Hellenic Art of Restructuring[1]

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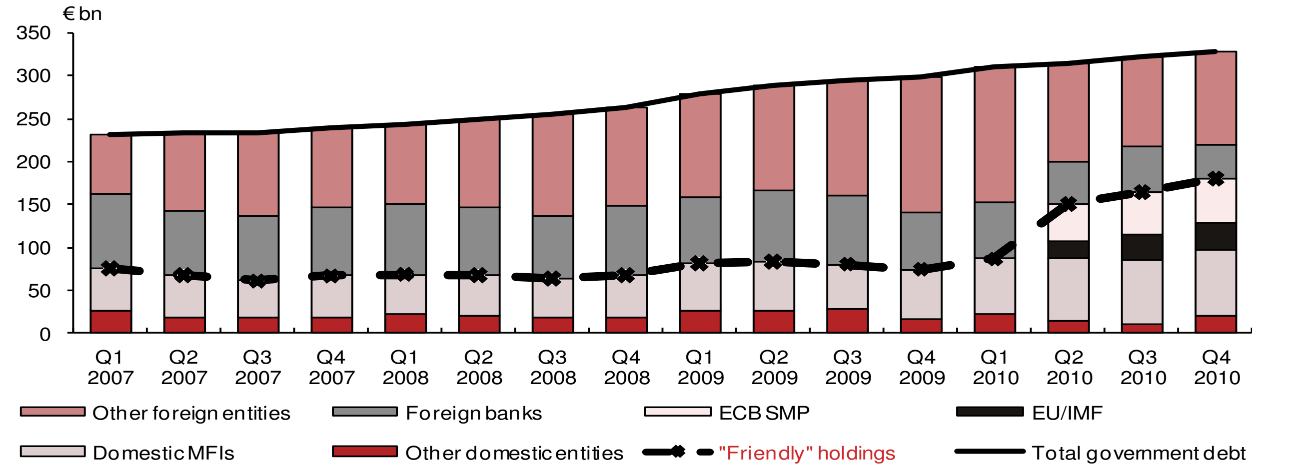
- In May 2010 Greece secured a historic €110bn aid package. This presumed a partial return to the market in March 2012. However, with debt to GDP peaking close to 160%, Greece appears unable to access markets in the medium-term.
- While the market prices in a haircut, we believe the package will be extended in exchange for face-saving measures. These involve either putting up collateral for the new loan facility, and voluntary debt extensions in return for some form of legal enhancements or encouraging semi-official sector to roll short-term debt. The desire to avoid large-scale losses in the fragile banking sector and the legal subtleties of restructurings guide the form they take now and in the future.
- Any voluntary restructuring must have finely balanced incentives as well as disincentives; where severe disincentives are ruled out because of the likelihood of contagion. Such voluntary restructuring is likely take place before March 2012, but probably only after increases of EFSF are passed by all parliaments. We expect this to be in Q3 2011.
- Any more severe restructuring (i.e., long extensions, coupon caps, and haircuts) can take place only after 2013 (according to policymakers) and only if Greece continues to be locked out of markets. We still believe haircuts are not by any means a certainty. Brady bonds are most likely only after 2013.
- We recommend holding long-dated GGBs which should remain untouched by first-round restructurings. For those who can stomach severe mark-to-market risk, we see value in all pre-June 2013 bonds (and we believe holding out is viable). In addition, we recommend Greek foreign-denominated debt and Eurobonds for their extra legal provisions.
- We dislike medium-term debt (e.g., 2013-17 maturities), as they are the most likely to face debilitating extensions, perhaps with some coercion. We would avoid slightly longer issues because of possible adverse reactions to haircut scenarios after 2013.

Holdings of Greek debt



Source: Bank of Greece, BIS, IMF, Eurostat and Nomura Global Economics.

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How did we end up here?

Recent comments from EU politicians has increased the probability of a voluntary restructuring for Greek debt. But such a policy choice would involve many complications and contagion risks.

Over the past month, a plethora of news articles has suggested that euro-area governments may have undergone a change of heart about the ongoing and future support packages for Greece. Almost a year ago, euro-area members and the IMF agreed on a record-breaking financing package of €110bn. The premise for this package was that a strong policy adjustment, safeguarded by the conditionality of the loans, would allow Greece to progressively start re-accessing bond markets from March 2012 when large bond redemptions are due.

A large policy adjustment has indeed happened -- the budget deficit has been reduced by 5pp of GDP in one year, a key reform has reduced long-term pension costs from 12.5% of GDP to 2.5% and unprecedented labour and product market reforms have been legislated. Yet financial markets remain unconvinced. This matters in particular because in March 2012 they will be asked to lend money to a government with a debt ratio set to peak at close to 160% of GDP in 2013, and which will have to maintain primary surpluses of 6% from 2014 to 2020 just to reduce that debt ratio to 130%.

Furthermore, Greek fiscal fundamentals remain shaky. Given the budget execution in the first months of 2011, revenues are €1.3bn below target in April 2011, making deficit targets appear significantly at risk if this trend continues. Furthermore, overspending in certain social security funds, delays in reforms particularly to loss-making state-owned enterprises might even push 2011 funding needs considerably.

The fiscal deficit was well above the target at 10.5% of GDP in 2010, with an additional 11.4% of GDP (€26bn for 2011-15 split between €3bn for 2011, which is looking insufficient given fiscal slippages, and €23bn in 2012-15) of consolidation currently being prepared to reach the target of 1% by 2015. We think the target is actually unreachable and expect the EU and IMF to agree a longer timeframe for the deficit reduction.

More fundamentally, in the medium term, large revenues are projected from improved tax collection and compliance, but there are still no indications that they are likely to be raised. In addition, the implementation of structural reforms has been at times inadequate, and in our view still falls short of the "critical mass" that would help growth recover in a meaningful way. Finally, the domestic political situation has become more fragile, with questions being raised as to whether the parliament will be able to pass a comprehensive medium-term consolidation strategy and quixotic privatisation plan (see *Europe Special Topic:* "Selling the marbles", 18 March), with the need for a broader consensus than the government alone when it comes to longer-term consolidation or wage agreements.

The next quarterly review of Greece by the EU/IMF has begun and the results will be discussed in detail the Eurogroup meeting on 14 June. The outcome, particularly relating to debt sustainability, is critical. Not only is the next €12bn disbursement in question, but also whether more decisive action will have to be undertaken to enhance Greece's debt sustainability before market funding is required from Q1 2012.

The menu of possibilities is large and differentiating between them is not based on economic considerations alone, but involves wider EU political sentiment. We analyse several options, those relying on public sector intervention as has been the case until now, and those involving some form of private sector participation (i.e. voluntary restructuring), separating extensions from haircuts. We exclude from the analysis outright default as we believe EU policymakers are aware of the significant impact of any such action and will do all to prevent it**.** In summary **we expect an increase of the EU loan in return for face-saving measures from collateral** to some form of **private sector participation,** with the possibility of any **larger-scale restructuring delayed.**

Official financing options

Extending the current programme

The current programme could of course be extended, and additional financing provided. It currently looks unlikely that Greece will be able to regain market access next year as is assumed under the original terms of the May 2010 financing package. Therefore, further support will likely be needed to cover the financing gap for the next few years. During the recent impromptu meeting in Luxembourg on 6 May, key EU finance ministers discussed further adjustment programmes (and possible collateralisation), the details of a further adjustment programme were discussed at the 16-17 May Eurogroup meeting according to Luxembourg Prime Minister J.C. Juncker. Heightened rhetoric may be a means of achieving concessions on the necessity and pace of reform, especially in the management and divestment of public sector entities and their entrenched stakeholders.

