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Ramifications of Debt Restructuring on the Euro Area – The Example of Large European Economies' Exposure to Greece

by

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Abstract

The Greek government budget situation plays a central role in the debt crisis in the euro area. The debt to GDP ratio is above 150 percent, while the deficit to GDP ratio exceeds 10 percent. To re-establish the Maastricht criteria, respectively, strong consolidation measures need to be implemented, with potential adverse effects on the Greek economy, and further credit requirements. Therefore, a debt conversion might become a reasonable alternative. The aim of this paper is to provide some simulation-based calculations on the expected fiscal costs for the governments in the large European countries Germany, France, Spain and Italy arising from different policy options – among them a potential second Greek rescue package. Under realistic conditions, a debt conversion may be the less costly strategy for Greece and the euro area partner states. A value-added of these calculations lies in a potential transfer to smaller euro area member countries.

JEL: F33, F34, H63

Keywords: Euro area debt crisis, debt conversation, Greece

1. INTRODUCTION

The Greek government budget is still in an ongoing crisis. The debt to GDP ratio, i.e. public debt expressed as a percentage of GDP is above 150 percent, while current fiscal deficits exceed 10 percent. Due to the weak economic perspectives for the period ahead, financial markets doubt that the country will solve the fiscal problem in due time. Instead, the non sustainability of the development has led investors to demand huge risk premia for holding government debt. Prior to the crisis, markets as well as policymakers have been not aware of specific risk associated with particular euro area countries. In a short period of time, rating agencies have downgraded Greek government bonds to junk status.

Exactly for this reason, an international bailout started in May 2010 under participation of the EU, the ECB and the IMF (Kouretas and Vlamis, 2010). Emergency loans of 110bn EUR for three years have been designed to help the country over a period of transition, until it becomes credible once again. The bulk of this amount (80bn) is shouldered by the EU member states. A relatively high interest of 5 percent for the main part of the loans has been retained. However, the consolidation plan, under which Greece is trying to hit the annual targets for cutting debt levels that have been specified in the multinational agreement does not seem to work. Despite the loans Greece is struggling through a heavy recession and its debt burden is increasing even further. As higher public deficits in conjunction with a decrease in international competitiveness play a decisive role, a solution of the crisis will require drastic changes in economic and budgetary policies. An expansion of the tax base and stronger privatization of public firms are envisaged and can improve the social coherence of the austerity measures (Sklias and Galatsidas, 2010). However, protests against privatization, spending cuts and tax increases have been widespread and turned even violent in several regions. There is also strong resistance against the consolidation plans in the parliament and trade unions. What is more, there is also a drastic loss of Greece citizens' trust in the national government and parliament (Lachman, 2010, and Roth, Nowak-Lehmann and Otter, 2011). An important shortcoming of the debate is the view that the country can overcome its crisis in only a few years. Greek bond yields are still exorbitantly high and the cost of insuring the debt is at record levels. For example, credit default swaps, i.e. the premia to insure against credit default for long term government bonds exceed 1000 base points.

However, a solution to the crisis is strictly required (de Grauwe, 2011). Otherwise, contagion can lead to negative spillovers to other bond markets in euro area countries and could increase the pressure on governments in many states to contract their fiscal policies, risking a double dip recession. An ongoing crisis might lead to an uncontrolled spiral and default that can trigger a whole range of other events also in other parts of the world.

Eventually, a new consolidation plan could push back the deadlines to hit the budget targets, letting the Greek economy more room to grow out of the trouble. An option for the bailout fund, the European Financial Stability Facility (EFSF), would be to buy bonds once they are issued. Starting from 2013, the European Stabilisation Mechanism (ESM) will replace the EFSF. Furthermore, a proposal for a second bailout package in the range of 80 to 100bn EUR over three years has been taking shape over the recent weeks.

The current strategy of muddling through provides further credit and might help the country to solve some of its immediate financing problems. However, moral hazard problems are generated, as economic mismanagement is not punished. The seniority of official debt can invoke a vicious circle because it deters private creditors and leads to ever increasing spreads and a perpetuation of the absence of any access to private funding on a reasonable scale for over-indebted countries.[1] Moreover, the long-term challenge to switch to a sustainable development by reducing government debt is not addressed. Therefore, some form of restructuring may be inevitable at some stage.[2] This must then be interpreted as a "political decision" since more and more analysts argue that there is not enough progress in Greece with respect to the adjustment programme.[3] As a huge part of Greece's debt is hold by foreign investors at short maturities, bonds could also be swapped for longer maturities. In general, a debt restructuring strategy comes with the risk that it excludes Greece from international financial markets for a long time. However, this cannot be taken as granted. Instead, the main results of the scientific literature on the topic underline the credibility enhancing impact of orderly debt restructuring in many cases. Countries have been also able to return to the market rather quickly after a restructuring. For example, Uruguay implemented a voluntary

[1] Note in this context that Greek debt is to an increasing extent in the hands of public creditors such as the EU, the IMF and the ECB. Currently it already makes up for around one third of it.

