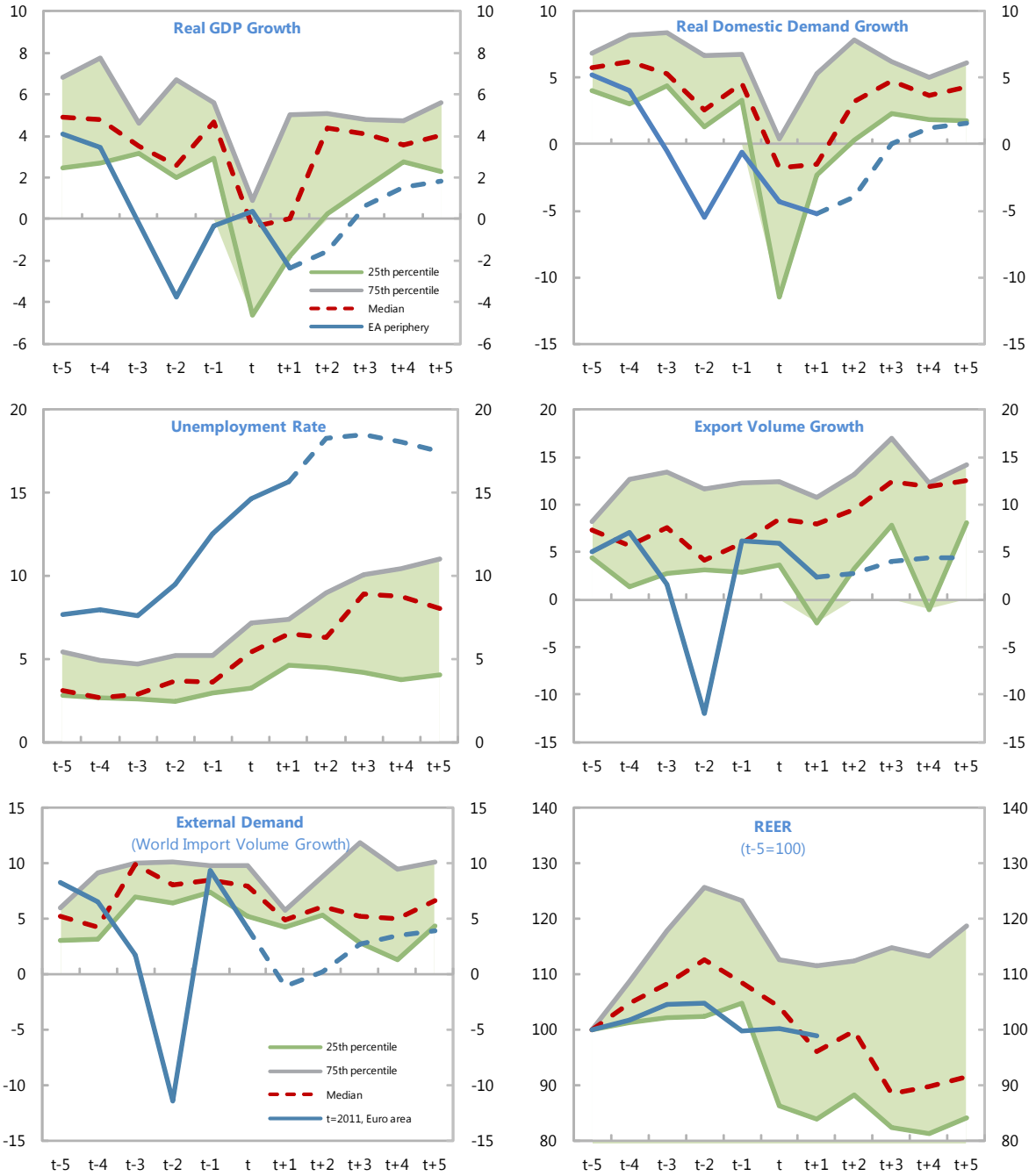
Figure 3. Corporate Balance Sheet Adjustment in Past Crisis Episodes 1/



Sources: OECD; U.N.; National authorities; IMF, IFS; and IMF staff estimates.

1/ Beginning of deleveraging episode at year t. Crisis countries include Brazil (1998), Czech Rep. (1997), Finland (1990), Indonesia (2000), Japan (1997), Korea (1998), Mexico (1995), Sweden (1990), Thailand (1997), and Turkey (2001). t is set to 2011 for the EA periphery (median values of Greece, Ireland, Italy, Portugal, and Spain).

Figure 4. Macro-Economic Developments in Past Crisis Episodes 1/
(Year-on-year percent change)



Sources: IMF; WEO; and IMF staff calculations.

1/ Beginning of deleveraging episode at year t. Crisis countries include Brazil (1998), Czech Rep. (1997), Finland (1990), Indonesia (2000), Japan (1997), Korea (1998), Mexico (1995), Sweden (1990), Thailand (1997), and Turkey (2001). t is set to 2011 for the EA periphery (median values of Greece, Ireland, Italy, Portugal, and Spain).

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