On top of the €53bn currently disbursed and the €67bn as yet undisbursed funds, a new programme would need to cover at least the bond market access assumptions of the current public sector borrowing needs (see Figure 1). For example €27bn would be needed for 2012 in order to eliminate the need for Greece to access financial markets, another €32bn for 2013 and so on. Those numbers could be even larger assuming a slower deficit reduction.

Many would point to additional aid as a sign of increased largesse. But we think it is more proper to understand that **with any additional package, Greece will be held up to continued scrutiny as to the extent of its ongoing reforms,** with the possibility of future disbursements being conditioned on yet more sweeping changes. We see new packages as a form of *velvet handcuffs*.

Extending the current programme and providing additional financing would also allow the EU to maintain its promise of avoiding debt restructuring prior to 2013. But it does so with a large price tag of financing coupon and principal redemptions for bondholders together with any budgetary shortfalls over the coming years (see Figure 1).

A possibly even more compelling argument against merely increasing the package without *quid pro quo* is a **political** one. It seems that some euro-area governments are becoming more sceptical about whether additional financing could ultimately solve Greece's debt sustainability problem, and at the very least packages are contingent on more measures, some purely **face-saving**. These include more reform measures including **increased privatisation plans**, that extended EFSF loans may require **collateral** (see Finnish Prime Minister Katainen's demands on 11 May, see link) and a possible **reprofiling** of Greek debt (see German Finance Minister Schaeuble's statements on 14 April, see link, and Eurogroup President J.C. Juncker's statement after the 15-16 May meetings that they would be open to "reprofiling" Greek debt). We discuss privatisations and collateral first, together with the oft-vetted GGB-buybacks, and then

Figure 1. Public sector borrowing needs

€ bn	2009	2010	2011	2012	2013	2014	2015
Gross borrowing need	**70.3**	**60**	**58.7**	**66.6**	**54.8**	**51.9**	**55.6**
Overall balance	36.1	22	17	14.9	11.4	6.4	5.4
Amortization	29.7	31.2	37.5	45.5	42.2	48.1	49
Bonds	20.3	19.5	28.1	35.2	29.3	33	26.6
T-bills	9.4	11.7	9.4	10.3	12.9	13	13
Exceptional creditors (EU/IMF)		0	0	0	0	2.1	9.4
Other	4.5	6.8	4.2	6.2	1.2	-2.6	1.2
Gross financing sources	**70.4**	**60**	**58.7**	**66.6**	**54.8**	**51.9**	**55.6**
Privatization receipts	0.9	0	2.5	3	3	2	2
Other	3.8	12.3	-1.3	-0.7	-1.6	-4.4	-0.6
Market access	65.7	16.2	11	40.3	45.4	54.3	54.2
Bonds	59.2	6.8	0	26.7	31.8	40.7	40.6
T-bills	6.5	9.4	11	13.6	13.6	13.6	13.6
Exceptional creditors (EU/IMF)		31.5	46.5	24	8	0	0

Source: IMF and Nomura Global Economics.

look at forms of private sector participation in more detail.

Privatisations

While the Greek government had agreed to €50bn in privatisations (see *Europe Special Topic:* "Selling the marbles", 18 March), approval has come quite slowly. But recent demands from the Eurogroup appear to centre on the possibility of more extensive privatisations.

Current privatisation plans include €10-15bn from enterprises and infrastructure, and €25-35bn from the management of rights and development of real estate assets (not direct sales). The estimated revenue schedule is not particularly rapid with €2-4bn planned for 2011, €5.5-7.5bn in 2012 and €4.5-5.5bn in 2013, leaving €33-38bn to be realised just in the two remaining years over 2014-15.

Further privatisation revenues are even harder to gauge. The IMF estimates financial assets close to 32.7% of GDP, of which around 17% is shares. We are not convinced that these assets could be exchanged for cash in current market conditions. Estimating proceeds from the vast real estate holdings is even more uncertain. The rough approximations available value these assets at around €200-300bn (87-130% of 2010 GDP). The government is currently cataloging and valuing commercially viable properties, aiming to have evaluated commercial viability of a privatisation of the first portfolio of assets by the end of 2011. Overall, the plan is to have four real estate portfolios with the process finished by the end of 2012.

So, while larger-scale privatisations certainly appear feasible for Greece, this is a long-term divestiture, where economic gains (and ultimate reduction of debt to GDP) will only materialise over a very long (10-year plus) horizon. Nonetheless, **we see further commitments to privatisations as crucial to a bigger package.**

Collateralised lending

The EFSF (or ESM after 2013) can extend further loans to Greece in return for collateral or securitisations. This has been mentioned in a number of EU meetings, in particular by the new Finnish coalition, which has put this as a condition for further loans. The problem though is that Greece currently has no real collateral, and access to collateral will be slow coming as we see from above.

Nonetheless, this could be worked around. Greece could securitise a stream of future revenues (toll roads, frequency spectrums) or even pledge proceeds from future privatisations. These instruments (securities or pledges) might have uncertain value at present, but they would form a legal right which would allow Finnish and other Northern European leaders to claim to have been strict on Greece in return for any increase in the sizes of bailouts. As far as Greece is concerned, we see the economic benefits as dubious, since the securitisation/privatisation receipts could be more effectively used to reduce outstanding debt. Nonetheless, this only truly amounts to delays in lowering the debt and **we see some form of collateralised lending as relatively likely,** making an increased package more palatable.

Publicly funded buybacks

Buybacks had been mooted as a means of solving the entire debt crisis (from the bond market's perspective), replacing short-dated GGBs with longer-dated official-sector loans at a discount (i.e., a nominal debt reduction). Buybacks are essentially the same as extending the package, with the added element that new loans could be more front-loaded to allow the purchase of bonds from the secondary market at discounted prices (see link and link), resulting in a reduction in the total notional debt outstanding.

Given recent resistance to increased funding for Greece, we think it would be even more politically challenging to get euro-area governments to agree to front-load their disbursements. Although buybacks had been given weight in the EU political establishment, (apparently pushed by Klaus Regling of EFSF, based on his experience at the IMF, see link), the ruling German coalition has opposed the use of rescue funds to buy bonds on the secondary market (in opposition to the Merkel government). While the policy paper eventually adopted by the Bundestag (see link and link) on 18 March only explicitly prevents the ESM from buying bonds and is not legally binding on the government (apparently, Mr Schaeuble manoeuvred the parliamentary debate to allow the government some flexibility). This opposition to buybacks by the ESM is documented in the termsheet (see link), although this may be altered (see link, pp 25-6). Nonetheless, it is clear that parliament opposes this option.

If buybacks were meant to achieve meaningful reduction of the debt burden, this could only be done by concentrating purchases on the long end, where bonds trade at far more significant discounts. However, this is at odds with any plans to use international aid to keep Greece from the market for longer. Of course buybacks of shorter-dated debt have only small cost-savings associated with them.

In the Holdings and Accounting box (page 11), we have estimated the various parties holding Greek collateral (see Figure 4). The ECB has accumulated around €50bn of GGBs in nominal terms that are trading at a large discount and it would be the most natural (and willing) seller into such a scheme. Other than the ECB, Greek bondholders are often accounted for on an accruals basis, making buybacks at market value damaging to balance sheets.

Consequently, any buyback would likely be limited in size and significance. Given the ongoing political opposition, **we do not believe buybacks are likely now or in the future except** perhaps those targeting the **ECB's SMP holdings.**

Restructuring

Voluntary restructuring is a process where bondholders are given the option to participate in a given exchange of their bond holdings or the restructuring of their original bonds (by restructuring, we mean an alteration of the legal terms of the bond, including the cashflows). By contrast, *involuntary restructuring* would be a unilateral change to terms, repudiation or moratorium or simple default. Voluntary restructurings often involve *both* an exchange (for new bonds) and a restructuring (of the old bonds, to make them particularly unattractive). This combination of exchange and restructuring offers sovereigns the option of achieving the economic restructuring they desire without necessarily triggering CDS (e.g., perhaps without altering the actual cashflows or subordination of the old bonds, as we discuss below). In effect, it is possible to include any one of a number of structural changes to bonds through voluntary methods, including new coupons, extensions and haircuts, as well as combinations.