[2] Note, however, that, for instance, the ECB still exerts significant opposition to this option because it would trigger a credit event and, hence, might lead to significant negative spillovers elsewhere.

[3] I call this a "political decision", because a haircut bears the risk of leading to moral hazard problems in the sense that budget constraints are loosened for Greece and via a signaling effect for other over-indebted countries as well. However, we feel legitimized to argue that this problem seems to be manageable if the right set of measures is taken.

debt exchange with the private creditor community a few years ago, and returned to the capital market rather quickly. A convincing plan of debt conversion might be also an important element for a sustainable solution of the euro area debt crisis.

To shed some light on the policy options, this paper calculates the large European economies Germany, France, Spain and Italy's[4] government exposure to the Greek crisis. Scenarios are defined as representative examples. A preliminary calculation of the German exposure has originally been done by ourselves for the Frankfurter Allgemeine Sonntagszeitung (Nienhaus, 2011). The main result is that a quick debt restructuring turns out to be preferable to long lingering illness -at least if one is quite sceptical about the self-healing power of Greece. In the following, we go more deeply into the assumptions and calculation methods of this quite stylized though helpful simulation.

2. ASSUMPTIONS AND CALCULATION METHOD

In order to arrive at an estimate for the fiscal costs of the EU debt crisis, i.e. the German exposure to Greece, we assess several alternative scenarios with varying assumptions. In order to calculate the financial implications for Germany, we assume a German share of 27.9% of the total costs of the rescue package for Greece. This share exactly corresponds to the German participation in the (fully paid) ECB capital – Greece subtracted out. Accordingly, we apply shares of 20.9, 18.4 and 12.2 percent to France, Italy and Spain.

Both the up to now granted amount of loans to Greece and the fiscal costs of implementing the European Stability Mechanism (ESM) which from 2013 will grant loans to troubled countries, enter our scenarios. The EU has approved bilateral loans for Greece at the amount of 80bn EUR and Germany stands up for 27.9% of them. Until today, 38.4bn EUR in loans have been disbursed, with the German share amounting to 10.4bn EUR. The ESM will follow the EFSF in mid-2013. The euro area countries will pay 80bn EUR into the ESM. Hence, for instance, the German taxpayer participates in the cash deposit at the amount of 22bn EUR (France: 16.3, Italy: 14.5, Spain: 9.5bn EUR). This sum can in the positive case be interpreted as an insurance premium in order to safeguard the stability of the euro. Whether this deposit will be reinvested by the ESM and thus bear interest, is still unclear. However, this could be taken into

[4] Italian banks have only marginal exposure to the periphery. Still Italy pays a significant sum in rescuing the periphery countries.

account quite easily in our calculations. Since the euro area creditor countries in generally will have to bear the costs by incurring additional debt, a zero sum game would tend to result with respect to the flow of interest payments.

New loans paid from 2011 on at the beginning of each year are oriented towards the actual de facto refinancing needs of Greece which we calculate based on the numbers and figures provided by the "Plenum der Ökonomen" (2011) which are in turn based on CESifo (2011) data.[5] We add budget deficits within the Maastricht limits, i.e. the Maastricht deficits. At the end of each year, interest rate revenues accrue to creditor countries, assuming an interest rate of 6% for Greece, Ireland and Portugal.[6] All payments are discounted, i.e. we apply the present value concept based on the compounded interest. We use a time preference rate of 3% throughout our calculations. This choice closely corresponds with results of microeconomic studies. If we chose a higher rate, the discounted payments are lower but the differences are not overly high.

We focus on the fiscal costs for large European economies only until the year 2015. IMF loans are senior throughout and were as a rule repaid in the case of other historical country cases. Hence, we do not take them into account as German exposure to Greece. According to our scenarios 1 to 3, Greece manages to raise privatisation proceeds of EUR 5bn EUR per annum. In our simulations we call those "Greece's own contributions".

For our scenarios 4 and 5 we also complementarily calculate the costs for Germany including the ECB exposure to the Greek case. We take Germany as an illuminating example because it is often said to have an extraordinarily large exposure via the Bundesbank and the ECB to Greek debt. However, we do not include German Target-2-claims as German exposure to Greek debt since their relevance is up to now still heavily disputed. Concerning the current debate about Target-2 we find problematic that the opponents implicitly assume a constant amount of credit and money in the euro area economy. This would imply a zero-sum game: "Since Greece has received too much credit, Germany has been granted a too small share of it". Our view is that in cases of doubt the amount of money and credit is without much ado increased in order to

[5] Hence, we explicitly do not base our calculations on the amounts of loans allocated to Greece over time, i.e. 5 years. The „Plenum der Ökonomen" is a recently founded independent body of around 200 German economics professors. It is intended to tackle questions of extraordinary economic importance and to come up with clear conclusions after meeting formal decisions upon them. See http://www.wiso.uni-hamburg.de/lucke/.

