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Gunther Tichy

What Can Sector Accounts Tell About the Financial Crisis?

The current sovereign debt crisis is widely believed to have been caused by insufficient budget discipline. However, the financial sector accounts reveal that public as well as private borrowing in the euro area was dwarfed by the synchronised explosion of assets and liabilities of financial corporations. The paper suggests that the current concentration on a speedy cutback of public debt is premature at best. Policy should pay more attention to the main causes of the crisis: the excesses of the financial sector and the flaws in the design of the heterogeneous currency union.

Public perception, the media and most politicians assign blame for the current financial and debt crisis to US contagion and insufficient budget discipline. The financial sector accounts reveal that this belief is, to a large extent, not based on the full story. This article outlines the concept of (financial) sector accounts. It demonstrates that budget deficits did indeed increase in the 1990s, but that this trend had already halted years before the crisis. Public as well as private borrowing in the eurozone was actually dwarfed by the synchronised explosion of assets and liabilities of both financial corporations and the rest of the world (RoW). European banks inflated both sides of their balance sheets in lockstep but financed highly risky assets with short-term liabilities. Even in the three problem countries at the EU southern periphery, it is private, not public, borrowing – together with structural problems – which lies at the root of the crisis.

This leads to a question regarding repercussions of the debt reduction enforced by the Fiscal Compact: which sector is really responsible? Rough calculations illustrate the improbability that any one sector can carry sole responsibility or acted in a deliberately improper way. They also show the inability of policy to force sectors to behave in a particular manner. This paper suggests that the current concentration on a speedy cutback of public debt is premature at best. Policy should pay more attention to the main causes of the crisis: the excesses of the financial sector and the flaws in the design of the heterogeneous currency union.

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Concept and development of financial sector accounts

The sector accounts are based on the identity:¹

$$\begin{aligned} \text{Receipts} - \text{expenditures} &= \text{saving} - \text{investment} = \\ &= \text{financial balance (net borrowing)} = \\ &= \text{change in financial assets} - \text{change in financial liabilities}. \end{aligned}$$

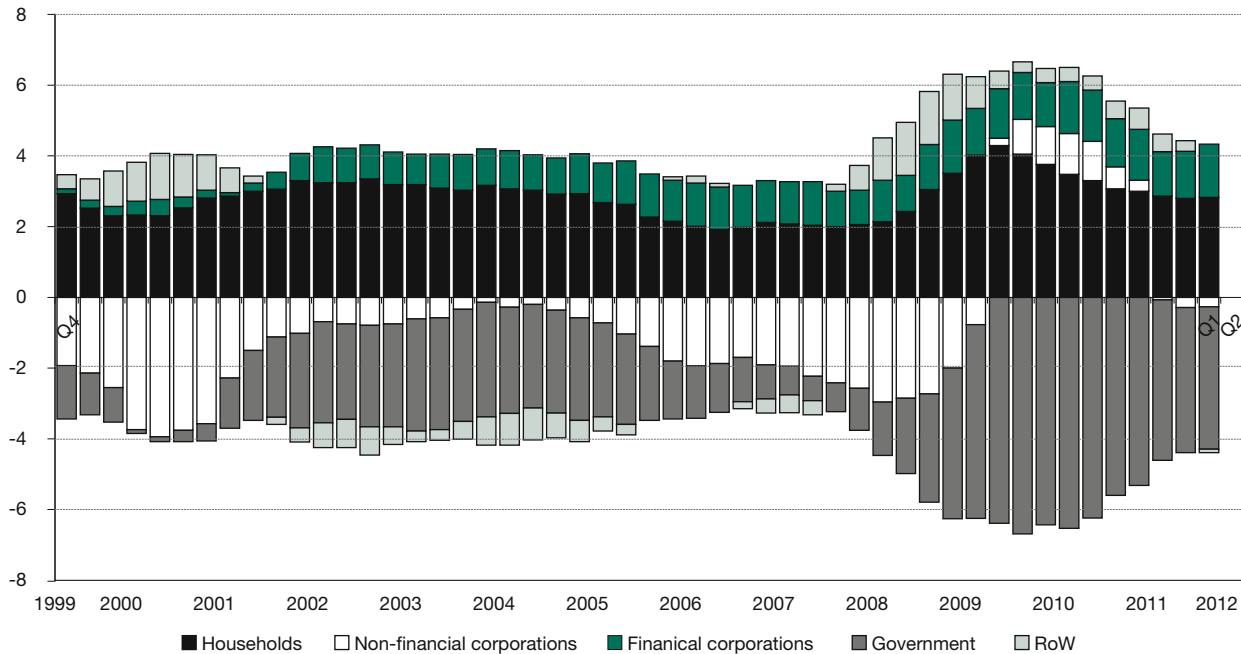
National accounts are broken down into the following sectors: households (including non-profit institutions serving households), financial corporations, non-financial corporations, the government and the foreign sector (RoW = current account + transfers with the sign reversed). Households are shown as a net lending sector and corporations and (to a lesser extent) government as net borrowing sectors. The foreign sector can be a lending as well as a borrowing sector, but the total balance in question is usually small. Financial corporations tend to balance their accounts. The financial balances of all sectors add up to zero by definition.

Up to the start of the financial crisis, the changes in the financial balances of the various sectors followed the expected pattern; nothing appears to have gone wrong. The yearly changes in the balances of financial corporations and the RoW were small and without any marked trends (see Figure 1). Non-financial corporations' changes in net indebtedness increased slowly, and households did indeed reduce their net saving, but governments – contrary to public perception – managed to decrease their debt ra-

¹ Eurostat 2012, Annual accounts by institutional sector, http://epp.eurostat.ec.europa.eu/portal/page/portal/sector_accounts/data/annual_data.

Figure 1
Change in eurozone sectors' net assets and liabilities

% of GDP



Source: Eurostat, 2012.

tio. Underneath the smooth surface, three problems began to bubble up which changed the situation drastically after 2007: a synchronised explosion of gross assets and liabilities in both financial corporations and the RoW, and a much less satisfactory trend of sector accounts at the European periphery.

