ABANDON SHIP:
Time to stop bailing out Greece?

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By

Raoul Ruparel

Edited by Stephen Booth and Mats Persson

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SW1P 3QN
www.openeurope.org.uk

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Executive summary:

"It will not be the case that the south will get the so-called wealthy states to pay. Because then Europe would fall apart. There is a 'no bail out rule', which means that if one state by its own making increases its deficits, then neither the community nor any member states is obliged to help this state"

- Horst Koehler, former German Finance Secretary, April 1992[1]

- EU member states have in total amassed quantifiable exposure to Greece of €311bn (via their banking sectors, the bail-out packages and the ECB's liquidity programme). France and Germany have exposure of €82bn and €84bn respectively, while the UK only has €10.35bn exposure – although this figure is misleadingly low, as Britain's huge exposure to other European banks leaves it vulnerable to any escalation of the crisis in Greece through indirect exposure and undermined market confidence.

- On the surface, the interconnectivity of Europe's economies and banking sector may seem like an argument in favour of another bail-out. In a best case scenario, to carry Greece over until 2014 a second bail-out would have to cover a funding gap of *at least* €122 billion, *in addition* to the money the country is already receiving from its first rescue package. This assumes a scenario in which Greece can make good on its deficit targets and privatisation commitments. However, it is far from clear that Greece will meet these targets, not least given domestic resistance to more austerity measures. Therefore, the country's funding gap leading up to 2014 could well be in the area of €166bn, potentially requiring Greece to make a third request for external aid.

- Despite a second Greek bail-out being EU leaders' preferred option, it is only likely to increase the economic and political cost of the eurozone crisis. No country in modern economic history has faced similar debt levels to those of Greece – a debt-to-GDP ratio above 150% - and avoided a default. Even with the help of a second bail-out and a debt rollover, Greece is still likely to default within the next few years, as the country's poor growth prospects and growing debt burden mean that it will be unable to fund itself post-2014.

- It is therefore better for Greece to restructure its debt as soon as possible. Then an honest discussion needs to be had about whether the country can realistically stay inside the eurozone. A restructuring of Greek debt would require the eurozone to enter unchartered territory – and it is impossible to fully identify all the consequences of such a move. However, these doubts will very much remain even under a second bail-out – the various uncertainties associated with the bail-out packages and attached conditions mean that the threat of an eventual default will not go away in any case.

- The cost of restructuring will also increase with time, as Greece's debt burden will only rise over the next few years. To bring down Greece's debt to sustainable levels today, half of it would need to be written off. In 2014, two-thirds of Greece's debt will need to be written off to have the same effect, meaning a radical increase in the cost to creditors.

- Unfortunately, this is a debt crisis and someone will have to take losses. We estimate that the first round effects of a 50% write down on Greece's debt would

[1] Der Spiegel, 'Die Luege von der Stabilen Waehrung', 14 May 2010: http://www.spiegel.de/fotostrecke/fotostrecke-54834.html

cost the European economy between €123bn - €144bn (uncertainty regarding the ECB's exposure accounts for the range). Of this cost, €23.55bn would be a direct cost to taxpayers through bilateral loans under the first Greek bailout as well as indirect costs of between €44.5bn - €65.75bn via ECB guarantees. €28bn will be absorbed by Greek banks, while €27bn by other private investors. However, these are only first round losses. It cannot be emphasised enough that the main cost from a debt restructuring comes in the form of contagion and the knock-on effects of losses throughout the European banking system.

- Although this is a substantial cost, we estimate that in 2014 following a second bailout, a haircut of 69% would be needed, equal to €175bn, to reach the same debt level. Even more critically, via the bail-outs, so-called official sector (taxpayer-backed) loans are gradually replacing private sector exposure. We estimate that, under a second bailout, the share of Greece's debt underwritten by foreign taxpayers (via the EU, ECB and the IMF) will go from 26% today to a massive 64% in 2014. Put differently, each household in the eurozone today underwrites €535 in Greek debt – by 2014 and following a second bailout, this will have increased to a staggering €1,450 per household. On top of this, there are also numerous European banks which are largely taxpayer owned which have significant exposure to Greece (for example the Belgian-French Dexia and German Hypo Real Estate). This makes a second Greek bail-out far more politically contentious than any of the existing rescue packages, given the likelihood of debt write-downs with taxpayers footing a huge chunk of the bill.

1. How exposed are EU countries to Greece?

Any discussion on a potential default or bail-out for Greece must involve the significant exposures several EU countries have to the Greek economy. However, contrary to popular belief, these figures should not automatically be taken as arguments for more bail-outs, but rather as a strong call for finding a viable, long-term solution to the eurozone crisis (see below). The fact is that without such a solution, all these countries will remain exposed to future meltdowns – most likely involving even greater losses for European taxpayers.

Countries are exposed to Greece through various different channels, including the banking sector, the bailout, their defined share in the ECB's bond buying operation – the Securities Markets Programme (SMP) – and the liquidity provided by the ECB to the Greek banking sector.[2]

	Exposure to Greece €bn	
Eurozone:	**Austria**	8.49
	Belgium	9.38
	Cyprus	0.50
	Estonia	0.35
	Finland	4.10
	France	81.73
	Germany	83.76
	Greece	3.89
	Ireland	4.17
	Italy	42.58
	Luxembourg	0.64
	Malta	0.26
	Netherlands	16.12
	Portugal	12.58
	Slovakia	1.38
	Slovenia	1.12
	Spain	26.99

Non-Eurozone:	**Bulgaria**	0.09
	Czech Republic	0.14
	Denmark	0.34
	Latvia	0.02
	Lithuania	0.03
	Hungary	0.14
	Poland	0.23
	Romania	0.14
	Sweden	1.32
	United Kingdom	10.35
	Total	310.84

Source: BIS, ECB, EU National Central Banks, European Commission and Open Europe calculations

The exposures of France and Germany to Greece, coming in at €81.73bn and €83.76bn respectively, are clearly crucial and illustrate the short-term incentives the two governments may have to resist or at least delay a debt restructuring (in a possibly misguided attempt to protect their banking sectors).

Interestingly, heavy exposure is primarily concentrated in a handful of eurozone countries, with many non-eurozone members, for example the UK, only having limited liabilities towards Greece. Judging from direct exposure, this suggests that any UK participation in a potential second Greek bailout should be minimal – although Britain is clearly exposed to German and French banks which would mean that its banking sector would be subject to significant indirect losses should Greece

[2] All figures are calculated using an exchange rate of $1 = €0.685. The banking sector exposures are taken from the BIS consolidated banking statistics, June 2011:
http://www.bis.org/statistics/consstats.htm
Liquidity provided to Greek banks is taken from the Greek Central Bank balance sheet, April 2011:
http://www.bankofgreece.gr/BogEkdoseis/financialstat201104_en.pdf
Exposures through the ECB are calculated using the ECB's contribution key:
http://www.ecb.int/press/pr/date/2009/html/pr090101_1.en.html

default. The figures also demonstrate that relative to their GDP Portugal and Spain, and to a lesser extent Italy, have alarmingly large exposures to Greece, something which needs to be managed carefully under a potential debt restructuring (see below).