We discuss extensions first, and the more deleterious haircuts (possibly combined with other structural and cashflow changes) afterwards.

Voluntary extensions

If we assume that the appetite for further financing commitments from EU governments to Greece is diminishing, a voluntary debt rescheduling without haircuts seems the next most market-friendly alternative. Voluntary restructuring involves the sovereigns agreeing with bondholders to preserve bonds' principal value while extending maturities and potentially maintaining current coupon payments. This type of rescheduling raises complicated questions about the **extent to which the present value of these bonds could diminish**, whether most if not all **bondholders could be persuaded to agree,** and **the future policy responses,** which may emerge **to address the debt problems of Portugal and Ireland**. Our initial conclusion is that a "market-friendly" exchange would provide significant breathing space, although it would not materially alter solvency concerns in the short term while still requiring additional commitment of funds from the EU/IMF.

Net Present Value (NPV) of Greek bonds and Resulting Spreads

Current base case scenarios (mostly from news reports) include extensions of all short term maturities by 5-10 years, potentially leaving coupons unchanged, as average fixed coupon on Greek bonds is around 4.8%. A coupon reduction will obviously marginally improve sustainability while having a further negative impact on the NPV of bonds, as well as complicating the already thorny accounting issues, although as we shall see there is some flexibility to re-coupon bonds *(see Grey box on Holdings and Accounting).*

In determining the NPV impact of any restructuring, it is possible to consider a range of discount rates to evaluate the resultant cashflows. Extending the maturity profile and/or reducing coupon rates means that a higher discount rate will be associated with a higher NPV reduction. Conceptually the lower bound of the range should be a measure of Greece's repayment capacity such as the medium term GDP rate. The upper bound is likely to be spreads prevailing after the debt restructuring is announced. (We cover this in some detail in the section on Investment Strategy).

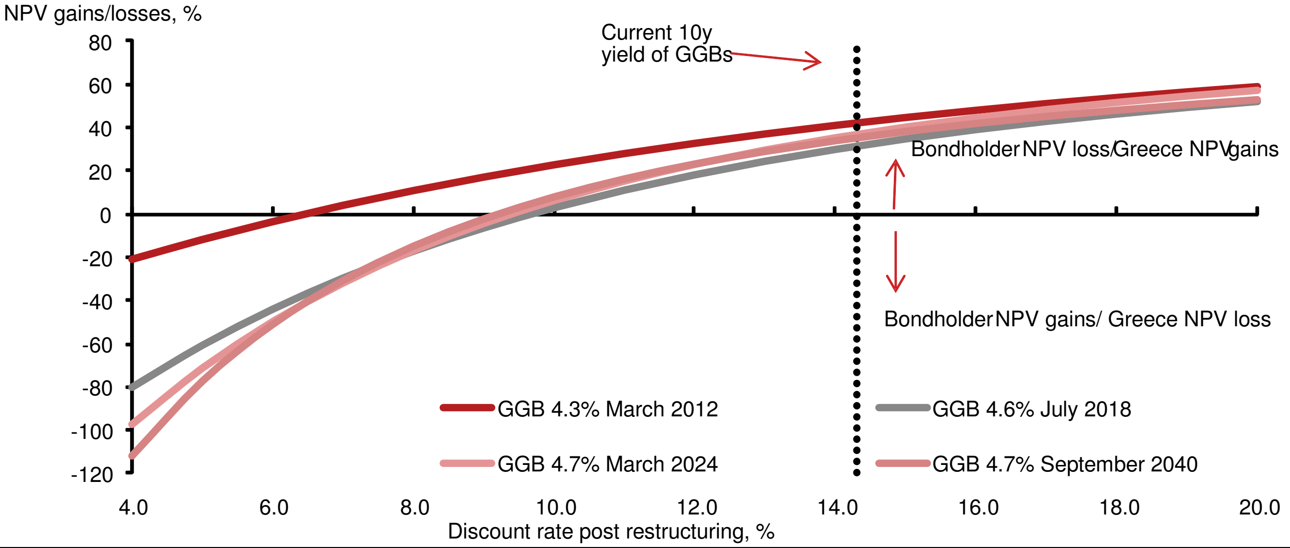
In Figure 2 we see that discounting by current yields for GGBs, the proposed extensions (10Y) will result in NPV losses for bond holders (and corresponding gains for the sovereign, although PV is not necessarily a measure of the sovereign's utility). Only at much lower discount rates would an extension be NPV neutral. And as we see from the figure, NPV neutrality requires far lower discount rates for shorter-dated bonds than it does for longer-dated bonds. This of course is another reason why **longer-dated bonds offer more value under a host of restructuring scenarios.** We go into this notion in some more detail in the section on Investment Strategies.

At current levels of Greek bonds NPV neutrality will deteriorate debt sustainability (i.e. imagine having to re- coupon bonds to current yield levels). Therefore, without some credit enhancement, an NPV haircut seems almost a prerequisite of any re-profiling of debt. But maintenance of the NPV of investors' holdings may not always be a long-term objective. A recent bad example of an NPV neutral restructuring was the 2001 Argentina Mega Swap, done purely on voluntary terms. This eventually led to very high spreads that worsened the debt sustainability. In contrast, Uruguay offered its investors longer maturities in return for no change in coupon, effectively an NPV loss under a wide range of discount functions, and yet this appears to have returned Uruguay from its path to sustainability, considerably tightening spreads.

Participation and holdouts

If the EU does opt for voluntary rescheduling, a key element of any proposed restructuring is the assessment of feasible participation rates without serious coercion--the more coercive the methods used, the more likely it would lead to contagion risk. As

Figure 2. Sensitivity of NPV impact to various Discount rates under a 10y extension



Note: NPV gains= Defined 1 - (NPV(after restructuring)/NPV(before restructuring)).
Source: Nomura Global Economics

participation can be increased through both incentives and disincentives, it could be possible to increase participation through a variety of credit enhancements in the new bonds.

And in order to determine likely participation, policy makers must be cognizant of holdings of various segments of the GGB curve as well as various key entities of accounting rules. At the end of 2010 almost 55% of government debt was either official loans, domestic debt or held by the ECB (Figure 3), up from 25% in Q4 2009. On the other hand only 11% of central government debt was held by foreign banks down from 26% in Q2 2009. This shows that the **migration to more "friendly" holders of the Greek debt has been happening rapidly,** and of course it has already been agreed that a large part of these official loans will be rescheduled.

The most straightforward and market friendly approach would be the one suggested in the ESM term sheet where it states that " [a] Member State will take initiatives aimed at encouraging the main private investors to maintain their exposures. The Commission, the IMF, the ECB and the EBA will be closely involved in monitoring the implementation of such initiatives." In other words, according to this plan, known as the **Vienna Initiative** (see link), sovereigns encourage bondholders, particularly those with a strong interest in the programme's success (Greek banks, state owned banks in Euro area) and/or government controlled entities (Greek social security funds) and/or even the ECB, **to roll–over their maturing exposures at similar terms with additional EU/IMF funding provided to Greece.**

For more generic voluntary restructurings there are a combination of incentives and disincentives to ensure participation, where reliance upon disincentives alone would likely promote concerns of contagion. We give a list of possibilities together with some of their advantages and disadvantages below.