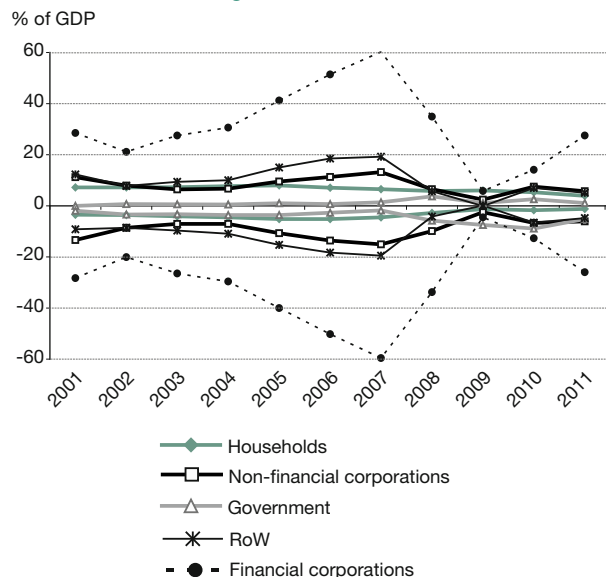
The net data of Figure 1 seriously undervalue the indebtedness of the various sectors, as they disguise the fact that assets and liabilities tend to change in line with each other (see Figure 2). These co-movements give rise to serious asymmetries and misjudgements. Public perception concentrates on governments' gross debt, ignoring the counterpart action of asset formation. On the other hand, the debt and assets of the other sectors are typically conceived of as netted. While government's gross borrowing decreased from about 3.5 per cent of GDP in the years 2002-05 to a Maastricht-consistent 1.8 per cent in 2007, it exploded to a maximum of nine per cent in 2010. The transactions of non-financial corporations, however, fluctuated considerably more so: by 2003-04 non-financial corporations had more than halved their borrowing from a high of 18 per cent of GDP in 2000, but they had raised it again to about 15 per cent in 2007. Indebtedness declined so drastically afterwards that balances even became positive, as Figures 1 and 2 demonstrate. Households similarly raised their borrowing from about 3.5 per cent of GDP at

the beginning of the century to more than five per cent in the years 2005-08 before being forced to reduce it to about 1.5 per cent afterwards. Hence, it was the private sector demand, not government deficits, which fuelled both the undesirable upward as well as downward developments. However, all these movements are dwarfed by the transactions of the foreign sector and of financial institutions, demonstrating the international character of the financial boom and bust. The foreign sector balance (see Figure 1) was slightly positive before 2008 and turned slightly negative thereafter;² however, the small net figures hide large gross flows. Foreign borrowing and lending decreased from about 15 per cent of GDP in 2000 to about eight per cent in 2002, exploded to almost 20 per cent in 2007, diminished completely in 2009 and has since recovered to about six per cent (see Figure 2). The gross transactions of financial corporations grew even faster, rising from about 20 per cent of GDP in 2002 to about 60 per cent in 2007. They shrank to almost nil in 2009 and have now reached about 30 per cent.

Even a brief look at the financial sector accounts shifts the focus from the public sector to the financial sphere. Euro countries' public debt had indeed increased stead-

² Net lending of the RoW = negative current account of eurozone countries.

Figure 2
Eurozone sectors' gross assets and liabilities



Source: Eurostat, 2012.

ily in the second half of the past century, but this trend had already come to a halt in the late 1990s. The debt ratio in the eurozone decreased in the years before the financial crisis (see Figures 1 and 2). Neither public deficits nor public debt were correlated with the onset of financial problems;³ private debt, current account deficits and problems resulting from the heterogeneity of the currency union were more important causes of the troubles in the eurozone periphery countries. The budget and debt constraints of the Fiscal Compact (see below) are not the key instruments needed to overcome the present crisis. This, however, does not imply that some form of fiscal coordination is unnecessary within a monetary union or as a precondition for support programmes. But the finance ministers' obstinate insistence upon quantitative limits on deficits and debt completely fails to take account of qualitative aspects, such as whether the public deficits are caused by consumption or by the acquisition of assets and whether the yield of public investment is higher or lower than the interest rate. The sector accounts clearly reveal what the public discussion stubbornly ignores – that at least part of the public debt had been used to buy assets. Asset accumulation accounted for two-fifths of public debt even in 2011 after the strong cyclical deterioration in budget balances (see Table 3 below), and assets and debt moved in strict lockstep ($R^2 = 0.95$). The Euro-

pean Semester generally overestimates the importance of a strict fiscal policy rather than paying more attention to other indicators of undesirable developments, especially those within the financial sector.

Financial corporations' and the RoW's balance sheet explosion

The transaction roller coaster of the eurozone financial corporations was, and continues to be, the most remarkable irregularity prior to, during and after the financial crisis. The annual build-up in assets and liabilities more than tripled between 2002 and 2007 from €1500bn to €5500bn, dwindled to almost nothing in 2009 and has since recovered to about €2500bn. The RoW moved in lockstep: assets and liabilities increased from €600bn in 2002 to €1700bn in 2007, fell to about zero in 2009 and have reached €500bn since. As Figure 2 shows, the volumes of the above-mentioned increases clearly dwarfed the much discussed increases in household and government debt (as well as the widely ignored increase in non-financial corporations' debt). The sector accounts can only hint at the causes of this steep rise. Almost all items in the balance sheets of the institutions which make up the financial sector accounts participated in this fast growth. This is especially true for assets, whilst among liabilities the share of deposits increased (from 40 per cent in 2003 to 46 per cent in 2007) at the cost of mutual funds. The foreign sector (RoW) shifted assets (eurozone liabilities) from long-term loans to deposits and shares, and liabilities (eurozone assets) from "other liabilities" to deposits and shares. The sheer volume and the strong expansion of the transactions of financial corporations and the RoW, combined with the volume of transactions by financial institutions, strongly suggest that RoW transactions predominately reflect the operations of (eurozone) financial corporations. Indeed, this is what Allen et al. emphasise:⁴ cross-border flows in Europe are dominated by bank flows. Capital flows increased following the introduction of the Single Bank Licence in 1989 and gained momentum after the EU's abolition of the restrictions on capital mobility in the mid-1990s.⁵ The transactions took place primarily between financial institutions in the wholesale and capital market-related segments. So far the corporate and retail banking markets have remained more fragmented. The cross-country dispersion of banks' interest rates on loans to firms and households has remained relatively high, es-

3 The high debt ratios in Belgium, Japan or the United States caused no financial troubles, while low deficit and debt ratios in Ireland, Spain and Portugal could not prevent them.

