The Revolver

Growth-linked bonds: A solution for Greece

An extension deal for Greece is getting closer. But what happens after that? Greek debt remains unsustainable in the medium-term, on our calculations, and the IMF projections unrealistic. Europe's financial system needs more flexibility: as it stands, the public and private sectors have limited ability to restructure debt. The inability to fail, restructure debt and move on is a key reason why Europe remains stuck in a balance sheet recession, unlike the US. We believe growth-linked bonds are one of the solutions; we call them Growth-Linked Anti-cyclical Debt, or GLAD bonds.

A debt-based financial system which does not allow for failure can bind the economy in a long-lasting balance sheet recession. The US economy recovered from recession also because its private sector (households, corporates) was able to restructure debt: households cut 20pp of debt/income during the crisis, and corporates restructured $400bn of high yield debt (60% of total losses) in bond markets. In Europe, households and corporates are unable to restructure debts, and credit is mostly in the form of loans. Most losses remain on bank balance sheets, currently carrying €1tn of non-performing loans, over 10% of GDP. Europe's inability to restructure private debts has also meant the public sector has had to increase its support to a larger extent.

We need a more flexible financial system, if we want European economies to recover and not to be engulfed in debt for the next decade. For the private sector, the recent EC capital markets union proposal aims at increasing non-bank funding, which can be more easily restructured. But even in the public sector, the question remains open: what do you do with a debtor that can't pay?

Greek debt is unsustainable. The IMF expects Greek debt to fall to 120% in 2022 on rising growth and constant surpluses above 4%. More likely, we think Greece will experience a recession or a slowdown (like in Q4 2014), which will put debt back to 170%, on our calculations. The need for more flexibility is clear. The question is how to achieve it with the right conditionality, and aligning interests of creditors and debtors.

A solution could be Growth-Linked Anti-cyclical Debt (GLAD). Growth-linked bonds are not a new idea. They were proposed by Robert Shiller first, then by the IMF and more recently by the Bank of England. In this report we estimate the economic impact of growth-linked debt, showing that it effectively acts as a shock absorber, reducing the weight of interest in a downturn, while distributing extra gains in a boom. This lowers the chances that a country may be trapped in a negative austerity-debt spiral, especially in a currency union, where monetary policy is less responsive to shocks affecting a single country. Conversely, growth-linked bonds are more volatile than normal debt: in our analysis, we calibrate and compensate for this additional risk. If designed with the right conditionality, growth-linked debt can better align the interests of creditors and debtors: both will benefit from achieving sustainable long-term growth.

New trade: Long Hellenic Telecom. Buy HTOGA 7.875% 2018. An extension of Greece's loan agreement and a potential more flexible arrangement later on would reduce austerity and boost growth. Hellenic Telecom (OTE) is Greece's main telecom operator, with 30% foreign revenues and a 40% stake owned by Deutsche Telekom. OTE has good earnings and liquidity fundamentals, ranking among the strongest credits in Greece, but trades wide on political/Grexit fears. We expect it to tighten once a Greece-troika deal is done.

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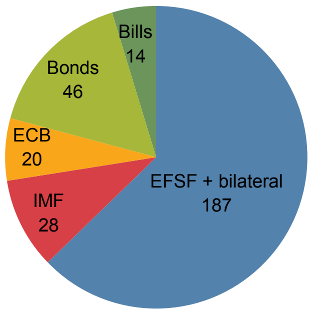
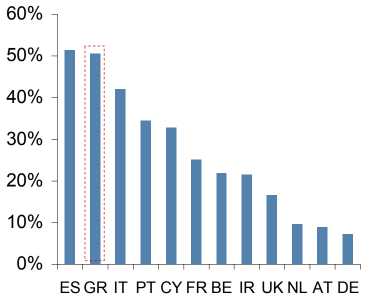
1. Greek debt and the illusion of sustainability