2. What are the options for Greece?

Greece has again reached the point where it needs outside help to fund itself – despite the €110bn EU/IMF bail-out given to the country in May 2010. Since the original bailout, Greece has seen its borrowing costs continue to skyrocket, culminating in interest rates on two year bonds reaching 26% – a spectacularly high figure by any account. Germany's rates are around 1.6%.[3] Meanwhile, public outrage at the austerity measures has been growing while the economy has been in free fall, further squeezing any government attempts to save money or increase revenues. The Greek government also missed its deficit target for the first five months of this year by €1.2bn. Therefore, the original bail-out plan, which envisioned the country beginning to borrow from the markets again in 2012, now looks hopelessly optimistic.

Greece	2011	2012
Expected GDP Growth (%)	-0.60	-2.4
Total Gov. Debt (% GDP)	157.7	161.1
Total Gov. Debt (€m)	362,982	370,808
Interest Expenditure (% GDP)	6.7	7.4
Interest Expenditure (€m)	15,421	17,032
Primary Balance (% GDP)	-2.8	-1.8
Primary Balance (€m)	-6,445	-4,143

Source: EU Spring Economic Forecast 2011[4]

In light of the above, eurozone leaders have, in principle, already agreed a second bail-out package for Greece to avoid an unorganised sudden Greek default. Originally, the IMF suggested it would not pay out the next tranche of Greek bailout funds – which Greece needs to avoid an imminent default – unless Greece had guaranteed funding for the next 12 months. In the past few days the IMF has relaxed its position and agreed to dispense the funds but only on the condition that the EU pledge to agree a second bailout and the Greek parliament approves a fresh austerity package. EU finance ministers agreed on June 19th to postpone a decision on whether to pay out the next tranche of EU-funding, to accompany the IMF cash, until the Greek parliament approves a series of fresh austerity measures.

Despite extensive discussions, EU leaders remain split on the precise nature of the second Greek bailout. Germany, supported by the Netherlands and Luxembourg, has made it clear that there must be significant private sector involvement in any new bailout package, although Angela Merkel has now said that such involvement can only be voluntary. The ECB, backed up by France, has suggested that it will not accept a plan which risks Greece being classified as in default by the credit rating agencies (CRAs). The table below outlines the various options that are available to Greece at the moment. Clearly, the most radical alternative would be for Greece to leave the eurozone altogether – something which is no longer inconceivable.

[3] Taken from Bloomberg on 25 May 2011.
[4] These estimates are based on business as usual approach, meaning they don't include the latest round of Greek austerity measures. For our funding calculation we do include the latest austerity measures, explaining why our estimates for the deficits in 2011 and 2012 differ slightly from those in the Spring forecast.

What are the options for dealing with the Greek crisis?				
Option	**What would it involve?**	**Pros**	**Cons**	**Likelihood of being accepted**
Another bailout	- EU/IMF providing further loans, as well as private sector involvement, amounting to €122bn to cover Greece until end of 2014	- Delays default, contains contagion	- Debt becomes even less sustainable - Unlikely to ever be repaid - Massively increases taxpayers' exposure - Huge "double moral hazard"	- Looks likely, but will depend on more Greek austerity measures and consent of Finnish parliament
Bond rollover (Soft restructuring, rescheduling, re-profiling)	- Offer private bondholders, who hold debt maturing in the next few years, the chance to purchase new longer term debt. Completely voluntary (Vienna style initiatives)	- Not viewed as default by CRAs, would not trigger CDS. - If enough accepted, could reduce amount of refinancing needed over the next few years - If formalised and centralised, then may enhance level of involvement[5]	- Debt level still unsustainable - Unclear how much private sector would contribute, leading to uncertainty - Still funding gap over the next few years - Low level of private involvement, meaning moral hazard remains	- Increasingly likely (in combination with a bailout). - Major uncertainty remains over whether private bondholders will accept it
Bond swap (Soft restructuring, rescheduling, re-profiling, but seen as more coercive than a rollover). Most likely in combination with bail-out	- Offer private bondholders the chance to swap out their current bonds for those with longer maturities - Initially viewed as voluntary, but now significant pressure on private investors	- Delays repayments and could reduce the impact of interest on the deficit - More time to recapitalise banks - Will involve private sector burden sharing, could force bondholders to mark bonds to market value	- Debt level still unsustainable - Not much impact if bondholders don't participate, - Still funding gap in the next few years - CRAs would consider it a default, leading to huge downgrades - May trigger CDS [6] - ECB stops accepting Greek debt as collateral	- Unlikely as Germany has given in to pressure from the ECB and France
Relax conditions on bail-out	- Extend timeline for reaching austerity goals	- Guarantees access to full amount of first bailout - Release pressure on Greek public and economy	- Debt level still unsustainable - Very harmful in long run, as leading to more moral hazard and fewer reforms - Greece remains uncompetitive and increases its debt - Interest payments snowball further - Increases likelihood of default	- Very unlikely, IMF, ECB and Germany keen to enforce the conditions

[5] The negotiations could be conducted at the EU or national level, as well as on an ad hoc basis or through a formalised mechanism with a set negotiating period etc. If the process was centralised and formalised then the EU as a whole may have a stronger negotiating position and may be able to gain bigger advances in private sector participation. However, this process could also be seen as more coercive and may require ex ante commitments from the private sector meaning it is more likely to be judged a default by the CRAs.

[6] CDS refers to Credit Default swaps, essentially a form of insurance on Greek government debt which will pay out if Greece defaults. In some cases a voluntary soft restructuring can be designed to avoid this outcome, however, whether the CDS pay out or not will be determined by the International Swaps and Derivatives Association.

Full restructuring	- Impose write downs onto official sector and private sector debt (would need to be involuntary)	- Brings debt to a sustainable level - Cuts cost of interest payments - Shares burden between taxpayers and bondholders - Reduces pressure for massive (and unrealistic) austerity, which will reduce political unrest. - Less moral hazard, for Greece and bondholders - Quells rise of anger in core countries at bailing out periphery. - Already being priced in by financial markets - Will only get more expensive as time goes on and looks to be inevitable so better to do it sooner.	- Risk of contagion to other peripheral countries - Could impose significant primary and secondary effects on the European banking sector - Widespread downgrades across Europe likely to follow - May lead Ireland and Portugal to restructure immediately - Would be some cost to taxpayers as official loans face write downs. - Greek banking sector goes bust, needs to be nationalised and consolidated, would no longer get ECB funding	- Unlikely before 2013. More likely once ESM comes into force. [7]
Leaving the euro	- Greece leaves Eurozone, returns to Drachma (could be temporary)	- In long run may be cheaper and more palatable than permanent fiscal transfers from core - Regains ability to devalue and set interest rates (will help restore competitiveness) - Independent central bank could extend liquidity to banking sector - Would be in tandem with default so some debt relief	- Massive bank run, money flows away from Greece and possibly EU - Banking sector will need to be nationalised to avoid collapse - Likely massive inflation from devaluation - Legal issues over denomination of debt (both govt and commercial) - Shut off from financial markets for substantial amount of time - Massive contagion to other peripheral economies, borrowing costs skyrocket	- Not currently being considered. Would need a disorderly default to force it at this point

[7] ESM refers to the European Stability Mechanism, the Eurozone's permanent bailout fund. This will come into force in 2013 and has a planned lending capacity of €500bn. However, any funds dispersed will come with strict conditions, specifically the ESM treaty makes it clear that it will be highly likely that any dispersal of funds will be accompanied by some form of private sector involvement.