1. **Incentives** in new bonds (ranked by decreasing order of likelihood):
    a. **Enhance the legal structure** (i.e., make new bonds English law bonds, insert Collective Action Clauses, and waive sovereign immunity, *de facto* seniority to old bonds). Effectively offer bonds that will offer better legal protection to debt holders in case of future restructurings.
    b. **Credit guarantees/collateral** (i.e., see box on Brady Plan). While creating bonds that are effectively senior to GGBs, this is not a CDS trigger. The easiest and cheapest credit enhancement would involve extending a guarantee from the pool of available EFSF guarantees to a new, partly-guaranteed GGB. This is not possible at this juncture. Instead the EFSF could theoretically issue a 10Y zero-coupon bond and loan the money to Greece to buy this same bond, which can in turn be used as part of a debt-exchange. While formal EU guarantees GGBs (with the Article 125 implications), it is economically the same.
    c. **Make new bonds legally** (*de jure*) **senior to old bonds**. This would trigger CDS in the context of this specific restructuring.
    d. **Make the transaction positive** NPV which would generally only be possible if some form of credit enhancements (previously mentioned) are also included.
2. **Disincentives** on holdouts (ranked by decreasing order of likelihood):
    a. **Threatening possible haircuts**[1] together with a guarantee that some portion of the restructured principal would be immune to any future action. Given that EU rhetoric has demarcated mid-2013 as a key date

[1] Threat of 2nd round cuts only inferred from Schaeuble interviews from November (see link) and April (see link). Note this is probably threat of unilateral involuntary CDS-triggering restructuring in the future, but not until after June 2013 (a key date in eurogroup statements, tied to the end of the EFSF's loan window and the original final drawdown of the EU/IMF aid to Greece). Any plausible credit enhancement must be sufficient to make new bonds withstand the 2nd round of restructurings mostly unscathed. As June 2013 is arbitrary, any ambiguity over this date may help in restructuring shorter-dated instruments. They could also just threaten an outright default on selective instruments.

after which restructurings could become more aggressive, this threat may not affect pre-mid-2013 bondholders (around €77bn of bonds), effectively making this a toothless threat to the very front-end.

b. **Change to ECB eligibility or haircuts for repo financing** could coerce banks to switch out of old bonds. But getting the ECB, who are in general resistant to restructuring, to agree to this appears unlikely. In recent statements Nout Wellink indicated an openness to debt extensions, although this may veer from any official ECB view.

c. **Other disincentives: removal of gross-up clauses, insertion of calls, or other poison pills in old bonds.** These may be considered coercive enough for CDS to be triggered (e.g., ANGIRI **subordinated debt restructuring).** And, **delisting** / **loss of liquidity** is a usual ploy in sovereign restructurings, but possibly ineffective except for Pensions, many of which have listing requirements for AUM (see link).

Some of the disincentives are only feasible if *collective-action clauses* (CACs) are first introduced into bonds via *mopping-up* law (i.e., by introducing CACs through retrospective changes to Greek legislation covering the issuance of bonds, see box on Legalities of Restructurings). In general, CACs would have to be introduced, giving a required supermajority for restructuring, after which taking up an exchange offer would be conditional on the investor signing an *exit consent* (which is effectively giving proxy vote to achieve the supermajority needed to allow a restructuring). The technical nature of packages and restructuring is covered in more detail in *Sovereign Debt Restructuring in Europe: emerging market blueprints for a brave new world* (see link).

Other than the tax gross-up provisions (which make foreign investors whole on any domestic Greek taxes), **outstanding GGBs are particularly unattractive.** Consequently, **most disincentives other than threats of outright default** (technically GGBs can be unilaterally restructured, see Legalities of Restructurings) **will not induce investors to seek an exchange**. Meanwhile most incentives (e.g., Brady bonds) do involve further EU commitment to Greece, and the possibility of putting up money or guarantees up-front.

We note that although the question of whether to trigger CDS is worthy of consideration, the total net notional outstanding of Hellenic Republic CDS of $5.4bn[2] makes this a

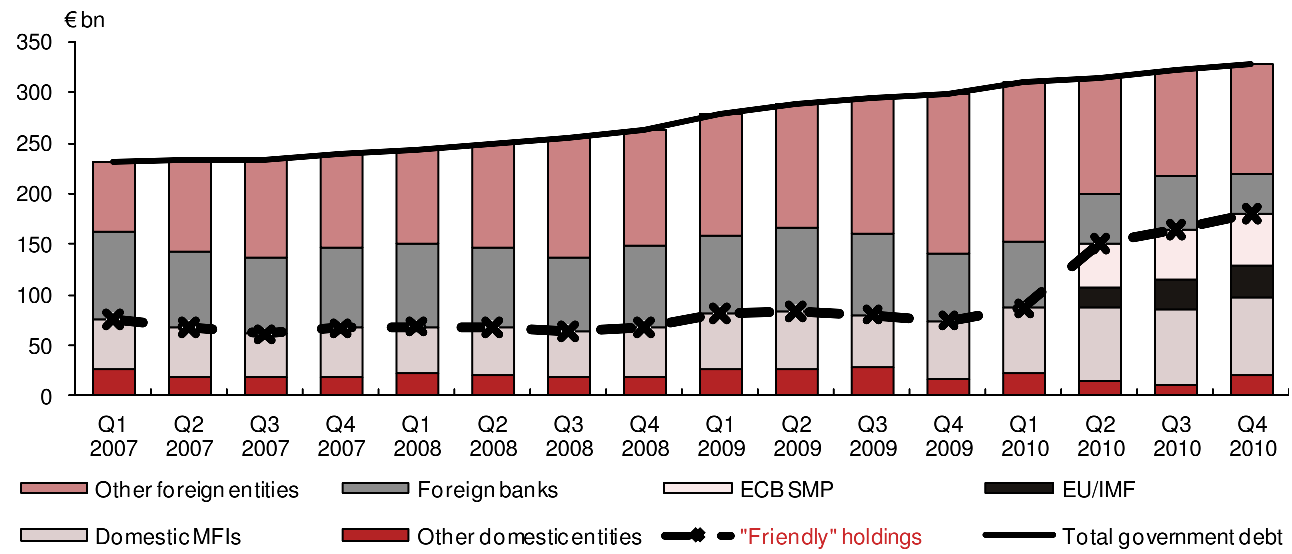
[2] Total net notional is the net long exposure to CDS according to DTCC (see link), which should be the total net notional on which CDS is paid out given a trigger event. The total gross notional of around EUR 77bn involves many counterbalancing trades and is not relevant. Nonetheless, concentrations of exposures may play some role in determining policy-makers objectives for a restructuring, since net notional is not a complete representation of concentration risks from any given credit event.

relatively more minor concern in and of itself, except in the context of a threat to bank solvency (with needed re-capitalizations) or possibilities of contagion (mentioned below). Although we do not believe CDS will be triggered in any initial restructurings, the total size makes this a peripheral concern.

More important than legal aspects of CDS triggering is contagion to the periphery. Policymakers at the time of a restructuring would need a strategy to anchor expectations regarding the adjustment programmes in Ireland and Portugal. If these countries do not reschedule their debt pre-2013 (and we do not think they should at this point), euro-area leaders will likely need to commit to providing financing to them without rescheduling when their financing gaps arrive (probably by H2 2012 in Ireland, and mid-2013 in Portugal). If they are not willing or able to do this on political grounds, then market dynamics could force them into similar rescheduling with the potential for damaging spillover into Spain as well.

We consequently **believe that any restructurings in initial stages** (i.e., prior to 2013) will either be done voluntarily with roll over terms like the **"Vienna Initiative"** approach of maintaining credit lines or will **involve a combination of legal enhancements, and extensions with possible modest re-couponings. The key element of any strategy will be to avoid coercive methods that will increase contagion risk.** Meanwhile, large scale exchanges into **Brady bonds are unlikely at this stage**, being more of a reward for good fiscal behaviour (see box on Brady Plan). More severe restructurings are possible for Greece but not until after June-2013.

Figure 3: Holdings of Greek debt



Source: Bank of Greece, BIS, IMF, Eurostat and Nomura Global Economics.