Official sector owns 80% of debt
Greece sovereign debt, €bn



Source: RBS Credit Strategy, EC, IMF, Bloomberg

Greek youth unemployment is >50%
Unemployment % of <25 years old



Source: RBS Credit Strategy, Eurostat

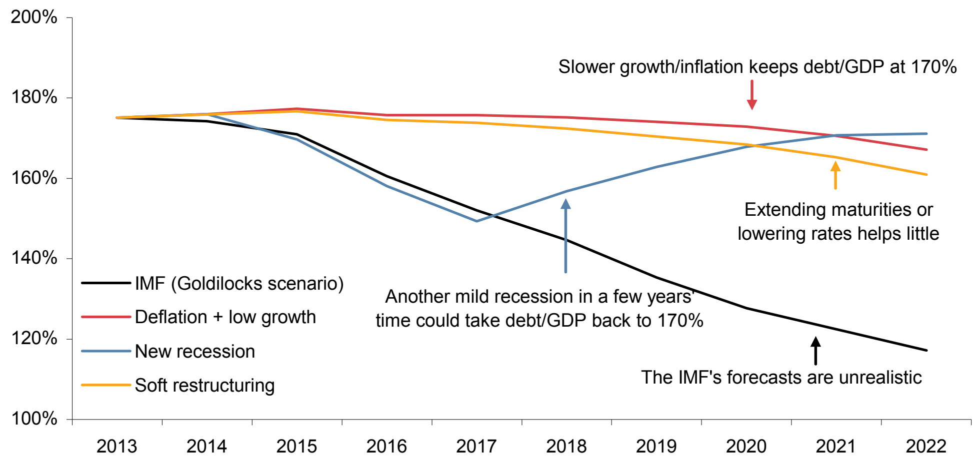
Greece is returning to growth after 5 years of recession, with GDP rising 0.8% in 2014. Unemployment has also declined to 25.2%, with around 100k people finding employment last year. These are the first glimmers of light at the end of the tunnel for Greece, but it will be a long time before the economy fully recovers. The IMF projects unemployment will stay elevated for the next five years, above 12% until even 2019.

Greek debt is not sustainable in the long term, in our view, despite positive growth. Greek debt totals €295bn now, with 80% of this held by the public sector. Under the optimistic troika forecasts, Greece will enjoy real GDP growth of 3.5% per year until 2019 and primary budget surpluses of more than 4% of GDP until 2022. While this would make the debt sustainable, it is very unrealistic: few developed countries have achieved this in the recent past. If deflation and low growth persist (-1.6% inflation, 1.2% growth) or if a mild recession occurs 3-4 years from now (-2% growth and inflation), Greek debt would return to or surpass current levels (>170% GDP). Policy makers opposing a reduction delay the recognition of the problem, prolonging a troika-controlled programme which will become increasingly hard to manage vs high unemployment and rising social unrest.

Soft restructuring through maturity extensions and interest rate cuts would help marginally. Maturity extension and cuts in interest rates have been enacted previously, and further cuts have already been discussed by the Eurogroup. Bruegel, a Brussels-based think tank, estimates that a 10-year extension of EFSF and bilateral loans and a 50bp reduction in the interest rate on bilateral loans would create a net present value saving of €31.7bn, or 17% of forecast 2015 GDP. Although this makes debt servicing easier for Greece, it doesn't substantially lessen the burden on Greek public services and social support. Our estimates suggest that the effect of a soft restructuring on debt/GDP would be fairly small, of 2.5pp by 2019, rising to 4-5pp by 2025. Therefore**, a soft restructuring (maturity extension or interest rate cut) effectively just delays the problem**.