[6] It is important to note in this context that the IMF rate serves as a benchmark and the legal provisions for the choice of the interest rate to be paid by Greece incorporates the EONIA rate which is expected to increase within the next months. Hence, it does not make sense to talk about another interest rate cut for Greece as an additional option.

solve this allocation problem. Inflating the euro area economy is most probably seen as the way out of the debt crisis (Belke, 2011). Quite surprisingly, inflation costs do not play any role in the current debate about exposure to Greek debt via Target-2.[7]

However, we consider losses stemming from Germany's exposure to the Securities Market Programme (SMP), the Emergency Liquidity Assistance (ELA) and to the normal liquidity enhancing refinancing operations. We take into account that the ECB has purchased Greek bonds already with a discount of roughly 20% and that collateral has to be marked at market value and there are obligations to remargin provided in the framework of normal refinancing operations.[8]

More concretely, in our scenarios 4 and 5 we assume the (debt) restructuring of 50% of the refinancing needs for the years 2011 to 2013 and the already granted loans under the rescue programme for Greece. In exchange for this, the refinancing needs for 2014 and 2015 are dropped. We assume the following haircuts: Greece: 50%, Ireland and Portugal 30% each. What is more, we assume a 50% share of Greece and 25% shares for Ireland and Portugal in the bond purchases by the ECB. Within ELA, we take into account that this programme is dominated by Ireland and, hence, assume a share of 80% for Ireland, 15% for Greece and 5% for Portugal.

In order to calculate the costs of the unconventional ECB monetary policy we start from the German exposure to Greek debt ("Haftungssummen") presented in detail by Sinn (2011a). According to this assessment, the ECB has bought GIPS bonds at the amount of 26bn EUR in total. Imposing our tentative shares derived above, this results in 13bn EUR German exposure to Greece, 6.5 (=0.25 times 26) bn EUR exposure to Portugal and Ireland each. Since ECB bond purchases were enacted at a discount of roughly 20%, the effective haircut for Greece amounts to 13bn EUR times 30% (=50-20), i.e. to 3.9bn EUR. Following the same logic, a haircut of 10% becomes effective for Portugal and Ireland in our "contagion" scenario 5. This implies a German exposure to Portugal and Ireland of EUR 0.65bn EUR each.

With respect to the Emergency Liquidity Assistance (weights Greece: 15%, Ireland: 80%, Portugal: 5%, respectively) the German total GIPS exposure amounts to 22bn EUR. This translates into a German exposure to Greece of 3.3bn EUR, an exposure to Portugal of 1.1bn

[7] See, for instance, Sinn (2011b). For arguments not to consider Target-II claims in our context see The Irish Economy (2011).

[8] For an elaborated description see ECB (2011), p. 69, Box 7.

EUR and an exposure to Ireland of 17.6bn EUR. ELA is dominated by support of Ireland as a quick view at the ECB balance sheet immediately shows. In contrast, the importance of Greece is rather low.

For reasons of simplicity, we include ECB losses by incorporating the necessary remargin by the German government when there is (partial) debt restructuring. However, there is also the possibility for the ECB not to remargin but to dilute the problem by bookkeeping tricks and simply not to transfer less or essentially no profits over the years. The latter would be more complicated to model without leading to significantly different results than the economically plausible former variant. The details of our calculations can be found in the appendix.

3. THE DIFFERENT SCENARIOS

Business as usual: Scenario 1-3

To obtain an estimate of the cost of the crisis, different scenarios are examined. They lead to specific numerical results dependent on the set of assumptions.

Scenario 1: Full repayment

In this scenario loans are granted repeatedly within a period of 5 year and Greece is assumed to be able to return to the capital markets and repay all its loans immediately in 2015. We assume a Greek “retained amount” (own contribution) of 5bn EUR per year stemming from privatisation proceeds. Hence, Greece is assumed to be quite successful in selling state-owned enterprises, but not to the extent aimed at (50bn EUR), but only by half. The German taxpayer would have been made liable for the Greek rescue at the amount of 14.9bn EUR. This appears to be quite cheap and the fiscal costs are mainly due to the implementation of the ESM. What is more, at first glance, scenario 1 turns out to be the cheapest variant. The German financial burden is higher than in other euro area countries. For example, this scenario would imply costs of 11bn EUR for France, 9.8bn EUR for Italy and 6.4bn EUR for Spain.