Box: Holdings and accounting for restructurings

Incentives for restructuring differ between official sector and corporate holdings. A brief overview of the holdings, the accounting rules and the resulting impact of proposed restructurings should give some insight into policy-makers' calculus for opting for one proposal over another. One guiding principle in this situation is to prevent large scale realizations of losses in the over-leveraged and still fragile EU banking sector, especially options which require recapitalization. Accounting principles weight viable alternatives

EU/IMF Loans: At a total of €110bn, of which €53bln has been disbursed thus far, these are in the process of being **extended and recouponed** (moving from a 3+2 structure of 3yr of grace period and 2yr of repayment to a 4+6 structure, with a rate now 100bp below the initially agreed rate for EU loans). These amounts are fully funded and *de facto* senior to GGBs which are governed by English Law and include such terms as: waiver of sovereign immunity, inability to subordinate to any external debt, cross-default clauses and acceleration clauses. Such terms and legal provisions are not enjoyed by regular GGBs[3].

The EFSF (who has nearly identical terms to EU bilateral loans as per the EFSF Framework Agreement Preamble (1), see link) has stated that their loans to Ireland are *pari passu* to Irish debt under all circumstances (see e.g., EFSF FAQ, link). However, the EU itself (for Greece) and the EFSF (for Ireland) may not be able to reduce their claims against these countries in light of Article 125 of the TFEU (see link) as this is a form of permanent fiscal transfer. Similarly the IMF enjoys a preferred creditor status by convention and is unlikely to ever participate in haircuts. We consequently believe that **EU/IMF loans can and will be extended and recouponed as needed,** but unlike GGBs which may be subject to haircuts in the future, **EU/IMF loans will never be haircut**.

ECB's Securities Market Purchase Programme: The ECB accounts for its SMP at cost (subject to impairment, see ECB 2010 Annual Report, link page 218ff). Although the plans for the SMP were to hold temporarily until resale (with the ECB hoping to sell via the EFSF or ESM back to Greece), it appears that they will be forced to hold to maturity given current plans. The ECB mostly purchased shorter maturities and of the €76bn (as of 22 April 2011), we estimate they hold between €40-50bn of GGBs at an average price of 80-85, this means €50-63bn notional. These are sterilized via rolling 7-day depo auctions. Strong pull-to-par means the ECB accrues large profits on its holdings which are meant to be distributed to NCBs every January (p 222 of Annual Report) unless the ECB is booking a loss. We believe the ECB is mostly indifferent to extensions at par and to recouponing, and they are likely to be insulated from modest haircuts if the resulting yield is still high. Moreover, given the depressed prices at which the ECB has purchased these securities, there is some reasonable buffer against mark to market should they ever sell. Consequently, **the ECB appears to be able to absorb NPV losses, be extended and recouponed and possibly haircut within reasonable margins.**

Bank holdings

Greek banks As of March 2011 they held 45.5bn in Greek securities out of a total security portfolio of 76.6bn and 13.1bn in Loans to the government out of a loan book (to non MFIs) of 272bn. These Greek holdings are approximately 208% of the total capital and reserves of the Greek banking sector (€28.2bn).

Part of that loan book also includes close to 50bn of "own-use" bank bonds with a Government guarantee, which provides them part of the ECB eligible collateral at the ECB. The remaining part of ECB eligible collateral is self-issued securitizations which are close to €30bn. ECB borrowing has basically based on the mentioned collateral above, which was 139.6bn pledged at the ECB in March in 2011 in return for 87.9bn of funds. Their total capital and reserves stood at 28.2bn in March 2011 after 16.2bn in bad loans provisions already taken.

Foreign banks (primarily French and German, see Figure 3) account for far less, with €39bn in Q4 2010. In the last stress tests, EU commercial banks (Ex Greek and Cypriot banks operating in Greece) had no more than €40bn Greek debt on their books. Other non-banking entities (e.g., bad-banks, or Pensions and RM) exposure is considerably larger. Nonetheless, bank solvency is a primary concern and a combination of accounting friendly restructurings and possible forbearance can prevent the need for large capital injections.The largest portion of GGBs are booked in banking books (Held-to-maturity or HTM), although some portion is booked in Available for Sale (AFS) or Trading books and we deal with accounting implications of each in turn.

[3] Many external bonds, e.g., JPY, USD, GBP, and CHF denominated debt and English law EUR denominated bonds (i.e., *Eurobonds*) have similar negative pledges and many of these can technically not be subordinated to the EU and IMF or the ESM or EFSF, irrespective of official statements that ESM will be a *preferred creditor, subordinated only to the IMF*.

Box: Holdings and accounting for restructurings

Bonds in HTM books. The vast majority of European banks book GGBs in banking books, primarily to avoid large impact of P&L swings. The large proportion of GGBs in HTM is one of the primary reasons for the lack of liquidity and relative inability of the ECB to move the market in the course of its SMP purchases.

Various large scale restructurings will result in an impairment. If the new bond's NPV (found by discounting the new cashflows by the old bond's IRR) is more than a 10% different than the old bond's NPV, (also known as the *10% RuleTest*), the old asset must be impaired and extinguished and the new asset recognized initially at fair value (even if the asset is accrual accounted thereafter as HTM) with the difference recognized in P&L.

If the new asset includes various significantly different credit enhancements and exchanges are done par-for-par, then it can continue to be accrual accounted, provided these changes are not significant—one could argue that from a qualitative perspective adding credit enhancement is significant enough to extinguish the existing asset but this is also subject to interpretations so one should expect a diversity of practice. The *10% Test* gives leeway in terms of extensions as **all bonds booked at par can be extended as long as the coupon is only modestly changed. T**his was the logic behind par bonds in the Brady plan. The calculus is different for banks that book the bonds at a discount.

Haircuts will almost certainly result in the need for provisioning and realization of losses upfront. If the change to the original debt arrangement is significant (eg *10% test* is met), then banks should recognize a provision for the 'old' asset to reflect the potential loss, then derecognize the 'old' asset and recognize the 'new' asset at fair value/MTM. If no impairment, the bank can continue to recognize the asset on accruals basis (if classified as HTM) and recognize the couple adjustment and the extension over the life of the instrument using a revised effective interest rate based on the new cash flows. **Combinations of credit enhancement and accounting forbearance (possibly accruing provisions from earnings over an extended horizon) can make haircuts less debilitating.**

Bonds in AFS: The NPV impact of most market losses is classified as an unrealized loss in equity. Any subsequent sale would release this loss to the P&L. The desire not to impact P&L and this type of accounting is also a reason for poor liquidity. If the cash flows of a AFS bond that is restructured change by more than 10% then any unrealized gain/loss in reserve would be released to P&L.

Bonds in Trading books. The NPV impact is more important for both AFS and Trading books, where mark-to-market is reflected in P&L directly. Impact of HTM on trading is unavoidable.

ECB repo: Banks reliant on the ECB for their financing of GGBs will be subject to MTM risk, since the ECB only finances the market-value of the instruments subject to a relatively large haircut. This could mean that new market values result in short-term financing needs. Greece is relying less on the ECB over time, although at approximately €86bn in March, this is still a large number. As we have no real information over the nature of the Facility for Bank Restructuring (the ECB's new institutional replacement to the somewhat ad hoc Emergency Loan Assistance-ELA programme offered by the NCBs, see link), it may be feasible to financing without full MTM but this is as yet completely unknown. **Without ongoing liquidity assistance, any large-scale restructuring will be challenging.**

Figure 4. Estimates of holders of Greek debt

€bn	Q4 2009	Q1 2010	Q2 2010	Q3 2010	Q4 2010	Q1 2011
Central Government debt	323	335	339	349	354	
Intergovernment holdings (mainly Greek pension funds)	25	25	25	26	25	
General Government debt	299	310	314	323	329	
Foreign banks	66	68	52	56	40	
Domestic banks bonds	34	39	42	45	45	45.6
Domestic banks loans	12	13	16	16	18	13.1
Bank of Greece bonds	4	4	6	7	7	
Bank of Greece claims	8	8	8	8	8	
Greek insurance companies	4	4	4	4	3	
Euro area/IMF loans	0	0	20	29	32	54
ECB	0	0	44	50	51	50
T-bills	11	9	7	10.5	9.4	
Currency and deposits	2	1	1	1	1	
Other foreign entities	159	164	114	97	115	
Domestic (Ex t-bills)	86	94	101	105	107	

Source: Bank of Greece, BIS, IMF, Eurostat and Nomura Global Economics.