A reduction of official sector debt (OSI) of at least 33% is needed to reduce debt/GDP to sustainable levels, and to offset the risks of continued low growth or another recession in the future. Cutting the principal of the EFSF and bilateral loans by one third next year would lower Greece's debt by around €64bn or 35% of GDP. This could also offset the effect of continued deflation or another recession in the coming years that we discuss above, but in that scenario Greece would need an even larger OSI haircut in order to restore debt to more sustainable levels (The Revolver | Greece: Bailout renegotiation likely, OSI later, but no Grexit).

A new recession/deflation could push up 2019 debt/GDP by 30pp
Debt sustainability analysis: general government debt, % GDP



Source: RBS Credit Strategy estimates, EC, IMF

1.2 Greece & the troika: Less austerity, more flexibility

SYRIZA, the wining party in January's elections, promises to end austerity as well as corruption. The party campaigned on its Thessaloniki Programme, built on the Four Pillars of National Reconstruction Plan, estimated to cost €11.4bn. They also pledged an end to outside influence on Greek social support, as well as cracking down on tax evasion and corruption.
SYRIZA's initial plan included four pillars:

1. **Confronting the humanitarian crisis**: aid for households below the poverty line, including electricity and food provisions, medical care and housing;
2. **Restarting the economy and promoting tax justice**: shifting the tax burden from the middle class to the wealthiest in Greece and tax evaders;
3. **Regaining employment**: 300,000 new jobs across public, private and social sectors over two years;
4. **Transforming the political system to deepen democracy**: empowering regional governments and popular movements.

Thessaloniki Programme: How Syriza proposes paying for National Reconstruction

Source	Amt. raised (€bn)
Collecting arrears	3.0
Tax receipts	3.0
HFSF	3.0
NSRF (2007-2013)	1.0
NSRF (2014-2020)	1.5
Other specialized European instruments	0.5
Total	12.0

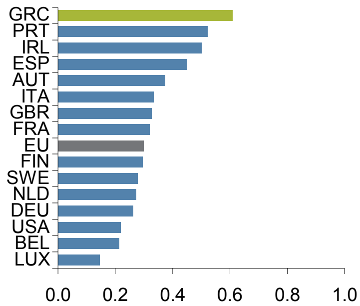
Source: RBS Credit Strategy, SYRIZA

SYRIZA hopes to finance its programme using debt write-down and growth-linked bonds. In its initial programme, SYRIZA proposes to write off '*the greater*' part of outstanding public debt in the context of a '*European Debt Conference*', as well as include a grace period on payments and remove public investment from deficit calculations. In addition, SYRIZA have proposed shifting outstanding debt to growth-linked payments, aligning creditor interests with their own. The final aspects of the programme for National Reconstruction would be financed by collecting arrears (€3bn in the first year) raising tax receipts (not specified), tapping the Hellenic Financial Stability Fund (€3bn) and the National Strategic Reference Framework (€2.5bn).

SYRIZA also wants (or wanted) to reduce/discard part (30%) of the troika's bailout conditions, such as reducing its primary surplus to 1.5%, from 3% in 2015 and 4.5% in 2016 – at least in its initial proposals. The 30% of discarded measures would be replaced by new ones to be agreed with the OECD (WSJ). Some privatisations have been halted, such as the sale of 67% of the Piraeus Port Authority, while an agreement with Fraport to run 14 regional airports is under review (ekathimerini). The Hellenic Republic Asset Development Fund cited 21 assets as having been privatized as of December 2014, 15 "in progress", and 13 are "under preparation", for a total value of €7.7bn. The IMF recommends reaching €9.6bn cumulative revenues by end-2016.

Stand-off between Greece and the troika: Greece has given ground. Negotiations between Greece and the troika have resembled a 'cold war' battle: both sides are using severe threats to force the other's hand. It is very likely that a loan extension will be granted by creditors to Greece. SYRIZA's long-term proposals have been met with strong opposition, and since its initial hard-line stance, Greece has given a lot of ground, dropping its demands of a debt write-down and softening its stance on reforms, and in the text of its bailout request, pledged to *"honour Greece's financial obligations to all its creditors as well as state our intention to cooperate with our partners in order to avert technical impediments in the context of the Master Facility Agreement which we recognise as binding vis-à-vis its financial and procedural content"*.