However, some critics – mostly defenders of the "business as usual" scenario- might ask why the fiscal costs of scenario 1 are still so high. The latter mainly results from the fact that we see the cash deposit in the ESM as lost since we assume that the ESM will become a permanent

institution. The cash deposit is actually designated for the implementation of the ESM. The latter is a new institution which would not have been given birth without the EU debt crisis and, hence, has to be ascribed to the crisis. The euro area creditor countries cannot dispose of the deposit anymore, except in the case of a dissolution of the ESM. However, there could be interest paid on the deposit. But in this case costs resulting from additional loan taking have to be counted against these potential interest gains. Hence, one could not pretend that the deposit can be paid from the abundant tax revenues. Instead, Germany, as an example, has to raise new debt for it. The opportunity costs of the deposit are huge. In any case, the German taxpayer is financially liable for it. For instance, as an alternative, the value added tax could have been lowered by a couple of percentage points in the large European economies considered here. But the discounted costs of the deposit do represent not more than a level effect under the different scenarios. The assumption of a permanent ESM is not unrealistic even under scenario 1 according to which Greece will recover from scratch. This is because the public choice literature makes it overall plausible that there are ratchet effects in the existence of institutions. Once they are created, it will be quite difficult to get rid of them.

But our scenario 1 is not overly realistic anymore (this view was valid at least until 3 June 2011, the day when the Troika quite surprisingly announced that Greece is on a proper way to meet its obligations within the adjustment programme). Or, as Thomas Mayer, chief economist of Deutsche Bank, puts it: “It would have been a miracle to happen for Greece in the near future to be able to return to the markets again. Oil should be found in the Aegean or the like” (Nienhaus, 2011).

Scenario 2: "Soft debt restructuring” - 1/3 of EU loans will be paid back

An intermediate scenario is that Greece will serve only one third of its refinancing needs. In this more realistic case, the costs for Germany will increase to 34.6bn EUR. The respective costs for France, Italy and Spain amount to 25.8bn EUR, 22.9bn EUR and 15.1bn EUR, respectively. But this calculation appears to be also too optimistic since it assumes that privatisations are pushed through without any significant resistance. Moreover, "soft restructuring" might represent the worst solution at all with an eye on the fact that the ECB continues to lend against sovereign bonds of the defaulting country. This would clearly endanger the monetary policy framework of the ESCB and the reputation of the ECB. In

addition, it would call into question further adjustment programmes in other euro area member countries and would risk pushing the banking systems in other insolvency-prone countries into difficulties. Given these dimensions, it seems legitimate to ask whether it is better to proceed to debt rescheduling right away. Therefore, a rapid debt restructuring could be a reasonable alternative (scenarios 4 and 5).

Scenario 3: No EU loan will be paid back

However, in the recent months it has become more and more probable that Greece will not recover and not pay back any loan from the first EU rescue package. Greece might default on the EU loans in 2015, i.e. on loans already disbursed and on the refinancing needs in the coming 4 years, i.e. the refinancing until 2015. In this case, the fiscal costs for Germany would amount to 53.5bn EUR. For comparison, the bill for France would be almost 39.9bn EUR, while Italy and Spain would pay for 35.1bn EUR and 23.2bn EUR, respectively.

Immediate debt restructuring: Scenarios 4 and 5

Scenario 4: Restructuring of Greek debt

A haircut of 50 percent is assumed, i.e. Greece can repay only 50 percent of its old (10.4bn EUR) and new loans (refinancing needs). To make things even worse, further privatization is postponed. The loan default leads to high (static) fiscal costs of the creditor countries. However, Greece benefits from the restructuring. The country will at once be far less indebted, and after a short period, investors will tend to trust it again as a debtor. At the end of 2013 Greece will return on the capital market and has improved growth perspectives which, in turn, make it more probable that Greece will repay its remaining debt. After a haircut on Greek debt, the evolution in Ireland, Portugal and Spain can decouple more quickly from Greece and contagion will be less probable.

Under these assumptions, the German taxpayers are required to pay 35.3bn EUR. French and Italian taxpayers will be responsible for 26.3bn EUR and 23.2bn EUR, respectively. Finally, Spain will be confronted with a cost of 15.3bn EUR. Therefore, the haircut is not a cheap solution. Nonetheless, the option of debt restructuring is not necessarily associated with higher costs

than the muddling through scenario – even if one assumes under the alternative that Greece will pay back one third of EU loans after all in 2015 (scenario 2). In any case, the rescheduling has to be implemented rather quickly. The sooner it will be enacted, the faster it is possible for Greece to pull itself together again, and the cheaper it is for the German taxpayers. Note that we have not included the cost incurred by the ECB.[9] "Whether the ECB will have to materialize its losses immediately is controversial. Many economists argue that the ECB could stretch the losses and pay just a few years less or no profits to the national governments" (Nienhaus, 2011).