3. How large would a second bailout of Greece need to be?

Our calculations suggest that a second bailout of Greece would need to amount to around €122bn (broken down in the table below). This is *in addition* to the remaining payments scheduled under the original bailout, the deficit cutting in the medium term fiscal strategy, the €50bn privatisation plan and some level of short term debt issuance. If the second bailout were to replace the first (and payments from first bailout were halted), it would instead need to be around €165bn, while if (on top of this superseding) the privatisation and medium term fiscal plan failed, this could jump to €210bn (admittedly a worst case scenario).

Greek Finances (€bn)	2011		2012				2013	2014	Total
	Q3	Q4	Q1	Q2	Q3	Q4	Q1-Q4	Q1-Q4	
Current bailout disbursements	8	5	10	6	6	2	6	0	43
Debt Maturing									220.8
of which long term	7.1	3.1	14.7	9.7	8.3	2.3	36	58	139.2
of which short term	8.9	10.2	7.5	5	8	10	16	16	81.6
Assumed short term issuance	8	9	2.5	5	4.5	4	16	20	69
Government deficit	7.2	2.9				17	11.4	6.4	44.9
Privatisation receipts		5.5				6	5.5	15	
Total Funding gap	7.2	-3.3	9.7	3.7	5.8	17.3	35.9	45.4	**121.7**

Source: Greek Public Debt Management Agency, EU DG for Economic and Financial Affairs and Open Europe calculations.[8]

As mentioned above, it looks likely that there will be at least some token private sector involvement in a new bailout plan. However, it is nearly impossible to estimate how many of the private sector bondholders would choose to be involved, given the uncertain nature of both a bond swap and a bond rollover. In effect, this means that EU leaders themselves must make some pretty heroic assumptions when estimating how much money Greece can expect from the private sector.

Leaked documents to the press as well as comments by members of the German and Dutch governments suggest that the aim will be to ensure that 30% of the cost is accounted for by private sector involvement – which looks like a very optimistic target.[9]

If this is indeed what EU leaders are aiming for, under our bailout estimate of €122bn, around €37bn would need to be accounted for by the private sector. Without a detailed breakdown of who exactly holds Greek debt and at what maturities, we cannot accurately predict where this money could be found. The most likely participants are Greek banks and other financial institutions based in Greece, since their stability is inherently linked to the stability of the Greek state. Foreign bondholders may be less likely to accept the deal since they have less of a vested interest. In addition, they may fear a full debt restructuring in the near future and want to reduce their exposure while they have a chance (rather than face losses on the bonds they hold). The French government seems to have already convinced the larger French banks to take part in any rollover of Greek debt, which could make up

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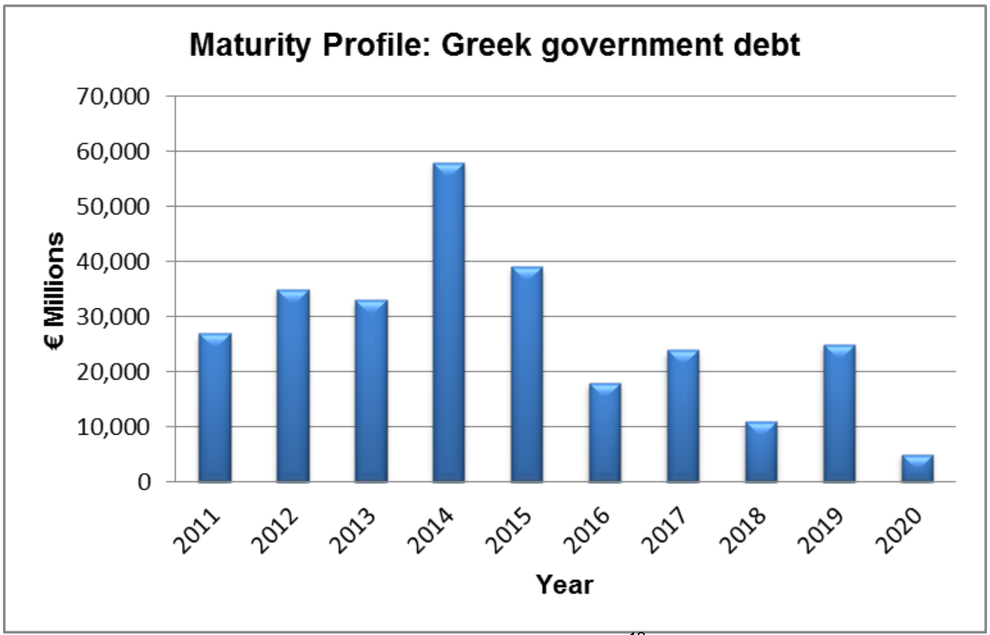
[8] EU DG for Economic and Financial Affairs, 'The Economic Adjustment Programme for Greece Third Review – Winter 2011', February 2011, available at: http://www.minfin.gr/content-api/f/binaryChannel/minfin/datastore/a2/f2/8d/a2f28d7261924a4646941d12f45595cae0d4d0df/application/pdf/ocp77_en.pdf and http://ftalphaville.ft.com/blog/2011/05/09/563286/the-guilty-greek-maturities/

[9] Cited by the *FT*, 'New Greek bank plan set to cost €20bn', 14 June 2011: http://www.ft.com/cms/s/0/04b0a7d2-95e0-11e0-ba20-00144feab49a,dwp_uuid=2b8f1fea-e570-11de-81b4-00144feab49a and http://www.ft.com/cms/s/0/2121fe54-96b5-11e0-baca-00144feab49a.html#axzz1PKnJFA85 and http://www.eubusiness.com/news-eu/eurozone-finance.amq

part of the private sector involvement in a second bail-out. Importantly, the rollover would produce fewer savings than the bond swap but is much more likely to happen[10].

4. Why Greece will default even with a second bail-out

Even with a second bail-out, we still expect the country to default after 2014 – if not before – when the money given to the country from the second bail-out package runs dry. Given the country's large amount of maturing debt, its continued large deficit and poor growth prospects, we do not see how Athens will be able to borrow at affordable rates in 2014 or 2015.[11] There are three main reasons why we expect Greece to eventually default.



Source: Greek Public Debt Management Agency[12]

- Firstly, the bailouts are a symptom of Greece's debt trap, in which it remains stuck. Even with the massive economic adjustment, it will be close to a decade before Greece can achieve a growth rate needed to simply pay off the interest on its debt (at the moment, Greece pays 4.25% average interest rate on its debt). Due to the massive austerity measures and internal devaluation (meaning squeezes on jobs and wages at home), it is likely Greece will face limited economic growth for some time, meaning very limited tax revenues, while the country's GDP is expected to shrink further. This also means that the overall stock of debt and interest payments will become larger relative to GDP or revenues.[13] Interest payments will also continue to add to the debt burden since

[10] According to a leaked Commission document seen by the *FT* and IMF estimates, a bond swap would get greater participation due to its more coercive nature and would therefore generate high savings, since the pay out on more debt would be delayed.
[11] http://www.nomura.com/research/getpub.aspx?pid=370162
[12] Greek PDMA, break down of government debt maturity profile and short term debt issuance: http://www.pdma.gr/%28S%285lastlqd35woak55y1kh4zah%29%29/ODDHX/StaticPage1.aspx?pagenb=471
[13] This figure is based on the EU Spring Economic forecast estimates of the interest which Greece will pay on its total debt stock this year. In its third review of the Greek adjustment programme the IMF put Greek GDP growth at under 3% in 2016, suggesting it has some way to go before it tops 4% (although admittedly this is just part of the equation, but highlights the key problem behind the debt snowball).

they are not countered by inflation or growth in revenues. Simply put, something will have to give.