Greece has done the most reforms
Reform responsiveness, 2007-14



Source: RBS Credit Strategy, OECD

But what's the bite behind the bark? The track record on reforms is actually very positive so far. Greece has been the most responsive country at implementing structural reforms over the past 7 years, according to the OECD's Going for Growth 2015 (left). The IMF's 5th review highlights key reforms implemented so far: reducing the labour tax wedge with lower social security contributions, enhancing labour market flexibility; simplifying temporary employment regulation and collective dismissal rules. Greece has also taken steps to facilitate trade, reduce the judicial backlog and reduce corruption. Key pending reforms include: liberalising regulated professions (law already partly done), reducing tax evasion, further enhancing the flexibility of labour and product markets and speeding up the justice system.

1.3 Greek banks: There's still sand in the hourglass

Performance of Greek banks in the EBA Credit Assessment

Bank Name	Capital shortfall (€ bn)	Capital shortfall post net capital raised (€ bn)
Eurobank	4.63	1.76
NBG	3.43	0.93
Piraeus	0.66	-
Alpha	-	-

Source: RBS Credit Strategy, EBA

Greek banks have consolidated and recapitalised since the crisis. As part of the bail-out agreement, the Bank of Greece identified four major banks in 2012 for recapitalisation using programme funds. The four banks (Alpha Bank, Eurobank, NBG and Piraeus Bank) now account for around 90% of total banking assets in Greece, after acquiring or integrating the other smaller banks. They have received around €28bn of capital in total from the Hellenic Financial Stability Fund (HFSF), and posted encouraging results in the EBA and ECB 2014 stress tests. An aggregate gross capital shortfall of €8.72bn was posted by Eurobank, National Bank of Greece (NBG) and Piraeus, with Alpha showing no shortfall. Once capital raising of €6.36bn during 2014 was taken into account, however, a net shortfall of only €2.69bn remained, which is manageable compared to the remaining HFSF of around €11bn.

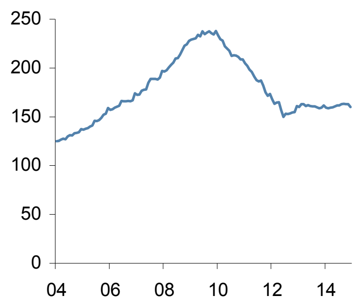
Move to ELA funding will increase funding pressure on Greek banks. Earlier this month the ECB removed the waiver allowing banks to post Greek issues or guaranteed paper as collateral in the normal ECB refinancing operations, following the failure of politicians to extend the bailout. This pushed the Greek banks to the Emergency Liquidity Assistance (ELA) programme, which is held on the Bank of Greece's own balance sheet and comes at a higher rate of 1.55%. Greek banks were pledging around €41.7bn in state-guaranteed and retained bank bonds before regular access was cut, and hold around €12.4bn in government bonds, as of December 31, 2014 according to Bank of Greece data. Total Greek banking assets stood at €397bn in December 2014, with total loans to NFCs at €227bn. Assuming a 35% NPL ratio, in line with that experienced by the big four Greek banks, and a 50% haircut suggests around €73.7bn of maximum ELA liquidity available from existing loans. Taking into account holdings of Greek sovereign and backed paper above the current ELA limit of €68.3bn, as well as approximately €11bn of deposit flight in January means Greek banks have around €65.8bn of maximum ELA liquidity (The Silver Bullet | Wolfgang says no).