4 F. Allen, T. Beck, E. Carletti, P.R. Lane, D. Schoenmaker, W. Wagner: Cross-border banking in Europe: Implications for financial stability and macroeconomic policy, CEPR, 2011, p. 22.

5 G.-M. Milesi-Ferretti, C. Tille: The Great Retrenchment: International capital flows during the global financial crisis, in: Economic Policy, Vol. 26, No. 66, pp. 285-342.

pecially with regard to consumer loans.⁶ Foreign claims (e.g. of German banks) against Italy doubled between 2002 and 2007. They rose against Spain and Ireland by the factors of five and six,⁷ and they increased only moderately against Greece and Portugal.

It is not easy to analyse or even document the changing geographical structure of capital flows and the resulting portfolio composition. Sector accounts lack cross-classifications, and the balance-of-payments and banking statistics do not fit together. Several empirical studies, however, provide guesstimates. Although they are prone to the errors implicit in attempts to construct a consistent statistical framework, they all show the enormous volume of European banks' foreign claims, amounting to a quarter of world GDP in eurozone financial institutions and an additional eighth in the UK and Switzerland.⁸ Furthermore, they reveal the weak diversification of outward investment, with a strong bias to the US. "This played an important role in the recent crisis, in which European banks incurred large losses due to problems originating in the US. The US and Japanese banking systems have a better external diversification."⁹ European shadow banking has grown even larger than the American one.

The US has the largest shadow banking system, with assets of \$23 trillion in 2011, followed by the euro area (\$22 trillion) and the UK (\$9 trillion). However, the US' share of the global shadow banking system has declined from 44% in 2005 to 35% in 2011. This decline has been mirrored mostly by an increase in the shares of the UK and the euro area.¹⁰

Of the outstanding amount of asset-backed commercial paper conduits (ABCP), the most significant part of the shadow system, eurozone countries held a share of 45% and the UK an additional 16%,¹¹ far outnumbering the US

with its 31%.¹² The level of cross-border transactions, the composition of the European banks' portfolios as well as the system's complexity and opacity had all increased to an unsustainable level. The weak diversification of Europe's outward investment crystallised in the excessive risk transformation by European banks, a large maturity mismatch and inflated dollar risks.

As regards *excessive risk transformation* Bernanke et al. find that "Europe leveraged up its international balance sheet significantly, issuing, among other instruments, considerable sovereign debt and bank debt, and using the proceeds to buy substantial amounts of highly rated U.S. MBS and other fixed-income products."¹³ European banks took large risks as the rise in liabilities was tilted towards traditional securities and bank deposits, while the rise in claims included significant amounts of asset-backed securities and other complex financial instruments. Table 1 shows that the share of US Treasury securities and equity in European portfolios decreased while Europeans greedily bought asset- and mortgage-backed securities (ABS and MBS) which were rated AAA at that time. Their share in European portfolios increased disproportionately from four to 12 per cent, far above the share of outstanding US AAA-rated ABS/MBS (eight per cent).

The second problem for European banks, the *maturity mismatch*, became apparent after the financial boom started to burst. Many European financial institutions had been funding their purchases of US assets with short-term dollar-denominated liabilities such as commercial paper or bank deposits.¹⁴ The amount of money market funding of EU finance institutions increased from 12 per cent (2003) to 16 per cent (2007) of their liabilities.¹⁵ Most of the maturity mismatch, however, was generated by conduits, unregulated financial institutions that operate in the shadow banking world but with recourse to regulated entities, mainly commercial banks that have access to the government.¹⁶ Most of the conduits' assets had maturities of three to five years; most of their liabilities, in contrast, were

6 J.-C. Trichet: European financial integration, Speech at the 23rd Internationales ZinsFORUM Zinsen 2009, Frankfurt 2008, <http://www.ecb.int/press/key/date/2008/html/sp081211.en.html>.

7 S. Micossi: Unholy compromise in the Eurozone and how to mend it, Lecture at the Workshop on European governance and the problems of peripheral countries, Vienna 2012, WIFO.

8 P. McGuire, G. von Peter: The US dollar shortage in global banking, in: BIS Quarterly Review, March 2009, p. 49.

9 F. Allen et al., op. cit., p. 7.

10 Financial Stability Board: Global shadow banking monitoring report 2012, http://www.financialstabilityboard.org/publications/r_121118c.pdf.

11 The seven German Landesbanken alone had a share of 8.5 per cent of the worldwide ABCP market in 2006. See M. Fischer et al.: Wie wirkt sich der Wegfall staatlicher Garantien auf die Risikoübernahme von Banken aus?, in: ifo Schnelldienst, Vol. 65, No. 18, 2012, pp. 17-21, here p. 21.

12 V.V. Acharya, P. Schnabl: Do global banks spread global imbalances? The case of asset-backed commercial paper during the financial crisis of 2007-09, Paper presented at the 10th Jacques Polak Annual research conference, 5-6 November, Washington 2009, Table 4.

13 B.S. Bernanke, C. Bertaut, L. Pounder DeMarco, S. Kamin: International capital flows and the returns to safe assets in the United States, 2003-2007, Board of Governors of the Federal Reserve System International Finance Discussion Papers 1014, 2011, p. 7.