- Secondly, although the maturity profile looks heavily frontloaded, which contributes to the massive size of the bailout, under the debt rollover or swap plan some of this maturity will be shifted towards 2020. Although this may help reduce the level of direct loans needed it will not ultimately change the chances of a Greek default. In fact, combining some form of debt rescheduling with a large package of bailout loans will simply shift the peak of debt maturing to a later date and may even increase the level of debt maturing in quick succession. Even if it is able to return to the markets it would face a substantial amount of debt which needs to be refinanced. Ultimately, Greece will remain insolvent despite a boost in liquidity and will not be able to fully repay its loans.

- Thirdly, our figures for Greece's financing needs are based on a series of optimistic assumptions, including that the country will:
    - Achieve its deficit reduction targets,
    - Match its privatisation plan in both speed and value
    - Implement the necessary austerity measures and labour market reforms to boost economic growth, in the face of growing political and social unrest at home

In the absence of all these targets being met and if the initial bailout payments are not fulfilled, Greece's funding gap will increase to roughly €210bn, meaning that a second bailout will not even be enough to cover Greece until 2014. This will radically increase the risk of a Greek default.

5. Greece should restructure as soon as possible

So for all intents and purposes a restructuring is – as we have also predicted elsewhere – inevitable.[14] Instead of continuing to tread water, Greece should seek to restructure as soon as possible. As difficult a challenge as it is, EU leaders should therefore seek to agree on an arrangement which could allow this to happen in an orderly manner, rather than yet another bailout. Following a restructuring, there must also be an honest discussion about whether Greece should remain inside the eurozone.

There should be no doubt that a restructuring of Greece's debt would require the eurozone to enter unchartered territory – and it is impossible to fully determine all the consequences of such a move. However, similar uncertainties will very much remain even under a second bail-out. For example, will Greece be able to push through the additional austerity measures (upon which the second bailout is based)? How much money will it be able to raise from its privatisation programme? Will EU leaders agree to a third bailout should Greece fall short of its targets? How will the EU's orderly default mechanism – the ESM – that will be introduced in 2013 work in practice?[15] As long as these questions remain unanswered, the threat of a default will linger.

A restructuring will, once and for all, reduce the debt burden in Greece and at least give it some chance to get back on the path to debt sustainability. In its absence

[14] Open Europe research, 'EU proposal for a Greek restructuring will not end Greece's or the euro's problems', February 2011, available at: http://www.openeurope.org.uk/research/greekrestructuring.pdf
[15] In a recent leaked version of the ESM draft there were significant inconsistencies and numerous areas still need to be made clear, particularly over the seniority of ESM loans and the role of the contributions from struggling eurozone economies. Recent discussions have suggested that ESM loans may not be senior after all, most likely due to fear of widespread downgrades from the CRAs.

Greece will remain stuck in a debt trap (taking on new debt to pay off old debt) or continue to be subject to a debt snowball effect (the difference between the interest rate paid on the current stock of government debt and the nominal economic growth rate). Furthermore, a restructuring will tackle the moral hazard problems and help share the burden between investors and taxpayers.

6. Delaying the inevitable will increase the economic and political costs

Many people have used other EU countries' large exposures to Greece as an argument against restructuring. However, this is based on the mistaken premise that the bailouts actually offer a solution to the real problems. The truth is that a second Greek bailout would only increase the economic and political cost of keeping the eurozone together.

Increasing the economic cost

While there are some strong arguments for delaying a debt restructuring until 2013/2014 when there is a (supposedly clear) mechanism to deal with it, a second bail-out clearly raises the overall economic cost of an inevitable default:

- We estimate that if imposed today, a 50% haircut on Greek debt would make the country's debt burden just about sustainable (giving it a debt to GDP ratio just above 90%). In 2014 the haircut needed to bring Greece's debt down to this sustainable level would need to be around 70% to get to the same level.[16] This is supported by the EU's own spring forecast projections for Greek debt over the coming years, which shows that debt still has some way to go before it peaks.

- The cost of a restructuring to taxpayers, as opposed to private investors, will only continue to increase as EU, IMF and ECB loans (known as official sector loans) replace private sector ones. By 2014, about 64% of Greece's debt will be underwritten by foreign taxpayers via the EU, ECB and the IMF. Put differently, each household in the eurozone today underwrites €535 in Greek debt – by 2014 and following a second bailout, this will have increased to a staggering €1,450 per household.[17] (These figures themselves are not costs; simply highlight how much more debt will be on the books of taxpayer backed institutions. For the cost of a restructuring see section 7 below). On top of this, there are also numerous European banks which are largely taxpayer owned which have significant exposure to Greece (for example the Belgian-French Dexia and German Hypo Real Estate). This makes a second Greek bail-out far more politically contentious than any of the existing rescue packages, given that the potential losses for taxpayers will radically increase.[18]

- There is also no legal stipulation that the EU bailout loans are senior to other private sector debt. Only the IMF is officially senior, meaning it will not face write downs (which we account for in our estimates). Under our scenario the rest of the official sector debt is seen as *pari passu* to private sector debt.