Haircuts

It is often argued that reducing the Greek debt ratio to below 100% of GDP would be the only way to solve Greece's debt crisis. In this context, the argument goes that Greek interest rates would drop, market access would be regained, investment and growth would restart and Greece would suddenly be solvent. While this fairy-tale view has great attraction, we have been highly sceptical. Aside from the contagion issues in the rest of the periphery, there at least two reasons that make us averse to the idea of haircuts:

First, the composition of the debt stock has heavily tilted towards the EU/IMF, Greek domestic investors and the ECB SMP programme over the past year. Haircutting the principal of Greek domestic holders (banks, pension and mutual funds) can have at best dubious benefits for the sovereign in our opinion. Or if it happens it requires a more comprehensive solution large recapitalisations, and potentially some collateralised exchange of new bonds to banks in order to clean their balance sheets once and for all.

Even at the end of 2010 foreign holdings (excluding EU/IMF but including the ECB) were around 58% of the total Central government debt, therefore face value of this claims would have had to be reduced by 87% if debt to GDP was going to be halved. In figure 5 we have further estimates of haircutting different market participants' holdings by 50% and their impacts on central government debt ratios (where for example, a 50% haircut of foreign bond holdings results in a 20.3% reduction in overall government debt or a reduction of debt/gdp from 165% to 132%). If a package is further expanded to get Greece at least up to July 2013, this calculation will become even more challenging. From May 2011 to June 2013, 77bn bonds will mature, and will be replaced with official loans. Therefore, it is clear that if Greece does not reschedule any of these EUR 77bn bonds and more official loans are used to repay them, then any haircuts that happen after July 2013 would have to be abnormally large to reduce the debt to GDP ratio meaningfully. Combined with the large recapitilizations needed for Greek banks, this would be partly self-defeating.

Second, a lower starting point for Greek debt will not of itself fix the underlying problems of the Greek economy and may even blunt the incentives for reforms. What is needed instead is almost a decade of policy reform and implementation to make Greece a fiscally responsible country with sustainable sources of growth.

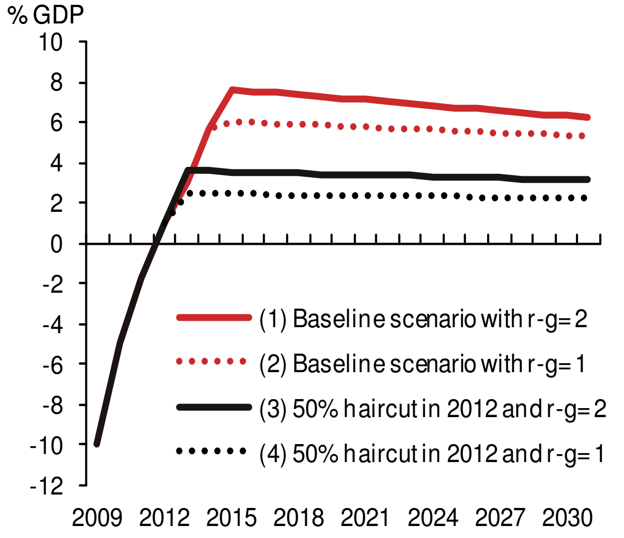
A large fiscal consolidation and surpluses for a sustained period are a prerequisite for Greece irrespective of haircuts. Given current assumptions, Greece will have to run consistent 6% primary surplus in order to reduce the debt ratio to as high as 130% of GDP in 2020. While this is feasible for short horizons (and Belgium, for instance ran a average 6% primary surplus from 1997 to 2003), Greece itself has only averaged an

Figure 5. Greek public debt holdings (April 2011 estimate)

Share of total debt (%)		50% haircut		
Total debt		on foreign	+ on domestic	+ on ECB
Foreign (ex ECB ,official)	45.3			
Domestic	27.0			
IMF	3.8			
ECB	13.6			
Euro area governments	10.3			
	100.0			
of which: market debt				
Foreign (ex ECB)	40.6	20.3	20.3	20.3
ECB	13.6		6.8	6.8
Domestic	21.3			10.7
Central government debt (% GDP)	165	132	120	103

Source: Bank of Greece, Bloomberg, BIS, IMF, Eurostat and Nomura Global Economics.

Figure 6. Illustrative paths for Greek fiscal primary balance



Source: IMF and Nomura Global Economics.

3.7% surplus in the run-up to the Euro (1994-1999), in a period of declining interest rates, relatively strong growth and (surprisingly to some) appreciating exchange rate. We believe long-term austerity of this sort is very difficult to be implemented again. On the other hand a restructuring can effectively reduce the fiscal austerity needed and make the primary surplus requirements for sustainability post haircuts more easily attainable.

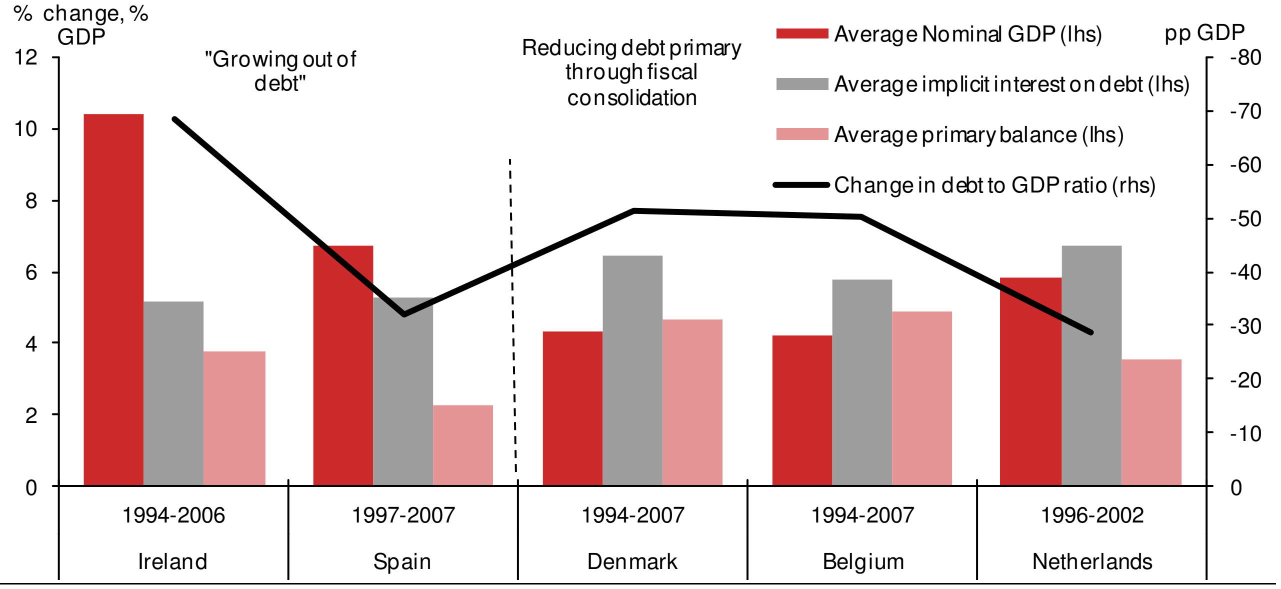
Figures 6 illustrates scenarios regarding the primary surplus required for the debt to reach 90% of GDP in 20 years, where interest rate on debt (r) is assumed to exceed GDP growth (g) by either 1 or 2% after 2014. Under a conservative scenario of r-g = 2%, an average primary surplus of 6.7% of GDP is required to get the debt-to-GDP ratio close to 130% in 10 years and to 90% in 20 years. A surplus of 5.5% is required under the more optimistic r-g = 1%. Without doubt, this is a very difficult task, particularly without support of a sizeable privatisation programme. Instead, if we assume that the debt level is reduced by 30% in 2012 (see figure 5); Greece would still need to run an average primary surplus of 3.5% (or 2.4% under r-g= 1%) for an extended period.