Scenario 5: Contagion Effects – Restructuring of Greek, Irish and Portuguese debt

If Greek debt restructuring leads to increasing doubts whether the debt status of Portugal and Ireland is sustainable and whether their adjustment programmes will be credibly conducted also in the future, this might lead to contagion effects on both countries. In the end, also Portugal and Ireland might as a consequence have to reschedule as well. In this case, the fiscal costs of the debt restructuring scenario rise substantially to 40.3bn EUR in the German case.[10] The figures for France, Italy and Spain amount to 30bn EUR, 26.5bn EUR and 17.5bn EUR, respectively.

Table 1- *Fiscal costs of alternative scenarios with one rescue package* (bn EUR)

	Germany	France	Italy	Spain
Scenario 1	14.9	11.0	9.8	6.4
Scenario 2	34.6	25.8	22.9	15.1
Scenario 3	53.5	39.9	35.1	23.2
Scenario 4	35.3	26.3	23.2	15.3
Scenario 5	40.3	30.0	26.5	17.5

Source: Own calculations. For more details see appendix.

4. ADDITIONAL COSTS AND BENEFITS

The numerical results attached to each of the scenarios 1 to 5 have to be put into perspective. This is all the more necessary because what we present is a first tentative assessment based on

[9] When we include the German exposure to Greece via the ECB, the costs for the German taxpayer increase to 44.6bn EUR.
[10] When we include the ECB cost channel as well, this sum increases for instance in the German case to 70.4bn EUR.

overall plausible but simplifying and very broad brush assumptions. In addition, we only address government exposure to Greece.

First, we do not discuss the long-run consequences of the specific scenarios which might turn out rather different. For instance, the "haircut" represents a static cost which dominates the short to medium run emphasized in our calculations over 5 years. However, imposing a haircut might lead to dynamic gains in terms of significant additional credibility of the Greek government as a debtor. Moreover, on the other hand, going for debt restructuring clearly represents a political decision if the impression manifests itself that Greece is not willing to stick to the agreed adjustment programme any more. According to this view, imposing a haircut would be a bad sign because the lowering of qualitative requirements of collateral for refinancing operations was made conditional on the strict implementation of the adjustment programme.

Second, continuing grants of loans and debt restructuring might have different distributional consequences – even if the total sum is the same under both alternatives.

Third, we do not take into account the exposure of German banks in case of a "haircut" (scenarios 4 and 5) and contagion effects (our scenario 5). The total exposure of German banks to Greece (which is generally assumed to be less than the French exposure) amounts to 25.4bn EUR – according to BIS and IMF data, fourth quarter 2010. However, even newer data indicate that French banks have already sold larger amounts of Greek government bonds, resulting in a lower exposure than that of the German banks.

In the third quarter of 2010 German banks had loans to Greece at the amount of 19.3bn EUR on their books. They have granted EUR 2.8bn EUR of credit to Greek banks. In Germany, the Commerzbank would be the bank most impacted by a Greek debt restructuring: at the end of December 2010 the group was via its subsidiary Eurohypo Greek the owner of sovereign bonds worth 2.9bn EUR. Not earlier than in March 2011, Deutsche Bank has estimated it group wide engagement in Greece at 1.6bn EUR, including investments by the recently acquired Postbank.

However, these figures do not cause unrest in the German banking sector – at least not in a visible fashion. At the end of April 2011, Deutsche Bank head-of-Finance Stefan Krause, argued that Greek debt restructuring would have "no direct impact on the institute". And chief-of-Commerzbank Martin Blessing was not tired to stress during the recent shareholders' meeting

that the capital position of the bank is strong enough to cope with a haircut on Greek debt. The large unknowns in terms of engagement in Greece are two in other respects old fellows: the Munich-based Hypo Real Estate (HRE) and the Düsseldorf-based WestLB. In their balance sheets the Greek risk does not appear any more. Both banks have shifted it to their respective bad bank. On the one hand this demonstrates their low trust in this investment. On the other hand they have been successful to get rid of the risk de facto – in cases of doubt the government has to take the responsibility in case of a default.