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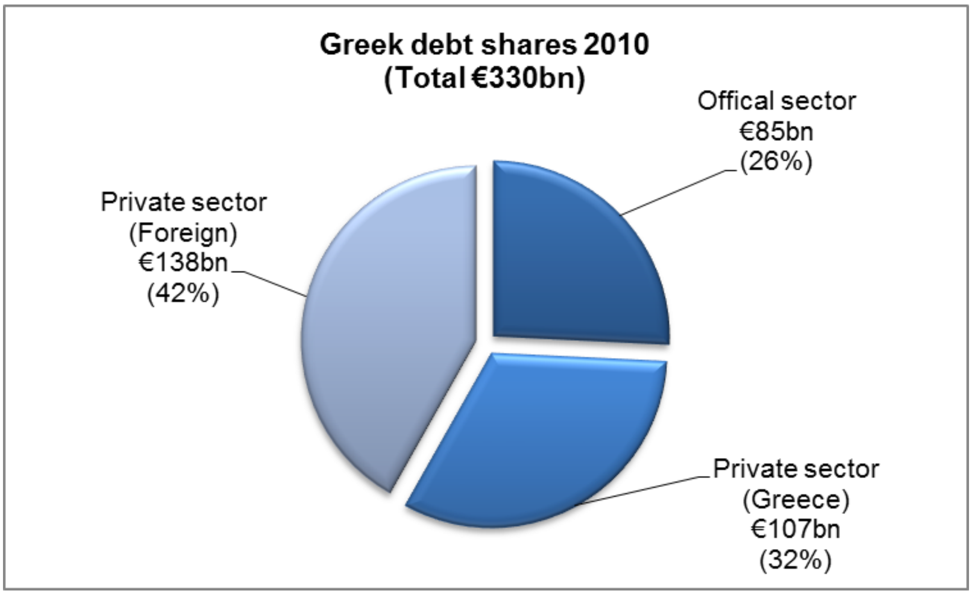
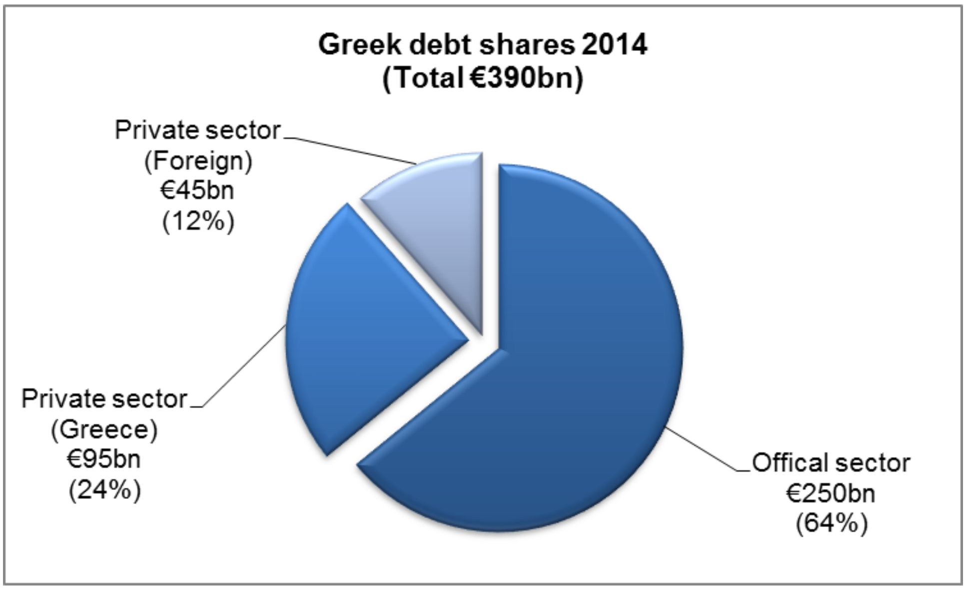
[16] Citigroup, 'Hellenic banks: Fancy a haircut?', Equities, 20 April 2011. Citigroup estimates that, similar to our scenario above, a 52% haircut would be needed this year to get Greece to a sustainable debt level (around 90% of GDP initially). By 2013 the haircut would need to be 68% to reach the same sustainable debt level.

[17] Household figures are calculated from Eurostat official statistics on eurozone population and average number of people per household. Accessed on 19 June 2011: http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/

[18] These estimates are based on similar calculations by Citigroup, as well as the projected growth of Greek government debt by the EU/IMF and take account of our bailout scenario.





- Moreover, the choice to establish the ESM – and therefore the main tool for an orderly debt restructuring – in 2013 is an arbitrary date in economic terms, since it is designed to postpone the issue until after the German and French national elections. Therefore, the argument that banks would be in a better position by 2013 is not entirely credible. The fact that Germany is already pushing hard to water down the new Basel III banking regulations, which will not come into force fully for a few years suggests that German banks will continue to be under-capitalised and exposed to weaker eurozone economies. The truth is that banks have had more than enough time to recapitalise, deleverage, decrease their exposure to Greece and adequately prepare for potential losses. These banks should no longer be offered protection from losses.

- There is also a significant double moral hazard from issuing another bailout. First, it yet again bails out the country which not only spent excessively to get itself into the current position but has also failed to tackle the problem despite already receiving ample amounts of aid. Secondly, bondholders are also bailed out once more and protected from taking losses on their bad investments, while taxpayers continue to offer the guarantees which maintain the value of their bad assets and further increase exposure to the Greek crisis across the EU.

Increasing the political cost

Perhaps even more critically, extending a second rescue package to Greece would be political dynamite. There is brewing resistance in several creditor member states against the existing bail-outs, as illustrated by the rise of populist, anti-euro parties in countries such Finland, the Netherlands, France and Austria.

- A second Greek bail-out would be far more contentious than any of the existing rescue packages, since the conditions attached to the first rescue package haven't been met and a large chunk of the loans given to Greece in a second bailout stands a huge risk of never getting repaid. Again, the fresh cash injection would at best carry Greece over to 2014, after which the country looks increasingly likely to default.

- Given that the existing bail-outs – which have involved loan guarantees and not up-front cash – have caused so much resistance already, it would be a major political gamble for EU leaders to embark upon a second Greek bail-out, knowing that they could well not see this money ever again.

- At the other end of the spectrum, a new bail-out also rests on the condition that Athens will be able to continue to squeeze its own population. Given the resentment that the austerity measures attached to the first bail-out package have caused so far, imposing even more cuts could lead to major political repercussions.

- The fact that these loans may never be repaid also poses a significant legal challenge for the EU. Despite many people suggesting the original Greek, Irish and Portuguese bailouts were specifically prohibited by the EU Treaties, officials and politicians have maintained that since they are merely loans they do not break the no-bailout clause. However, once these loans result in losses, this line of argument becomes void and the EU must surely answer for breaking the laws laid out in the Treaty.

7. What could a restructuring cost EU banks and governments?

There are a number of options on the table for what a restructuring would look like, ranging from full scale involuntary debt restructuring to a soft "re-profiling" (see above). Ultimately, it looks likely that a full hard restructuring will be needed to return Greece to a sustainable fiscal situation. Below we estimate how much a restructuring at the current point in time might cost various creditors across the EU. There are three main costs, and given the huge uncertainty associated with a default, only one is even close to quantifiable:

- *First round effects:* These are the direct losses which banks and governments will face on their holdings of Greek debt. This also includes the ECB/Eurosystem exposure through its Securities and Markets Programme and liquidity provision to Greek banks, since any losses it faces will likely be passed onto eurozone national central banks.

- *Second round effects:* These are the indirect or knock-on effects triggered by a Greek debt restructuring, such as the increased cost of borrowing for other peripheral economies, as well as for commercial interests in Greece or with close ties to the Greek economy. The likely collapse or nationalisation of the Greek banking sector would also send shockwaves through the European banking system. Some European banks would need to be recapitalised and the ECB would be likely to have to continue offering unlimited liquidity to banks.

- *<u>Insurance on Greek debt:</u>* The smallest impact would be the use of credit default swaps as insurance against a Greek default. This could help those who bought them mitigate any losses from a Greek restructuring, but would impose losses on the sellers. Since the market is so opaque it is hard to know who has been selling or buying these instruments. However, the size of the market is not thought to be substantial compared to the other impacts.