14 P. McGuire, G. von Peter, op. cit.; V.V. Acharya, P. Schnabl, op. cit.

15 F. Allen et al., op. cit., p. 20.

16 See V.V. Acharya, P. Schnabl, op. cit., p. 1: "Conduits are a form of securitization in which banks use off-balance sheet vehicles to purchase long-term and medium-term assets financed with short-term debt. However, contrary to other forms of securitization ... banks effectively keep the credit risk associated with the conduit assets."

Table 1
Composition of US securities outstanding
 in %

	2003		2007	
	Total	Europe	Total	Europe
Treasury securities	11	16	10	10
Agency debt	20	9	17	8
Corporate AAA	1	3	0	3
ABS/MBS AAA	5	4	8	12
Corporate non-AAA	14	23	13	25
ABS/MBS non-AAA	0	0	1	2
Equity	48	45	50	40
Total securities	100	100	100	100

Source: B.S. Bernanke, C. Bertaut, L. Pounder DeMarco, S. Kamin: International capital flows and the returns to safe assets in the United States, 2003-2007, Board of Governors of the Federal Reserve System International Finance Discussion Papers 1014, 2011, Table 1.

Note: Europe comprises the eurogroup and the UK.

in the form of ABCP with a maturity of 30 days or, in most cases, just a few days,¹⁷ creating a significant funding risk.¹⁸ Commercial banks had set up conduits to securitise assets while insuring the newly securitised assets using credit guarantees. The credit guarantees were structured to reduce bank capital requirements while providing recourse to bank balance sheets for outside investors. During the crisis, losses from conduits mostly remained with banks rather than outside investors. This suggests that banks used this form of securitisation to concentrate, rather than disperse, financial risks in the banking sector while reducing their capital requirements by employing regulatory arbitrage.¹⁹

The third component of risk, the *inflated dollar risk*, which increased with the explosion in banking transactions, resulted from European financial institutions' surprisingly large exposure to the US securitised asset markets and from currency mismatch. "As banks' balance sheets expanded, so did their appetite for foreign currency assets, notably US dollar-denominated claims on non-bank enti-

ties, reflecting in part the rapid pace of financial innovation during this period."²⁰ After 2000, some European banking systems took on increasingly large net on-balance sheet positions in foreign currencies, particularly in US dollars. While the associated currency exposures were presumably hedged off-balance sheet, the build-up of large net US dollar positions exposed these banks to *funding risk*, i.e. the risk that their funding positions could not be rolled over. "A lower-bound estimate of banks' funding gap, measured as the net amount of US dollars channelled to non-banks, shows that the major European banks' funding needs were substantial (\$1.1-1.3 trillion by mid-2007)."²¹ Until the onset of the crisis, European banks had met this need by tapping the interbank market (\$400bn) and by borrowing from central banks (\$380bn); they used FX swaps (\$800bn) to convert (primarily) domestic currency funding into dollars.²² Securing this funding became more difficult after the onset of the crisis, when credit risk concerns led to severe disruptions in the interbank and FX swap markets and in money market funds. The resulting stresses on banks' balance sheets have persisted, resulting in tighter credit standards and reduced lending as banks struggle to repair their balance sheets.

The extraordinary expansion of European holdings in foreign (predominantly US) assets, which later proved toxic, has several explanations. The most obvious was the quest for yield given the low (longer-term) interest rates, which induced investors to accept higher risk. According to Lane and Milesi-Ferretti,²³ portfolio diversification, rather than intertemporal borrowing and lending, was the dominant motive for international asset transactions among industrial countries. Even more important may have been the elimination of the home bias in banks' and other investors' portfolios after the EU's abolition of the restrictions on capital mobility in the mid-1990s.²⁴ Acharya and Schnabl²⁵ among others proffer an explanation using regulatory arbitrage, namely, that the regulatory capital charges levied on banks which set up off-balance sheet conduits to invest in

17 V.V. Acharya, P. Schnabl, G. Suarez: Securitization without risk transfer, NBER Working Paper 15730, 2010, p. 8.

18 See V.V. Acharya, P. Schnabl, G. Suarez, op. cit., pp. 1-2: "On 9 August 2007, the French bank BNP Paribas halted withdrawals from three funds invested in mortgage-backed securities and suspended calculation of net asset values ... As a result ... the interest rate spread of overnight asset-backed commercial paper over the Federal Funds rate increased from 10 basis points to 150 basis points within one day of the announcement. Subsequently, the market experienced the modern-day equivalent of a bank run and asset-backed commercial paper outstanding dropped from \$1.2 trillion in August 2007 to \$833 billion in December 2007."

19 V.V. Acharya, P. Schnabl, op. cit.

20 P. McGuire, G. von Peter, op. cit.

21 Ibid., p. 48.

22 UK banks maintained largely balanced net interbank US dollar positions, thus implying cross-currency funding, while German banks relied relatively more on interbank funding. See P. McGuire, G. von Peter, op. cit.

23 P.R. Lane, G.-M. Milesi-Ferretti: Financial globalization and exchange rates, IMF Working Paper WP/05/3, 2005.

24 C. Bertaut: Assessing the potential for further foreign demand for U.S. assets: Has financing U.S. current account deficits made foreign investors overweight in U.S. securities?" Board of Governors of the Federal Reserve System, International Finance Discussion Papers 950, Washington 2008, Board of Governors of the Federal Reserve System, <http://www.federalreserve.gov/pubs/ifdp/2008/950/ifdp950.htm>.

25 V.V. Acharya, P. Schnabl, op. cit., pp. 13-26.

US MBS were inadequate,²⁶ which served to encourage investments in these assets; the Basel II restrictions were ignored by regulators. Artreata et al.²⁷ explain the higher share of bank-sponsored ABCP vehicles in Europe with the predominance of large global universal banks operating the vehicles on a larger scale, but they do not refute that they were structured in a way to take advantage of regulatory capital relief.