Admittedly, according to BIS data French banks could potentially be impacted more from a collapse of Greek banks and from a sovereign default than Germany, Italy and Spain. In June, Moody's raised concerns about the exposure of BNP Paribas, Société Générale and Crédit Agricole to the Greek mess. This is either through holdings of government bonds or loans to the Greek private sector and works directly or through subsidiaries operating in Greece (Saltmarsh, 2011). For instance, Crédit Agricole controls Emporiki Bank of Greece and Société Générale is the owner of a majority of the Greek lender Geniki Bank. The third of the French banks with potentially larger Greek exposure, BNP Paribas, does not dispose of a local unit in Greece. However, it is at risk from direct holdings of Greek government debt. But the assumption has been for weeks (a view that was corroborated at the recent French-German summit in Berlin after which French banks agreed to roll over 70% of Greek debt) that Paris has taken that stance to protect its banks and would not let Greek exposure materialize for the French banks. What is more, we would like to stress that there was almost no exposure of the Italian banking sector (e.g., Intesa Sanpaolo). Finally, the exposure of Spanish banks (e.g., Santander) to Greece is small as well.

Seen on the whole, thus, we feel legitimised to incorporate the exposure of the larger euro area countries' banks to the Greek case only as supplementary information because in general the potential losses are not borne any more in the first place by the German government except for the worst case and there is only minor significance of Greek exposure of Italian banks. In case of a haircut of 50 percent assumed in our calculations the probability seems to be quite high that the banks have to bear tolerable losses. The reason is that the amount of the haircut has already been priced in the Greek bonds by many banks anyway and the financing of Greek banks has been mainly shifted to the ECB. It seems fair to state that there will not necessarily be a severe domino effect and contagion among euro area banks in case of a

haircut. Instead, the banking crisis should be manageable although it would not come without a cost.[11] This becomes clear if one looks at the alternative to a haircut, i.e. a disorderly default. In this case, the market value of Greek bonds and bank shares would be highly uncertain, maybe even zero. The necessary depreciations and uncertainty would be much larger.

Fourth, we also neglected costs emerging from the different scenarios for the CDS markets. The suppliers on these markets must feel betrayed, because Greece is "artificially" prevented from insolvency. Since this lowers the value of the CDS, this could initiate new crisis-like events on financial markets.

Fifth, in our scenarios 4 and 5 the Greek government is assumed to dispense completely with its privatisation efforts. From an incentive point of view it cannot be excluded that this retards Greece on its way to lower inflation and more competitiveness.

As it is always the case in such simple and preliminary calculations, there might be even more to add. However, we leave this for future research. Most important in our view would be a dynamic analysis which truly incorporates numerical values of credibility gains of all actors on the euro area scene if the euro area would truly go for debt restructuring. This would make scenarios 4 and 5 appear much more favourable than the "business as usual" strategy. Another important discussion would be whether such an orderly debt restructuring would have to be accompanied by the introduction of euro bonds or, at our view preferably, by a debt exchange à la Brady bonds as proposed in the framework of a European Monetary Fund. A European institution such as the latter (or, maybe, even a bank rescue fund) should be prepared and stand ready to support or liquidate those banks which would not be able to withstand such a haircut. Finally, a factor which is limiting potential legal problems of a haircut surely is that the vast majority of Greek bonds have been issued under Greek law.

5. THE SECOND GREEK RESCUE PACKAGE

According to their meeting last weekend, the euro area Ministers of Finance intend to grant new loans to highly indebted Greece only if the Greek government has agreed upon new austerity measures. Moreover there appears to be a Greek package II in the pipeline the details of which, however, are not specified for the public right now. Nevertheless, we try to assess the implications of the implementation of such a second package for the ranking of our

[11] A detailed cost analysis would have to include a lower double-digit EUR bn figure for recapitalising needy banks.

scenarios 1 to 5. Note that the new 12bn EUR loans which are envisaged for Greece in July and are currently at the heart of the fierce discussions are taken into account anyway already in our above scenarios 1 to 5.

In general, our calculation looks as follows. The Greek gross refinancing needs over the next three years (until mid-2014) amount to about 172bn EUR. This amount accrues from:

- bonds (85bn EUR) and loans(6bn EUR) which become mature,
- repayment to the IMF (5bn EUR),
- public budget deficit (38bn EUR), and
- further financing needs of nearly 40bn EUR to reduce the high amounts of short-term assets, to build up the Treasury cash buffer and the Greek contribution to the ESM where there is no opting out possible).

Within the previous first Greek programme there are still 57bn EUR loans outstanding.