While any attempt at quantifying the cost of restructuring comes with a huge number of caveats – the risk of producing under-estimates should always be borne in mind – it is nonetheless important to do so in order to identify which parts of the EU economy would take the biggest hit, and therefore needs special attention *before* the restructuring takes place. As noted above, in order for Greece to get its debt down to sustainable levels – at least 90% of debt to GDP – we estimate that it needs a 50% write down (at least on debt held by the EU, IMF, ECB and European banks). Under this scenario, the total cost to the EU economy of the *<u>first round effects</u>* from a debt restructuring would be between €123bn - €144bn. These costs will be spread between the private sector (banks) and the public sector (governments via the bail-outs and their guarantees of the ECB). The table below sets out how these losses will be shared between EU member states.

Initial cost of restructuring per country (€ bn)

	Private sector	Public sector			Total	
		Direct (bailouts)	*Indirect (ECB)*			
AT	0.39	0.69	1.27	1.88	2.35	2.96
BE	2.33	0.86	1.59	2.35	4.78	5.54
CY	2.42	0.06	0.09	0.13	2.57	2.61
DE	9.34	6.59	12.39	18.31	28.33	34.25
DK	0.05	0.00	0.00	0.00	0.05	0.05
EL	28.07	0.00	0.00	0.00	28.07	28.07
ES	0.51	2.90	5.43	8.03	8.84	11.44
FN	0.01	0.45	0.82	1.21	1.28	1.67
FR	5.81	4.95	9.31	13.75	20.08	24.52
HN	0.00	0.00	0.00	0.00	0.00	0.00
IE	0.02	0.40	0.73	1.07	1.15	1.49
IT	0.89	4.35	8.18	12.08	13.42	17.32
LU	0.08	0.08	0.11	0.17	0.27	0.33
MT	0.00	0.04	0.04	0.06	0.08	0.10
NL	1.57	1.40	2.61	3.86	5.58	6.83
PL	0.00	0.00	0.00	0.00	0.00	0.00
PT	0.87	0.62	1.15	1.69	2.64	3.18
SK	0.20	0.00	0.45	0.67	0.65	0.87
SI	0.01	0.13	0.22	0.32	0.36	0.46
UK	2.49	0.00	0.00	0.00	2.49	2.49
Total	55.06	23.55	44.50	65.75	123.00	144.19

Source: Open Europe Calculations

Interestingly, we can see that maximum first round direct and indirect impact on total official sector loans would be around €89bn (€23.55bn plus €65.75bn). This is essentially the cost to European taxpayers. Under our estimates, we expect that a second Greek bailout would need to involve official loans of around €85bn, to get Greece through to the end of 2014. This suggests that the commitment of European taxpayers under a restructuring could be similar to that of a second Greek bailout, but it would also offer a long term solution rather than simply a stop-gap measure. These may only be the first round effects of a restructuring and there are many other variables. However, these estimates can serve to highlight that the continuing bailouts are in the same order of magnitude as the cost of restructuring.

Cost to the banking sector

Banking sector write downs from 50% Greek restructuring (€m)	
AT	388
BE	2,328
CY	2,419
DE	9,341
DK	46
EL	28,074
ES	508
FN	11
FR	5,812
HN	0
IE	21
IT	889
LU	76
MT	4
NL	1,569
PL	0
PT	870
SE	200
SI	13
UK	2,491
Total	**55,058**

Source: CEBS, Goldman Sachs, Citigroup and Open Europe calculations[19]

Under our scenario the main Greek banks could face losses of €28bn, which is estimated to be over 80% of their Tier 1 capital. This means that the entire sector would need to be re-built and recapitalised – and possibly even nationalised – before embarking on a series of asset sales and consolidation.[20] These losses also highlight the concerns of contagion, particularly in countries such as France and Germany given their large exposures to Greece. However, this is not in itself an argument against restructuring.

Firstly, similar to the cost for Europe as a whole, the cost of rescuing the Greek banking sector will go up the longer a restructuring is put off, as it may well be asked to take on even more Greek government debt (incurring even greater losses once the Greek government defaults). Secondly, it would also be incredibly beneficial for the Greek economy in the long run to create a healthy banking sector for itself. At the moment, the Greek banking sector is effectively on life support, surviving solely on ECB lending. Continuing to prop up an unsustainable banking system benefits no one – neither the Greek economy nor the ECB itself (see below). Thirdly, the flight of deposits from the Greek banking sector has become a serious problem during the

[19] The majority of the data comes from the figures which banks released during last year's CEBS stress tests. Banks declared their holdings of sovereign debt in both trading and banking book. This data is updated when and where possible using the latest figures from the banks themselves or from other compilations of the data, such as those done by Goldman Sachs and Citgroup.
Goldman Sachs, 'European bank exposure to Greece revisited', 20 April 2011.

[20] Since no one else, other than the ECB, would take on Greek government debt the Greek banks were forced to perform the task. They then used this debt as collateral to borrow from the ECB cheaply.

course of this year, with households and corporations withdrawing more than €12bn in the first four months of 2011[21] - on top of €28bn reduction in deposits last year.

Meanwhile, just like their German counterparts, Greek banks have to also begin deleveraging and increasing their capital holdings. In essence, preserving a failed and inefficient banking sector which may not even be able to maintain its credit provision makes no sense.[22]

There will also probably be costs to other financial institutions in Greece and around Europe, such as pension and hedge funds as well as insurance companies. Their losses are very hard to quantify since there is little data available on which firms are holding Greek debt and whether these institutions have been increasing or decreasing exposure. In any case these firms, especially those outside Greece, are the least likely to accept a voluntary restructuring since they subscribe mostly to the will of investors.

Cost to governments (and taxpayers)

Eurozone bailout loans (€bn)		
	Loans	**Write downs**
Austria	1.38	0.69
Belgium	1.72	0.86
Cyprus	0.13	0.06
Finland	0.91	0.45
France	9.91	4.95
Germany	13.19	6.59
Greece	0.00	0.00
Ireland	0.81	0.40
Italy	8.70	4.35
Luxembourg	0.16	0.08
Malta	0.08	0.04
Netherlands	2.80	1.40
Portugal	1.25	0.62
Slovakia	0.00	0.00
Slovenia	0.26	0.13
Spain	5.80	2.90
Total	47.10	23.55

Source: European Commission and Open Europe calculations

EU governments originally provided bilateral loans to Greece (as the first Greek bailout predated the creation of the European Financial Stability Facility). However, the next rescue package for Greece will come through the EFSF. Together with the original bilateral loans the Eurozone countries will then have provided loans of €47.1bn to Greece. This does not include contributions via the IMF as any such loans are senior to EU and private sector loans (we have therefore not included IMF loans in our estimates for how much first round effects cost of debt restructuring would cost). As we note above, the exact status of the EU-loans remain unclear but they

[21] Bank of Greece, statistics on credit institutions deposits, accessed 17 June 2011: http://www.bankofgreece.gr/BogDocumentEn/Deposits_sector.xls
[22] These fears were also recently expressed by Standard & Poor's, and formed the basis for their downgrade of four leading Greek banks: http://www.standardandpoors.com/prot/ratings/articles/en/eu/?assetID=1245306332279

will not be specifically senior to privately held debt, meaning that these official loans will likely face write-downs.