The risks taken by European banks (excessive risk transformations, large maturity mismatches, inflated dollar risks), combined with regulatory failure, the inability to deal with large cross-border banks (absence of a proper resolution framework for banks, national regulators which cared first and foremost about domestic depositors, borrowers and owners), and the systemic risk from the mispricing of securitised assets²⁸ proved to be highly costly for European governments. Laeven and Valencia²⁹ estimated the cost of financial restructuring for the eurozone governments at six per cent of GDP.³⁰ The sector accounts suggest that financial institutions are returning to their high-risk attitudes. Basel III and the envisaged banking union have endeavoured to implement policies that move in the right direction, but it is highly doubtful that they go far enough. Seminal research by Rajan³¹ points out that the increasing complexity of the modern financial system might even create more financial sector-induced procyclicality than in the past and that it strongly increases the probability of a catastrophic meltdown. Certain financial structures (e.g. money market mutual funds or broker-dealers) can make the financial system vulnerable to stresses,³² the share of foreign banks in the domestic banking sector is positively associated with volatility,³³ and financial interconnectedness has a significant positive impact on the probability

of a systemic banking crisis.³⁴ At the very least, “[t]he key lesson of the euro area and U.S. subprime crisis is that waiting for market signals will lead to harsher economic outcomes with unintended financial risks.”³⁵

Unsustainable borrowing in the European periphery

The sector accounts clearly show that the big changes giving rise to the financial crisis occurred in the financial and foreign sectors of the eurozone. Detailed financial investigations revealed that these transactions shifted the portfolio to highly risky foreign assets. Households and non-financial corporations contributed by increasing their indebtedness, but the government sector reduced its debt ratio. The conclusion that private rather than public demand contributed to the crisis emerges even more clearly in a geographical breakdown, taking account of the heterogeneity of the currency union. For instance, the net borrowing of non-financial firms increased strongly before the crisis in eurozone countries with external deficits (from two to five per cent per year) and the net saving of households fell considerably (from two to 0.5 per cent per year).³⁶ Together with the deterioration of the current account (RoW net saving) from two to about five per cent, this clearly identifies debt-financed private demand as an important driver behind the crisis. Governments also implicitly supported this tendency. In the group of external surplus countries, by contrast, household saving was not only considerably higher but declined only slightly, and non-financial corporations even showed net savings in the five years before the crisis.

The contraposition of surplus and deficit countries is not without its problems, however, as is the case with most aggregations. External deficits may arise because of excess demand, a lack of competitiveness or as a consequence of direct investment attracted by high returns. Data on growth, household saving and direct investment suggest that the large external-deficit group is highly heterogeneous in this respect,³⁷ and the causes for the external deficits may be mixed in both groups. For the purpose of this study, striving to pinpoint the causes and consequences of the present crisis, it appears more important to isolate Greece, Spain and Portugal (EZ3). Once again the popular

26 V.V. Acharya, P. Schnabl, *op. cit.*, emphasise that banks based in countries that do not allow such regulatory arbitrage, such as Spain and Portugal, do not sponsor conduits.

27 C. Arteta, M. Carey, R. Correa, J. Kotter: *Revenge of the Steamroller: ABCP as a Window on Risk Choices*, 2012, webuser.bus.umich.edu/jkotter/papers/revengesteamroller.pdf.

28 F. Allen et al., *op. cit.*

29 L. Laeven, F. Valencia: *Resolution of banking crises: The good, the bad, and the ugly*, IMF Working Papers, WP/10/146, 2010.

30 Furthermore, financial crisis recessions are more costly in terms of lost output (see O. Jordà et al.: *When credit bites back: Leverage, business cycles, and crises*, NBER Working Paper 17621, 2011) and unemployment (see L.E. Bernal-Verdugo et al.: *Crises, labor market policy and unemployment*, IMF Working Paper 12/65, 2012) than other recessions.

31 R.G. Rajan: *Has financial development made the world riskier?* Proceedings, Federal Reserve Bank of Kansas City, 2005, pp. 313-369.

32 E.S. Rosengren: *Our financial structures: are they prepared for financial stability?* Keynote Remarks, Conference on Post-Crisis Banking, 28-29 June, Amsterdam 2012, <http://www.bos.frb.org/news/speeches/rosengren/2012/062912/index.htm>.

33 IMF: *Global Financial Stability Report. Restoring confidence and progressing on reforms*, Washington 2012, Annex 4.2.

34 K. Lund-Jensen: *Monitoring systemic risk based on dynamic thresholds*, IMF Working Paper 12/159, 2012.

35 IMF, *op. cit.*, p. 42.

36 ECB: *Ungleichgewichte im Euro-Währungsgebiets aus der Sicht der Sektorkonten*, Monatsbericht Februar 2012, pp. 42-49; ECB: *Vergleich der jüngsten Finanzkrise in den Vereinigten Staaten und im Euro-Währungsgebiet mit den Erfahrungen Japans in den 1990er-Jahren*, Monatsbericht Mai, pp. 103-123, here p. 112.

37 Only six of the 17 eurozone countries belong to the external-surplus group: Belgium, Germany, Luxembourg, the Netherlands, Austria and Finland.

explanation of the crisis can be refuted. Government net borrowing had been negligible in the EZ3 before the crisis and even smaller than in the rest of the eurozone (EZ14). Households in the EZ3 dissaved, and non-financial firms' net debt increased rapidly, which is the typical constellation of excessive, debt-financed private demand. Net saving in the EZ14 also decreased in the years before the crisis but remained strictly positive, and firms' net debt stopped growing. Current account deficits (RoW net saving) exploded in the EZ3 before the crisis, contrary to a balance in the EZ14. After the crisis, EZ3 countries managed – or were forced – to increase household net saving and to reduce firms' debt growth, and their current account deficits shrank considerably.