The bottom line is that primary surpluses required without any haircuts are very large but within the realm of outcomes achieved by other EU countries over the last 20 years. As an example at figure 7 we show details of historic debt reductions in Belgium, Netherlands, Denmark, each of which reduced debt with large primary surpluses over an extended period. This in turn gives little incentive for EU to allow some sort of debt relief to Greece, before it actually does it part in terms of fiscal consolidation.

A level of debt that is sustainable will be determined by the medium term growth potential of Greece and a level of primary surplus that is politically sustainable. Both at this point have an unacceptable amount of uncertainty and can't define political decisions that involve impairing Euro denominated Sovereign bonds.

Nonetheless, the timing and decisions are political. **EU leaders do not want to give Greece such leeway at this point in time.** With only one year of track-record as a responsible fiscal authority, the Greek government will have to pay its dues for many years before significant relief is contemplated. EU leaders have tied plausible dates to June 2013. Prior to this date, EU leaders appear to prefer voluntary extensions, and these options are more favorable to bank holdings. Subsequent to 2013, at a time when Greece should be running a primary surplus, the likelihood of haircuts does increase, but any prospect of regained market access diminishes this probability. **We believe haircuts are not an inevitability given the many complications** and **rather extensions**, (however NPV impactful) combined with **possible lowering of both official and unofficial interest rates, as far more likely an outcome**.

Figure 7. Major debt reductions in EU



Source: AMECO and Nomura Global Economics.

Box: Legality of Restructurings

The devil is in the details and the EU has now opened itself to intense legal scrutiny in the course of the crisis. Some of the plausible restructuring scenarios are given more or less weight (or eliminated outright) based entirely on the legality of the underlying proposals.

A common mistake among bond market participants is the sacrosanct legal framework upholding the payment of Greek bonds. Most Greek bonds are governed by Greek law. Being mere 10-15 page documents referring to Greek statute, they can be easily amended by act of parliament. (see Buchheit-Mitu Gulati, link and link).. In fact, most bonds in the euro-area are governorned by 'local law' and are similarly tenuous in their legal standing. By act of parliament, coupons can be changed, coupon and principal payment dates can be altered, haircuts can be established (which raises constitutional issues of confiscation of private property) and cash flows could be redenominated. Court cases can only be pursued in Greek courts and the sovereign enjoys many protections: no negative pledges, no waivers of immunity, and no cross-default clauses. More benign changes to bond documentation is also possible through acts of parliament including, listing, trading restrictions, and the introduction of statutory CACs (a *mopping*-up law, meant to introduce provisions into old bonds similar to those meant to be introduced into bonds from 2013, see, e.g., Bucheit-Mitu, Endgame, link).

The many bilateral investment treaties which Greece (and other EU sovereigns) has entered into protect investors from expropriation, requiring fair and equitable treatment among investors. These can prevent differential treatment of Greek and foreign investors. Meanwhile, gross-up clauses in most bonds mean that changes to taxes will typically only affect domestic investors, preventing strategic changes to tax law that are an effective stealth restructuring (Turkey—2001 taxed holdouts, Jamaica—2010 threatened to do so), while bilateral tax treaties would ensure that taxes paid would net anyway, so taxes are unlikely to be a method for lowering effective payments.

While private property is protected under the Greek Constitution, (Article 17, paragraph 1, see link and Greek Civil Code 1946, in turn based on German Civil Code of 1900, Buergerliches Gesetzbuch), haircuts are a form of expropriation which is permitted for the public benefit following full compensation as determined by civil courts (Article 17 paragraphs 2-4). Given the severe nature of the debt crisis in Greece, public benefit may be viewed quite broadly.

Although unilateral restructuring is always possible and can be a viable threat, barring its use, EU leaders apparently see Greek debt as requiring 100% take-up for a restructuring and in many public statements by German officials, have called the debt contractually binding. This resonates with the comments from many thinktanks (e.g., Bruegel, EEAG/IFO), as technically GGBs are binding on a government unless altered by parliament. And consequently, any form for a legal restructuring must be purely voluntary barring an act of parliament.

The so-called benign acts of parliament such as the introduction of CACs in old bonds, can of course, open the road to more coercive forms of voluntary restructuring, especially when paired with *exit consents* (e.g., ANGIRI subordinated debt which involved introduction of a low-strike call in the old bonds).

But given statements from both German (see Schaeuble interview in *Die Welt*, link or *Reuters* link) and Greek politicians, it appears more likely that **voluntary restructuring** will be the only form viable prior to June 2013.

CDS can be triggered for a variety of events, including failure to pay repudiation or moratoriums (refusal to acknowledge or perform payments of debt or legal authorization of delays) and restructurings including reduction of debt, delays in payment, redenomination into a non G7/AAA OECD currency or change of subordination. While CDS is not particularly significant in size EU leaders have expressed distaste and we expect that CDS will not be triggered at this juncture.

Investment strategy

Z-Spreads for Restructuring Scenarios

We consider here various different restructuring scenarios (haircuts, extensions and coupon caps) and, value the pre- and post-restructuring Z-spread to EONIA of a given bond vs. today's cash price. We also consider the scenario of holding to maturity where there is only one restructuring event and look at the restructured cashflows and consider the return above risk-free EONIA swaps.

Given target post-restructuring spreads to EONIA (e.g., 500bp a rule of thumb), it is plausible to determine whether various bonds are a rich or cheap to a given restructuring.

In figure 9 we see four different restructuring scenarios including extensions of the first five years of maturities, extensions of the first ten years, haircuts and a combination of extensions and across the curve coupon caps. We compare to today's very sizeable spreads (truncated at the front end). While it appears unlikely that today's spreads will be realizable by all, it appears that all save the very front end and are well above our target.

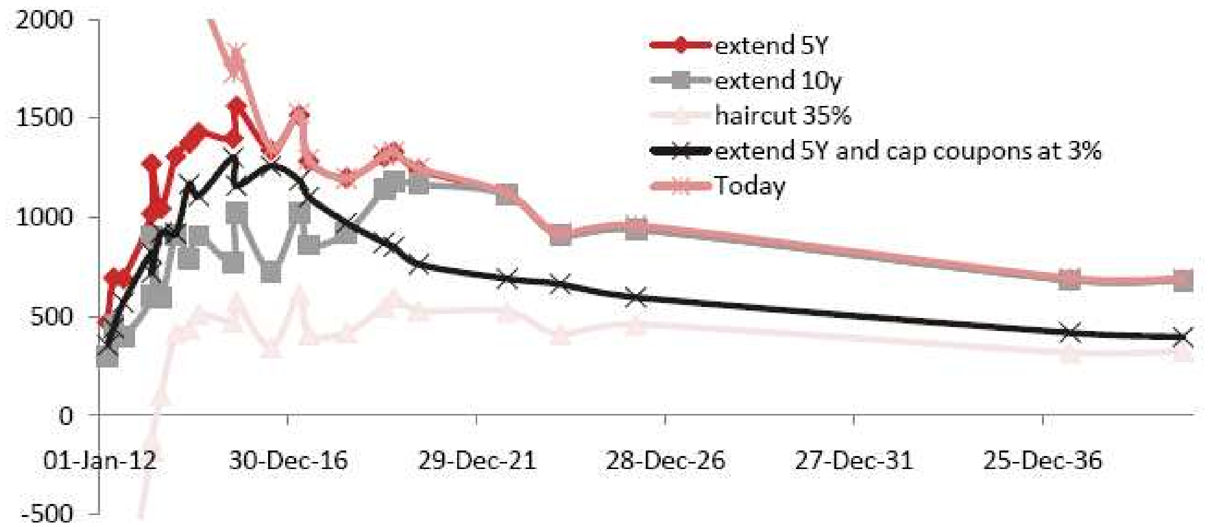
In most examples, if the very short dated bonds are somehow compelled to participate, many restructurings leave them far less attractive than modestly longer tenors. And they would be most damaged by haircuts. In stark contrast, longer-dated bonds generally yield relatively attractive spreads to risk-free rates even under more extreme haircut scenarios.