Cost to the ECB (and potentially taxpayers)

As we have noted elsewhere,[23] the ECB also stands to face significant losses should Greece default. Through its bond buying programme and its collateralised lending to Greek banks, we estimate that the ECB/Eurosystem has taken on €190bn in Greek assets. These would face significant write downs under a restructuring. Unless it changes its own rules (which could happen), any losses which the ECB/Eurosystem faces would be shared out amongst eurozone national central banks based on their share of the ECB's capital; therefore this cost would ultimately be transferred to taxpayers.

Cost of a Greek restructuring to the ECB (€m)				
	Holdings (nominal)	**Holdings (purchase price)**	**Write downs**	**Losses**
Greek govt. bonds (SMP)	60,000	42,000	30,000	12,000
Greek govt. bonds (Collateral)	45,000	33,750	22,500	11,250
State backed bank paper (Collateral)(50% recovery rate)	85,000	63,750	42,500	21,250
State backed bank paper (Collateral)(25% recovery rate)	85,000	63,750	63,750	42,500
Total	190,000	139,500	95,000 - 136,250	44,500 – 65,750

Source: JP Morgan, Citigroup and Open Europe calculations[24]

[23] Open Europe, 'The ECB and the Hidden cost of saving the euro', June 2011: http://www.openeurope.org.uk/research/ecbandtheeuro.pdf

[24] JP Morgan, Global Asset Allocation, Flows and Liquidity, 'Who are the losers from a Greek restructuring?', 6 May 2011 and Citigroup, Equities, 'Hellenic Banks: Fancy a haircut?', 20 April 2011.

Annex I: What would the UK's liabilities be under a €85bn bailout of Greece?

The UK will take part in the second bailout of Greece due to its commitments through the IMF. It is unlikely that the UK will be forced to commit more through its share of the European Financial Stabilisation Mechanism as no proposal has yet been tabled that would involve the activation of this fund. The original Greek bailout also took the structure seen below in Scenario 1, suggesting that a second rescue package would mirrior this arrangement. The UK government has also clearly indicated that it does not expect to contribute to a second bailout. Therefore, the UK's liabilities are likely to be around €1.28bn under a €85 billion bailout. [1]

UK contribution to second Greek bailout	
Scenario 1 Two way split between EFSF and IMF (€60bn and €25bn respectively) **UK liabilities: €1.125m** IMF – €1.125bn	**Scenario 2 (unlikely)** Three way split between EFSM, IMF and EFSF (€11bn, €22bn and €52bn respectively) **UK liabilities: €2.508bn** EFSM – €1.518bn IMF – €990m

Source: Open Europe calculations and European Commission.

There is, however, a theoretical possibility that the EFSM could be used since its activation is decided by qualified majority voting, meaning that first, the UK cannot veto it and secondly, it is easier for EU leaders to get off the ground should one particular country have problems pushing through a rescue package due to domestic constraints. Germany has previously been calling on the whole EU to be involved in the second Greek bailout, but has recently toned down such demands.

Regardless, following the bailout of portugal, the EFSM would not have enough funds left to cover an equal three way split of the bailout, meaning that (without a decision by EU leaders to increase its funding capacity, which again, will be decided by majority voting) this structure isn't possible for a second Greek bailout. If the EFSM were to be invoked, then the bailout may take the form seen in Scenario 2, where whatever is left in the EFSM (around €11.5bn) is used and the rest is covered by the EFSF and the IMF. This would leave the UK with a liability of €2.5bn, but again, this arrangement is now looking highly unlikely.

[1] The UK has the sixth highest exposure, the overwhelming majority of which comes from the banking sector and represents a very small percentage of the overall size and capital holdings of the UK banking sector. The rationale for participating in a bailout is that it protects your economy from substantial and detrimental losses if the other country were to default. In the UK's case it looks likely that any money it guarantees would simply be protecting the banking sector, which many people would not support. The actual cost to the banking sector will be discussed in the next section.

Annex II: Methodology

Total Exposures

To calculate the total exposures of EU countries to Greece, we started with the latest data from the Bank of International Settlements, which highlights the exposure of different banking sectors to countries around the world, including the EU. We then added each country's share of the current Greek bailout, based on the contribution keys specified in the regulation establishing the provision of aid to Greece, as well as each country's share of the IMF bailout fund. Furthermore, we added the exposure of eurozone countries through the ECB. This meant attributing the loans which the ECB has provided to the Greek banking sector to each eurozone member based on their contribution to the ECB. This essentially highlights what share of loans each member state has indirectly guaranteed, this is not directly at risk and is not likely to become a cost.

Size of the bailout

The Greek government estimates its primary balance to be 0.9% of GDP in 2012; however, this seems extremely optimistic given the continuing deficit halfway through 2011.[25] Even in the very optimistic case that Greece manages to balance its primary budget in 2012, we still expect an overall deficit of -7.4% of GDP due to interest payments on debt, which is increasing. This gives a government deficit of €17bn in 2012. There is little evidence of the interest payments falling since total Greek debt continues to rise and any new debt issued comes at a significant cost.[26] Estimates for 2013 and 2014 are even more uncertain, however, we are using the government target and EU/IMF/ECB target of €11.4bn and €6.4bn given the implementation of the current bailout programme. Given Greece's recent struggles to meet the requirements of this programme achieving this deficit is far from guaranteed.

In addition to payments under the first bail-out, we estimate that Greece will need €122bn to fund its financing gap up to 2014. We have accounted for the current bailout contributions, the privatisation plan and the medium term fiscal strategy as well as some issuance of short term debt.[27]

As is clear in the table above, there is also a significant level of debt maturing during this period. According to the EU's own figures, Greece will need to repay €35bn in long term debt in 2012, €36bn in 2013 and €58bn in 2014. The short term debt maturing is also substantial, €30.5bn in 2012, €16bn in 2013 and €16bn in 2014 – this is based partly on the rollover of the assumed short term debt sales the year before but also on the EU/IMF/ECB estimates up to the first half of 2013. This gives a total of €220bn in debt maturing. As mentioned, we have estimated that Greece will

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[25] Greek Public Debt Management Agency: http://www.minfin.gr/content-api/f/binaryChannel/minfin/datastore/b1/62/3a/b1623a6c1b61846f144e5337988f0d69daa6ea00/application/pdf/20101118_budget+2011_EN.pdf

[26] http://www.minfin.gr/portal/en/resource/contentObject/contentTypes/genericContentResourceObject,fileResourceObject,arrayOfFileResourceTypeObject/topicNames/budgetExecutionBulletin/resourceRepresentationTemplate/contentObjectListAlternativeTemplate#

[27] Under the original bailout the EU assumed Greece would return to the markets in 2012. Since this is clearly not the case (otherwise why would we be discussing a bailout) we have assumed Greece will not issue any long term debt for the duration of the next bailout (an assumption the EU also made during its estimate and assessment of the current bailout). The EU also estimated Greece would sell €58bn in short term debt over the period mid-2011 – mid 2013, however, this seems overly optimistic. During 2010 Greece was able to sell €18bn in short term debt and has sold around €10bn so far this year. Therefore we expect Greece may manage to sell around €69bn in mid-2011-2014. Even this amount, given the current interest rates of around 5%, would cost Greece close to €3.45bn in interest.

be able to sell €69bn in short term debt over this period and so should be able to rollover some of the expiring short term debt. The long term debt maturing is taken from the Greek PDMA maturity profile of existing Greek debt. The short term issuance is based on Greece continuing to simply rollover its short term debt as well as what looks to be realistic levels of short term debt sales given wavering demand and rising interest rates. In its third review of the Greek program the EU/IMF/ECB take an overly optimistic view on the level of short term issuance, estimating that Greece would be able to sell €57.7bn in short term debt between mid-2011 and mid-2013. This seems completely unrealistic (and increasingly expensive) since Greece has only managed to issue around €20bn max in recent years and is on course for less than that this year. Given that interest rates on short term debt have now reached 5%, we expected that Greece's actual short term issuance will be much smaller, particularly under a second bailout where they can get long term funding for close to the same rate.