Analysing assets and liabilities separately highlights the differences even more clearly (Table 2). Compared to the EZ14, the annual increase of the liabilities of households and firms in the EZ3 was higher before the crisis and lower afterwards. Government liabilities, on the other hand, increased much more slowly in the EZ3 before the crisis but faster afterwards. Assets also grew more quickly in the EZ3 before the crisis, albeit to a smaller extent. In particular, RoW assets (EZ3 liabilities) increased at a fast rate before the crisis but contracted afterwards. Financial corporations increased their assets and liabilities before the crisis in both groups of countries, but EZ3 financial institutions were forced to contract their exposure much more rapidly. Interestingly, the highest exposure was seen in Spain in 2007, in Greece in 2008 and in Portugal in 2010. This is one of the aspects demonstrating that even the aggregation of Greece, Spain and Portugal to the EZ3 hides some important idiosyncrasies. The current account deteriorated in all three countries and all three reduced household net saving, but Spain dissaved even in absolute terms, i.e. the annual increase in household debt was larger than households' saving, due to the housing bubble. In Spain and Portugal – but not in Greece – non-financial firms steeply increased their indebtedness, while the governments succeeded in reducing their deficits before the crisis.

The financial sector accounts of the countries on the southern periphery of the eurozone confirm that financial activities, not public expenditure led to the present troubles. The low real interest rates (the Walter's critique)³⁸ seduced firms and households towards debt-financed expenditure, and national as well as foreign financial institutions, searching for profitable investments, irresponsibly financed private consumption and real estate bubbles.

38 A. Walters: *Sterling in danger*, London 1990, Fontana/Collins, warned that existing real interest differentials would widen in a heterogeneous currency union and destabilise the system.

Table 2
Change in sector asset and liabilities

% of GDP

	2005		2007		2010	
	EZ14	EZ3	EZ14	EZ3	EZ14	EZ3
Assets						
Households	8	11	6	8	6	3
Non-financial corporations	8	16	13	12	8	6
Government	1	2	1	3	3	0
RoW	13	24	20	25	9	-1
Financial corporations	32	47	62	55	31	12
Liabilities						
Households	4	11	4	9	2	0
Non-financial corporations	10	17	14	23	7	6
Government	4	3	2	2	8	11
RoW	15	17	20	15	8	-3
Financial corporations	39	46	61	55	30	9

Source: Eurostat, 2012.

The resulting current account problems were stubbornly ignored by experts³⁹ as well as by policy makers. This was superimposed onto the progressively deteriorating power to compete as a result of excessive wage increases and neglected structural reforms.

Who can be the counterparty to curtailed government debt?

The third aspect that puts a new perspective on the crisis refers to the consequences of sharp reductions in government deficits and indebtedness in the financial accounts of the other sectors, particularly when a large group of countries plans such a reduction. For this analysis, sector balance sheets instead of sector transactions accounts need to be examined (Table 3). Again, the sum of all balances (i.e. including the foreign sector) inevitably adds up to zero, so that every change in one of the balances must have a reactive equivalent change in another one. If households are not willing to reduce their net saving and/or firms or the RoW are not prepared to incur higher debt (i.e. more

39 Current account imbalances in economies had been regarded as a general equilibrium phenomenon, so that imbalances would require neither special attention nor government intervention. See R.H. Ciarlida: *G7 Current Account Imbalances: Sustainability and Adjustment*, Chicago 2007, University of Chicago Press, p. 1; and O. Blanchard: *Current account deficits in rich countries*, in: IMF Staff Papers, Vol. 54, No. 2, 2007, pp. 191-219.

Table 3
Sector closing account

% of GDP

2011	Households	Non-financial corporations	Government	RoW
Assets	200	176	40	183
Liabilities	-71	-272	-99	-163
Net financial position	129	-96	59	20

Source: Eurostat, 2012.

net exports by eurozone countries), lower government expenditure necessarily triggers a spiral of shrinking demand. This is a serious current problem, as the Treaty on Stability, Coordination and Governance (TSCG)⁴⁰ stipulates stricter rules regarding public deficits and public debt and threatens to sanction violations. Structural deficits must not exceed 0.5 per cent of GDP except in “exceptional circumstances”, which “refers to the case of an unusual event outside the control of the Contracting Party”, or one per cent if the state’s debt is below 60 per cent of GDP and the “temporary deviation of the Contracting Party concerned does not endanger fiscal sustainability in the medium-term”.⁴¹ Public debt higher than 60 per cent of GDP must be reduced to that level along a specified path.

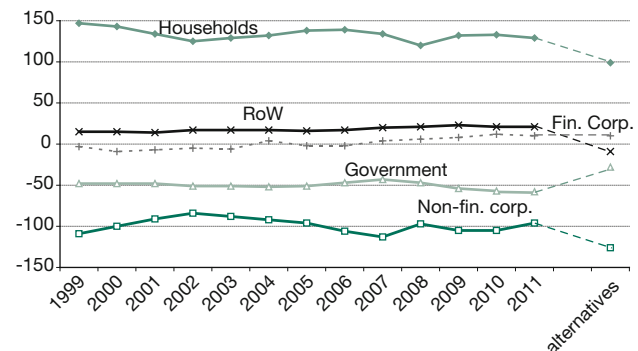
The TSCG is widely – not least in Germany – regarded as the most effective instrument to overcome the current debt crisis. This is a dangerous misconception for at least two reasons. First of all, it ignores that the exploding public debt in recent years was a *result* of the financial crisis, not the *cause*. The focus on the consequences instead of on the causes of the crisis distracts from analysing and extrapolating the true problems. Over and above this main issue, the treaty fails to tackle the possible repercussions of such a policy: it fails to address the self-evident fact that cutting the debt of 25 countries, comparable to a fifth of world GDP, by about one-third is completely different from

40 The Treaty on Stability, Coordination and Governance in the Economic and Monetary Union, also known as the Fiscal Stability Treaty or the Fiscal Compact, was signed on 2 March 2012 by all EU members, except the Czech Republic and the UK. The treaty entered into force on 1 January 2013.