In fact due largely to recent sell-offs which were primarily driven by the front end, shorter-dated GGBs continue to have reasonable yields compared to their longer-dated bonds even under more extreme restructurings (save for the 35% haircut)..

But our target of 500bp is probably far too high and, if a restructuring were to take place with sufficient incentive, and the market were to consider it a turning point in terms of returning Greece to sustainability, it is likely there would be a subsequent rally. Correspondingly, target Z-spreads should probably be closer to 300-400bp and a wider range of bonds becomes reasonably priced for investors with a longer-term horizon.

Credit enhancement would make the picture differ somewhat markedly. In particular should say the 35% haircut be accompanied by a 50% guarantee, the resulting Z-spread is actually what is known in EM literature as a *blended yield spread.* To calculate the true Greek risk, we must first strip out the risk-free (or less risky) component to calculate a *stripped yield spread (SYS).* The resulting pure-Greek risk embodied in a SYS would be much higher than that in figure 6 and could make the bonds considerably more attractive.

Figure 9. Z-Spreads of GGBs conditional on restructuring scenarios



Source: Bloomberg and Nomura Global Economics.

Recommendations

We like short-dated GGBs. It appears likely the package will be extended and will cover at least until mid-2013. If a face-saving measure is collateral, all shorter maturities will rally. If it is voluntary extensions, the seeming ease of holding out (with possible shocks to MTM) makes the very short-end attractive. At spreads north of 1700bp over swaps, the 2012s are particularly attractive.

We like ultra-long- GGBs in the event of either a rescheduling (especially that which would only involve rescheduling shorter-dated bonds), and a possible haircut to all bonds. We do not dislike GGBei's as we assume that haircuts are expected to be on the *uplifted notional* rather than on face, but this is however subject to considerable uncertainty. We focus on the 2037s at 377bp over swaps and the 2040s at 374bp MS.

We also **like** a great many of the **Greek Eurobonds** (and other foreign-law bonds) and **foreign currency denominated bonds** for their extra legal provisions, some of which are effectively pari passu (if not modestly legally enhanced) to the IMF and EU, although we do not expect any legal seniority to be respected in practice. Some Eurobonds do not have similarly attractive features (usually in the negative covenants and cross-default and acceleration clauses), which is worthwhile.

We would **avoid most middle-range maturities** (e.g., 2013-2017 maturities) as the prospects of more severe restructurings with real disincentives for holdouts leading to a more coercive and NPV damaging extension or haircut, post-2013, make these particularly unattractive bonds to hold.

Box: The Brady Plan

Tony Volpon

The Brady Plan (named after then U.S. Secretary of the Treasury Nicholas Brady) was a successful program that began in 1989 to reschedule bank debt accumulated by less developed countries (LDC) during the debt crisis of the 1980's. The crisis was caused by excess lending in the 1970's (as money centre banks recycled so-called ""Petrodollars" to these countries) and the subsequent recession as the Fed under Paul Volcker sharply tightened monetary conditions in 1982. The first response to the crisis was a series of loan rescheduling arranged by the IMF and creditor banks, who would deliver balance of payment support in exchange for economic adjustment programs (normally involving a combination of fiscal tightening and exchange rate devaluation to diminish "internal absorption", hopefully generating a turnaround in large current account deficits).

Due to the effects of the recession, falling commodity prices and political pressures, the countries affected faced a mix on low growth and high inflation even as external positions improved, with countries like Brazil going through a series of successive IMF programs as targets were missed. Brazil eventually declared a payments moratorium in 1987 that lasted until 1989.

By the late 1980's it was recognized that the "debt overhang" created by the original crisis and the successive rescheduling of debt created perverse economic incentives for debtor countries. Specifically, the need to tax away profits and sequester foreign exchange earnings to meet debt payments led to a variety of negative outcomes, such a pervasive high inflation and tax evasion. It was recognized that a cut in debt overhang could provide an important incentive for countries to implement sustainable economic adjustments.

Beginning with Mexico in 1989 and going until Brazil's plan in 1994, the new approach offered "hair cuts" to outstanding debt levels in exchange for countries meeting fiscal and balance of payment targets agreed with the IMF (the 1994 Brazil plan was an exception as the IMF failed to approve the then newly launched, and subsequently very successful "Real" anti-inflation plan). While providing incentives for the debtor country, the plan also provided incentives for the creditor banks. First, loans were to be swapped for securities, allowing banks to more easily sell (and buy) these credits. Second, different types of securities were created to meet different needs. Most Brady plans contemplated three types of bonds: first, a "Par bond" where the original credits were swapped at par of face amounts, but at below market interest rates. Second, a "discount bond", with a hair cut to principal but market rates. At lastly a "new money bond" for those who wished to gain exposure to the credit on better terms. Bond tenors were often lengthened in relation to the original loans (30 year tenors were common) but often U.S. Treasury zero coupon bonds were offered as collateral. The different bond options allowed banks in different financial situations, risk appetite and regulatory regimes to choose the mix that best met their specific needs.

The Brady Plan was largely successful. Most countries quickly returned to voluntary borrowing and have retired their Brady Bonds.

Conclusions

We concluded in December (see "Patients need for the patients" in *European Economic Outlook*, 7 December 2010) that although some creativity was required to reduce Greece's debt burden, **traditional remedies such as achieving an adequate primary surplus and structural reforms were still the priority.** Excessive focus on debt reduction mechanisms runs the risk of distracting attention from this uncomfortable truth. And as we have argued here, the more aggressive debt rescheduling techniques now being considered are not without their risks, but EU policymakers seem to be being forced into taking this route for political reasons.

It appears **increasingly likely that Greece will receive a larger package** (possibly subsequent to increased size from the EFSF, possibly through larger bilateral loans)**.** Northern European political will has waned for merely increasing the package size (although it carries very valuable policing powers) and appears to be moving in the direction of requiring **face-saving measures.** These could involve **a voluntary restructuring** in the coming year**,** with the highest probability around Q3 2011, mostly likely through **extensions (and expectations that banks will roll debt) in return for some form of credit enhancement.** Or they could include the much more minor **collateralized lending.** The former is positive for the front end in that holding out is likely to be easy. The latter is absolutely positive for the front-end.

But subsequent to 2013, after Greece has established a far sounder track record of implementing fiscal reforms (and possibly is running a larger primary surplus), should Greece continue to struggle to regain market access, further increases of packages from the ESM are likely to come with much more severe restructuring needs. Due to the complexity of cross-holdings (and the large official sector holdings), **we believe haircuts are unlikely** and rather **more severe extensions and coupon caps** will be more acceptable. With markets looking ahead, even after any short-term face-saving measures, it is all the **more likely that Greece will not regain market access**. Consequently, whatever action takes place now**, we believe a large-scale Brady-style restructuring will be mooted sometime after 2013.**

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