Hence, the net financing needs amount to 115bn EUR - under the assumption that Greece will not be able to refinance itself via the capital markets until mid-2014. This amount can potentially be reduced by privatization efforts. If one, for instance, assumes away any privatisation proceeds, an additional amount of 115bn EUR emerges. Two thirds of this sum are allotted to the EFSF/ESM, i.e. roughly 80bn EUR. The German share is again calculated according to Germany's capital share of 27.9 percent. Hence, as before, Germany's exposure amounts to roughly 22bn EUR. Analogously, we calculate with a French, Italian and Spanish exposure of 16.7bn EUR, 14.7bn EUR and 9.8bn EUR, with their shares of 20.9, 18.4 and 12.2 percent, respectively. In our simulations we assume that the allocation of loans over the years is the same as in the first Greek package and add the year-specific realisation of the loan to the refinancing needs of the respective year. The EFSF/ESM share and, thus, also Germany's exposure could well be lower if one assumes a significant private sector involvement. However, we feel legitimized to expect not too much from this source.

Our simulation results show that Germany's exposure amounts to 12.9bn EUR if Greece repays all of the additional loans received (scenario 1 modified). The costs for the German taxpayer increase to 45.5bn EUR if we assume a 1/3 repayment and are even higher (70.8bn EUR), if there will be no repayment at all (scenarios 2 and 3 modified). In our cases with Greek debt

restructuring the costs amount to 42.9bn EUR (case 4, no contagion) and 47.7bn EUR (case 5, with contagion). Seen on the whole, thus, debt restructuring (scenarios 4 and 5) becomes even more preferable if we assume the implementation of second Greek loan package. The respective figures for France, Spain and Italy are again smaller, see Table 2 for the results.

Table 2 – *Fiscal costs of alternative scenarios (bn EUR) with two credit packages*

	Germany	France	Italy	Spain
Scenario 1	12.9	9.5	8.5	5.6
Scenario 2	45.5	33.9	30.0	19.8
Scenario 3	70.8	52.8	46.5	30.8
Scenario4	42.9	31.9	28.2	18.6
Scenario 5	47.7	35.6	31.4	20.8

Source: Own calculations. For more details see appendix.

6. OPTIONS FOR ACTION

According to our calculations, restructuring of Greek debt is across all realistic scenarios on average cheaper than sticking to sequential and ever larger loan packages for Germany, France, Spain and Italy. Since the overwhelming majority of micro- and macro indicators by now show, Greece will not be able to get back on its feet by means of pumping additional loans into the Greek system. Instead, significant credibility gains should emerge from a quick and persuading haircut since there is a commonly held view that participants in financial markets are characterised by very short memories, and almost no sense of history.[12] "Debts which are forgiven will be forgotten (Bulow and Rogoff, 1989, p. 49). In other words, Greece could restructure its debt and spend a few years relying on the other euro area countries. In the meantime, the country could fix its fundamental economic problems. After that, it could once again succeed in persuading investors to buy its bonds at a reasonable yield (Hannon, 2011).

In the past, a couple of governments such as Russia that have defaulted on their debts have quickly returned to the international bond markets. The defaulting countries' ability to service any new debt has increased by much. And in many cases, such defaults are actually

[12] According to Gelos et al. (2004) the majority of defaulters regain access to borrowing within one year after a restructuring. There is ample evidence that in the 1990s and 2000s sovereign defaults affected risk spreads only in the first and second year after the resolution of crisis (Borenzstein and Panizza 2008). Earlier sources which come up with similar findings – but mostly for emerging markets - are Eichengreen (1989), Jorgensen and Sachs (1989), Lindert and Morton (1989), and Ozler (1993).

accompanied by a true regime change, a “pledge to turn over a new leaf” (Hannon, 2011) and a tough determination not to end up in the same mess again.[13]

In contrast, the "business as usual" alternative might prove to be dangerous because of the vicious circle it might cause: the private sector might withdraw its money from Greece and Greece would be permanently decoupled from international capital markets.

However, our results also show that in order to be effective Greek debt restructuring has to be executed preferably earlier than later, since Greece would manage to get back on the capital markets earlier as well.[14] Even large haircuts of 50% up to 70%, as recently requested by the Rating Agency Standard & Poor's for Greece as a "fair equivalent" to the spreads earned, would not cause the euro area as a whole to sway. This is due to the fact that Greece has a too low economic weight and that the German and French banks have up to now gained exorbitant interest rate revenues from the spreads. However, imbalances of one or the other German or French Bank cannot be excluded, although at the same time some other banks would even significantly profit from technical processing of the debt restructuring. The governments would in this case be held responsible for rebalancing their healthy banks. This would cause net benefits for the tax payer due to the timely haircut for Greece and the avoided contagion of other euro area countries.