41 TSCG: Treaty on stability, coordination and governance in the economic and monetary union between the Kingdom of Belgium, the Republic of Bulgaria, the Kingdom of Denmark, The Federal Republic of Germany, the Republic of Estonia, Ireland, the Hellenic Republic, the Kingdom of Spain, the French Republic, the Italian Republic, the Republic of Cyprus, the Republic of Latvia, the Republic of Lithuania, the Grand Duchy of Luxembourg, Hungary, Malta, the Kingdom of the Netherlands, the Republic of Austria, the Republic of Poland, the Portuguese Republic, Romania, the Republic of Slovenia, the Slovak Republic, the Republic of Finland and the Kingdom of Sweden, 2012, Article 3, http://www.mfa.gov.lv/data/aaa/stabilitatesligums_en.pdf.

Figure 3
Alternative adjustments

Eurozone closing balance sheet, % of GDP



Source: Eurostat, 2012 and own calculations.

reducing the debt of a single country or a firm. Indeed, this act alone raises the corresponding problem revealed by the sector accounts, namely, what will be the counteraction to reduced public debt, given that the sum of sectors’ assets must necessarily equal the sum of their liabilities?

Simple accounting rules imply that a reduction in the government’s net indebtedness must bring forth either a decrease in the net saving of households or an increase in the net indebtedness of firms or of the rest of the world (i.e. foreign assets of the eurozone). One can easily estimate the rough dimensions of the problem: the gross indebtedness of the eurozone governments added up to 99 per cent of GDP in 2011. This is somewhat higher than the 88 per cent based on the Maastricht definition. As the two series are perfectly correlated ($R^2 = 0.98$), the envisaged 60 per cent public debt restriction according to the Maastricht definition is easily converted into 70 per cent according to the sector account definition. The TSCG therefore requires a reduction of gross government debt-to-GDP by about 30 percentage points (€2.6bn). The liabilities and/or assets of the other sectors will have to reflect this 30 percentage point (or €2.6bn) drop. Net sector financial positions can be used as an illustration of the dimensions in question.⁴² Net household saving would have to fall from 129 per cent of GDP to 99 per cent, or non-financial corporations’ net debt would have to increase from 96 to 126 per cent of GDP, or the rest of the world would have to change its position from net assets of 20 per cent of GDP to a net debt of ten per cent. As Figure 3 indicates, these changes are considerable and extend far beyond any previous eco-

42 This is done to avoid a discussion about whether, for example, private households are more likely to reduce their saving or their debt, which is less relevant in this respect.

conomic experience. As a matter of course, any combination of adjustments of the various sectors and/or of assets and liabilities is possible.

The question is whether the savings of households and, the indebtedness of firms or the RoW can and will react automatically to the prescribed government changes. This has to be viewed as highly unlikely, even if future spending behaviour is hard to predict, especially in a recession. Household net saving is more likely to increase in the near future. Uncertainty, the normal companion of a severe long-lasting recession, typically raises households' desire for security and consequently for savings. Additionally, banks will try to downsize the inflated household debt, not least as a consequence of the Basel III convention. Furthermore, household debt (70 per cent of GDP) is not far below the 85 per cent limit, above which it may hinder growth according to the estimates of Cecchetti et al.⁴³ If households reduce net saving at all, then it is as a consequence of recession-induced shrinking incomes. Non-financial firms will also hesitate to act as a counterparty to government debt reduction by incurring additional debt. They may do so in an economic upswing when capacities are fully employed and investment is profitable, but in the years to come this is rather unlikely. Strong empirical evidence suggests that "once a public debt overhang has lasted five years, it is likely to last ten years or much more",⁴⁴ and severe financial crises depress growth by about one percentage point per year for a decade.⁴⁵ As eurozone growth was rather subdued even before the crisis, the capacity effect of reinvestment may suffice, and debt-financed expansion will turn out to be unnecessary. If firms nevertheless acted as the counterparty to government debt reduction, their debt would need to increase from 96 per cent of GDP to 126 per cent, which is far beyond the 90 per cent at which firms' debt may become a drag on growth.⁴⁶ If we exclude reactions of households and firms, the higher indebtedness of the RoW could be brought in via the backdoor, but this is also rather unlikely. Demand will be weak in the RoW as well, and the emerging countries' readiness to incur debt has suffered considerably since the Southeast Asian crisis of 1997, as revealed by the literature on the uphill flow of capital⁴⁷ or the savings

glut.⁴⁸ As it is highly unlikely that any sector will voluntarily accept the role of counterparty to a reduction in government debt, the TSCG directive to reduce debt will actually serve merely to seriously aggravate and prolong the existing recession.

Could policy be used to help find a more "willing" counterpart? The most obvious target is the household sector. A reduction in aggregate saving is advantageous in periods of slow demand, and several policy instruments would, in principle, be available: abolishing saving promotion if available,⁴⁹ taxing high incomes and wealth, or shifting from funded to pay-as-you-go old-age insurance schemes are potential solutions. But none of these are easily politically enforceable. Boosting household debt would be easy, but it is not advisable for social reasons and since it would threaten the system's stability. For the same reasons, increasing the debt of non-financial firms must also be dismissed as a solution. Their indebtedness is too high presently and may contribute to the system's instability. Compensating governments' debt reduction by forcing the RoW into higher indebtedness via increased exports would turn out to be an unfair beggar-thy-neighbour policy, unless countries with higher returns on investment wish to finance their import of capital goods. In the last decade, however, this has not been the case to any noticeable degree.

Policy conclusions

Overall, the chances of finding a counterpart to the reduction of public debt prescribed in the TSCG do not look overwhelmingly promising. One has to ask if the goal is worth the effort and negative effects. The 60 per cent ratio is not in itself a pipe dream, but neither is it a scientific deduction or economic necessity. Designed in 1992 as a precondition for EU entry, it was based on the average public debt of member countries at that time, with a growth rate of five per cent and a budget deficit of three per cent. Acquiring a life of its own, the 60 per cent ratio was transferred into the Stability and Growth Pact in 1999 and, with completely new conditions, into the Fiscal Compact in 2012. As mentioned above, empirical investigations⁵⁰ suggest that public debt may not hinder economic growth until it exceeds 80 to 90 per cent of GDP.