Therefore, Greece will need €122bn from a bailout if it is to avoid a default or restructuring before the end of 2014. It is important to consider that this scenario makes no provisions for the possible needs of the ailing Greek banking sector. The ECB would have to continue to provide unlimited liquidity to Greek banks to ensure that they do not collapse before 2014 and bring down the Greek economy with them. This is ostensibly a separate indirect cost of the bailout approach. It is also possible that a second bailout could attempt to recapitalise the banking sector which would increase the size of the bailout by tens of billions of euros. A recent Commission paper leaked to the FT suggested that under the German plan for a bond swap Greek banks would need around €15bn - €20bn in new capital to account for losses on Greek bonds (mostly having to mark them to market on their books).

The privatisation receipt estimates are taken from the Greek government's medium term fiscal plan. This is a best case scenario by most estimations, the same is true of the deficit figures we use and the fact that Greece continues to receive the rest of its original bailout funds.

Share of Greek sovereign debt

The breakdown of where Greek sovereign debt was held at the end of 2010 comes from Citigroup estimates, European Commission estimates and the data on banks holdings of sovereign debt from the CEBS stress tests. The estimates for 2014 are based on: firstly our bailout scenario and some level of private sector involvement. We expect that Greek banks and non-banks will be the most likely to roll over their maturing debt, while the ECB is thought to hold mostly longer dated bonds from its SMP programme. Even if the ECB were holding some short dated bonds, it would likely face significant pressure to rollover these holdings, especially if other private sector involvement fell short. Foreign bondholders are expected to decrease their holdings of Greek government debt as quickly as possible, especially once a second bailout is instituted. The overall levels of Greek debt line up with the EU Spring Economic forecast 2011. The exact shares for 2014 are tough to estimate and are based on figures from Citigroup, although adjusted for our specific bailout scenario. The official sector refers to debt held by the EU, IMF and the ECB. The most important part of these figures is the debt issued by the EU/IMF, particularly under a second bailout. The other shares could change and ECB could attempt to wind down the SMP and shed its holdings quicker than expected (although unlikely as it would have to book large losses since the price for Greek bonds is very low and demand is close to non-existant on the private market). In any case, the shares may shift but the key factor in our argument is the substantial size of the taxpayer backed loans from the EU/IMF.

Cost of restructuring

Calculating the cost and impact across Europe of a debt restructuring in Greece is difficult, not least due to a lack of transparency and data. Nearly the only time where banks fully revealed their holdings of Greek debt was during the previous round of European stress tests.[28] To calculate the cost of restructuring we have imposed write downs on these holdings as well as to the bailout loans granted by eurozone members in May 2010. In both cases the haircut applied is 50% since this seems to be the amount expected by financial markets and it is also the minimum amount necessary to bring the Greek debt back to a sustainable level (under 90% debt to GDP ratio).

Calculating the cost of a Greek debt restructuring to the ECB comes with a number of caveats, particularly due to the lack of publicly verified data. In our analysis the ECB holdings are split into three parts: Greek government bonds bought through the Securities Markets Programme (SMP), Greek government bonds posted as collateral with the ECB and Greek state backed bank paper also posted as collateral. All of these will see significant decreases in value if Greece were to restructure. We assume a 50% haircut on Greek government debt; this is based mostly on the fact that this is the level of haircut which would be needed to get Greek debt levels back to a sustainable point (90% of GDP). It is also based on comments by Moody's following their recent downgrading of Greek debt, that evidence suggests that post default recovery rates average around 50% (although it does give a wide range).[29] Furthermore, the price of Greek debt on secondary markets combined with the trading of recovery swaps suggest that any restructuring is expected to be of the magnitude of around 50%.

We expect that the bonds bought through the SMP were done so at a significant discount, around 30% (explained above). That means under our 50% haircut scenario the actual loss to the ECB will be 20%. For the collateral a similar rule applies since the ECB has made sure that loans to Greek banks are overcollateralised, taking around 135% of the loan in collateral. The haircut applied to Greek government bonds as collateral is around 13.8%, while the haircut on state backed bank bonds is up to 38%, this supports our estimate for the level of overcollateralization. This means that the actual realised loss will only be 25% since some will be absorbed by the extra collateral.[30] However, we also had to consider that while the 50% haircut would be directly applied to the holdings of government bonds, both those taken as collateral and those bought directly, the same may not be true for the state backed bank paper.

Initially we assume that the loss will be similar, meaning a 50% recovery rate on the state backed bank paper (that it will be worth half of what was originally envisaged after the restructuring). Estimating the value of state backed bank paper post a Greek restructuring is particularly tricky since there is no direct trading from which a price can be drawn. Firstly, since this debt is just guaranteed by the state it would almost

[28] Data available through the EBA website: http://www.eba.europa.eu/EuWideStressTesting.aspx
[29] 'Rating Action: Moody's downgrades Greece to Caa1 from B1, negative outlook', 1 June 2011: http://www.moodys.com/research/Moodys-downgrades-Greece-to-Caa1-from-B1-negative-outlook?lang=en&cy=global&docid=PR_220046
[30] Similar approach to that taken by JPMorgan Flows & Liquidity, May 2011: https://mm.jpmorgan.com/stp/t/c.do?i=757FA-3&u=a_p*d_591058.pdf*h_2m4heucd%0D%0A
There is some risk of double counting here, given that the latest figures on the ECB holdings are much more recent that those of the banking sector, as such some may have been transferred from the latter to the former. This is hard to avoid due to the massive data limitations, however, since the banks covered here only represent 65% of total European banking assets our figures are also still likely to be an underestimate.

certainly be susceptible to at least the same write downs as actual government debt. Our assumption of 50% losses on this collateral is therefore a lower bound and is far from guaranteed.

It is distinctly possibly that the Greek state could look to renege on a significant amount of its banking sector related debt which would likely skyrocket during a restructuring (firstly due to the guarantees it has offered and secondly through a possible nationalisation of the Greek banking sector). As such we also consider that the bank paper will only be worth 25% of its original value. When it comes down to it the actual recovery rate on state backed bank paper will come down to negotiations between Greece and its individual creditors as well as the approach it takes to dealing with the Greek banking sector. The losses on the ECB's holdings of Greek government bonds combined with the different scenarios for the potential value of the state backed paper after a restructuring give us our range estimate for the cost to the ECB.

These are only the first round effects of a restructuring and represent only part of the cost, however, that does not mean that they should not be examined. The potential knock on effects from a restructuring, such as other banks or private sector institutions failing to repay there debts, are also important to consider but nearly impossible to quantify.