As Deutsche Bank Chief Economist Thomas Mayer argues in Nienhaus (2011): “It is the best for Germany at the end to find a solution that really works, and delivers the result that the Greeks do not need more and more new loans from the EU and the IMF. All that misses this target would be a pure waste of money”. However, adverse political reactions by voters have to be added to the calculus., or as Thomas Mayer puts it in Nienhaus (2011): “The taxpayers in the EU will not support aid for Greece as long as the country needs to manage its necessary structural change and recover again”. In this respect, it is quite obvious that the supporters of further loans to Greece clearly underestimate the possibility of a refusal to assume the risk of a

[13] However, for instance, Cruces and Trebesch (2011) show empirically that in some other cases – evidently those in which no credible path of structural change is implemented - bond investors really do punish sovereign defaulters, and they do this for a really long time. This again underlines the importance of strict obligations imposed on the defaulting country not to incur new debt within the next ten years or so and of GDP warrants as the best way to align incentives. With every success in terms of GDP growth that has not been expected by creditors and debtors, outstanding debt would be further reduced.

[14] See our arguments in Nienhaus (2011). Some argue that it might be better to go for debt restructuring some quarters later because in the meantime Ireland and Spain could recover and their exposure to a haircut to Greek debt, i.e. contagion, would thus be lower. Moreover, it is sometimes argued that pushing through debt restructuring would be easier if the majority of creditors is public and not from the private sector. However, this paper argues that the danger of contagion of euro area member countries such as Ireland and Spain which are so structurally different from Greece and Portugal should be quite limited and that an increasing share of public creditors and their senior creditor status leads to a vicious circle. See section 6.

Greek default (Belke, 2011). Examples are the political developments in Finland, but also the current debates in the Netherlands, Germany and even France where the National Front manages to be heard to an increasing extent (Lachman, 2010). In turn, increasing resistance within Greece against externally imposed austerity measures is just the other side of the same coin and indicates the non-sustainability of the "business as usual approach". Roth, Nowak and Otter (2011) show that citizens trust in Greece has been shattered during the eurozone crisis. Their study gives empirical evidence that it will be unrealistic that "business as usual" will work" as citizens will strongly oppose to the implemented austerity measures. With an eye on these considerations, there probably only remains debt restructuring as a solution to the Greek mess. This is because, as Daniel Gros (CEPS) argues: "if Greece continues to be at the EU-drip, the political costs for the whole of Europe would be simply too high".

Although there are strong doubts in public and in financial markets about Greece's ability to ever repay its debt, the supporters of this solution argue that a default could have disastrous consequences for Greece, the euro area and possibly even on the world financial system. Obviously, they assume that a stepwise transfer of the default risks to the German and the European taxpayer by public refinancing of maturing private debt is the smaller problem.

But the alternative to strictly sticking to the "business as usual" strategy is not a disorderly default of the country. Admittedly, any unprepared default of Greece would surely mean a shock for the financial markets. However, this shock would be largely moderated by the fact that European banks have already taken into account a haircut of around 50% in the prices of Greek sovereign bonds. What is more, European banks have to the largest extent possible already withdrawn from financing the Greek banking system and have delivered this task to the ECB. The shock could be even mitigated further by an orderly debt restructuring (Gros and Mayer, 2011).

7. CONCLUSIONS

This briefing paper has discussed the large European economies' government exposure to the Greek debt problem by simulation methods. The value-added of these calculations lies in a potential transfer to the euro area level. However, the static nature of the analysis has to be stressed once again. Deficits in the incorporation of dynamic credibility gains from enacting a timely haircut might worsen the results.

As it is always the case in such simple and preliminary calculations, there might be even more to add. However, we leave this for future research. Most important in our view would be a dynamic analysis which truly incorporates numerical values of credibility gains of all actors on the euro area scene if the euro area would truly go for debt restructuring. Another important aspect is whether an orderly debt restructuring would have to be accompanied by the introduction of euro bonds or by a debt exchange a la Brady bonds as proposed in the framework of a European Monetary Fund. A European institution such as the latter could be prepared and stand ready to support or liquidate those banks which would not be able to withstand such a haircut.

What strikes us most after having done all the calculations is the fact that our considerations and priors in some of our previous briefing papers concerning the role of the ECB as the bad bank for the euro area ("Can central banks go bankrupt?", Belke 2010a, 2010b) turned out to be completely true and have gained so much importance within the last twelve months.[15] In the meantime, for instance, increases in the ECB capital stock became necessary and dramatic decreases in the quality of assets on its balance sheets became obvious (including cases of fraud!). Taking this as a starting point, the most important benefit of a timely restructuring of Greek debt would be to avoid destroying the reputation of the ECB!

[15] This is especially true for our gloomy forecasts of the emergence and severe consequences of quasi-fiscal activities of the ECB delivered not later than March (!) 2010 in Belke (2010a).

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The details of our calculations can be found in an EXCEL file under the following link: https://www.wiwi.uni-due.de/fileadmin/fileupload/VWL-MAKRO/team/belke/Belke_Dreger_Intereconomics_June_2011.xlsx.