43 S.G. Cecchetti et al.: The real effects of debt, BIS Working Papers 352, 2011.

44 C.M. Reinhart et al.: Public debt overhangs: advanced-economy episodes since 1800, in: *Journal of Economic Perspectives*, Vol. 26, No. 3, 2012, pp. 69-86, here p. 83.

45 C.M. Reinhart, K.S. Rogoff: Growth in a time of debt, in: *American Economic Review*, Vol. 100, No. 2, 2010, pp. 573-578.

46 S.G. Cecchetti et al., op. cit.

47 A. Abiad et al.: Financial integration, capital mobility, and income convergence, in: *Economic Policy*, April 2009, pp. 241-305.

48 B.S. Bernanke, op. cit.; B. Coulibaly, J. Millar: The Asian financial crisis, uphill flow of capital, and global imbalances, Board of Governors of the Federal Reserve System International Financial Discussion Papers, No. 942, 2008.

49 Tax law frequently promotes the accumulation of financial assets and especially saving relative to real investment and debt relative to self-financing. See D. Rumpf, W. Wiegand: Kapitalertragsbesteuerung und Kapitalkosten, in: *Perspektiven der Wirtschaftspolitik*, Vol. 13, No. 1-2, 2012, pp. 52-81, for a German example.

50 S.G. Cecchetti et al., op. cit.

Even if Cechetti et al. recommend staying well below the estimated threshold to allow for a fiscal buffer to address extraordinary events, their recommendation does not appear opportune in the midst of a serious recession.

The restrictions of the TSCG should be suspended at least for countries below the above-mentioned Cechetti limit, and the adjustment path extended for the other ones. This does not imply that the discussion should not be resumed once the eurozone has succeeded in achieving a more or less normal growth path. Although some coordination of fiscal policy is indispensable within a monetary union even during the recession, a revision and temporary suspension with regards to certain instruments would appear to be prudent if not indispensable. The TSCG may prove to be a “paper tiger”: threatening in general but, similar to its predecessor, prone to be ineffective when it needs to bite. Countries put under pressure by the TSCG restrictions will successfully fight against its sanctions, and they will have at least three good reasons to do so.

Firstly, they will fight because the overly ambitious timetable of the programme severely curtails their economic policy. Since the TSCG effectively bans almost any fiscal leeway, countries are completely gagged – they lack a national monetary policy and there is no eurozone-wide fiscal federalism. They are exposed to cyclical shocks, and their material and immaterial infrastructure is bound to decline in the longer run due to budgetary restrictions.

Secondly, it will be easy for countries under pressure to argue against the TSCG indicators. It is full of phrases which allow for subjective interpretation (“exceptional circumstances”, “the case of an unusual event outside the control of the Contracting Party”, “endanger fiscal sustainability in the medium-term”, etc.). Lane warns that the Fiscal Compact has “knotty measurement problems because it requires that governments enact a mechanism that requires macroeconomic forecasters to differentiate between cyclical fluctuations and fluctuations in output almost in real time.”⁵¹ Heroic assumptions are necessary to calculate the indicators. The structural deficit is a useful concept for scientific work, especially *ex post*; but it is inappropriate as a standard to solve weighty conflicts over the adequacy of a country’s current economic policy and even less adequate in the face of potential threatening sanctions. Since it is calculated on the basis of potential output, it rests on assumptions about the capacity utilisation of capital and labour. Consent on these assumptions may be possible during periods of economic calm (although central banks typically manage to extract higher

levels of capacity utilisation than other researchers). But in serious recessions or times of structural breaks, it is almost impossible to agree on the share of idle capacity which could be employed in any future upswing versus the share which is obsolete due to technical progress and/or structural change and will have to be scrapped.

Thirdly, countries under pressure will argue that the limits are arbitrary and do not take account of the specific situation. In periods of low interest rates, debt load and debt service may be less pressing; it may be efficient to increase liabilities in order to finance material or immaterial infrastructure. Additionally, one may question the intention of fining countries with excessive deficits. If the fines are low, they may turn out to be ineffective. If they are high, they will bloat the deficit and may turn out to be irrecoverable.

The sector accounts strongly suggest that the current concentration on fiscal restraint and a speedy cutback of public debt is premature at best. It will aggravate and extend the current recession and possibly even prevent debt reduction due to its repercussions on demand and due to the lack of willingness of the other sectors to act as counterparts to this reduction. Sustainable fiscal and debt policy is indispensable, but one has to find a sensible middle path during a transition period. Fiscal policy and debt adjustment are far from sufficient to solve the current problems. The analysis of the sector accounts strongly supports the IMF suggestion: a more rounded policy scenario, including a well-timed and growth-friendly fiscal consolidation, structural reforms to reduce external imbalances and promote growth, and a completion of the banking sector cleanup. “[A]lthough there has been some progress over the last five years, financial systems have not come much closer to those desirable features. They are still overly complex ... and concentrated with the too-important-to-fail issues unresolved.”⁵² The new banking standard may even encourage banks to move more activities into the unregulated shadow-banking sector.

Policy needs to pay more attention to the main causes of the crisis: the excesses of the financial sector and the flaws in the design of the heterogeneous currency union. The envisaged banking union will be a first important step in this direction, but the other flaws in the financial system – the structural problems related to North-South imbalances and the main flaws of the currency union, the lack of fiscal federalism and the problem of real interest rate differences – must also be addressed.

51 P.R. Lane: The European sovereign debt crisis, in: *Journal of Economic Perspectives*, Vol. 26, No. 3, pp. 48-67, here p. 63.

52 IMF, *op. cit.*, p. xi.