Eurosystem funding to Greek banks

(€bn)	Alpha	Eurobank	NBG	Piraeus	Total
EFSF bonds for liquidity	4.0	1.6	5.5	5.4	16.5
Pillar II	6.2	8.5	12.9	4.0	31.6
Pillar III	1.0	1.5	2.1	1.4	6.0
Other	2.1	0.7	-	1.1	3.9
Total	13.3	12.3	20.5	11.9	58.0
Usage	11.9	9.1	10.7	10.0	41.7
Interbank repos with EFSF bonds	0.0	6.9	-	9.0	15.9
Total EFSF bonds	4.2	10.1	-	14.0	28.3
Assets	72.4	74.3	113.3	86.4	346.4
ECB Funding/Assets	16.4%	12.3%	9.5%	11.6%	12.0%
Net ECB (ex. EFSF) funding/ Assets	10.9%	10.1%	4.6%	5.3%	7.3%

Source: RBS Credit Strategy, Company Filings

Banks lost €3bn of deposits in Dec
H-hold & corporate MFI deposits, €bn

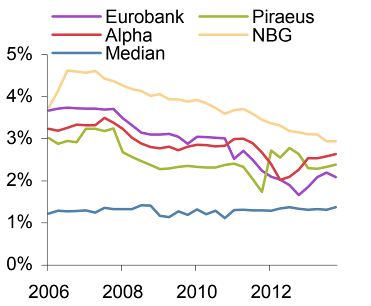


Source: RBS Credit Strategy, ECB

Greek banks are not in a liquidity crisis (yet). Greek sovereign bonds were not eligible for a large part of H2 2012 (until the second bailout deal was reached) or during the stand-off between Greece and its creditors at the time of the previous bailout review in late 2013/early 2014. Both times eligibility was restored after a deal was reached. The tail risk of the ECB cutting ELA access is limited, in our view, and could only happen if the Greek government implemented a unilateral haircut. ELA decisions require a 2/3 majority in the ECB Governing Council. In the worst-case scenario of a unilateral haircut and withdrawal of ELA access, or if deposit flight accelerates, could push the Bank of Greece to issue IOUs. This would be a very negative scenario, as Euro-denominated IOUs would be valued below par, and if circulating in the economy, they would potentially expose Greece to a potential breakdown in trade and lack of basic imported goods. More likely, the ECB could limit ELA amounts to exert pressure.

Further political uncertainty could worsen funding risk. Greek banks suffered around €70bn of private deposit flight between 2010 and 2012. Now Greek banks have seen a deposit outflow of €20bn since November, and are currently losing €300-500mn per day (Kathimerini). With a potential maximum liquidity buffer of €65.8bn under ECB ELA, there still appears to be plenty of liquidity for several quarters – but this depends on ECB approval, and a further acceleration in deposit flight could become a problem.

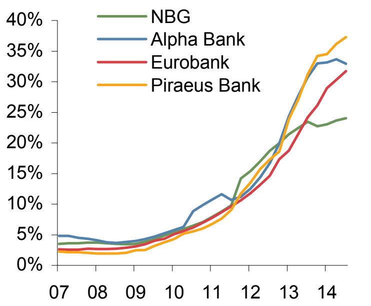
Interest margins in Greece being squeezed
Net interest margin Greek banks vs largest 25 European banks, %



Source: RBS Credit Strategy, Bloomberg, company filings

Political uncertainty will also impact profitability. Net interest margins for the main four Greek banks are higher than elsewhere in Europe, given previous availability of cheap ECB funding, and the scarcity of available credit for SMEs and households, as the ECB's most recent SAFE survey suggests. Punitive ELA rates will cut this, though, and could turn margins negative. In addition, non-performing loans (NPLs) remain a key issue for Greek banks, and continue to rise: Moody's estimates that NPLs totalled 34.1% of total banking system loans in June 2014. Improvement in the near term is unlikely, with political uncertainty likely to impede any ongoing negotiations. Even though all four banks retain coverage ratios of 50-60% in Q3 2014, the average length of foreclosures remains around 2 years, among the highest in the Eurozone.

Greek NPLs are still rising
Greek bank NPLs, % of total loans



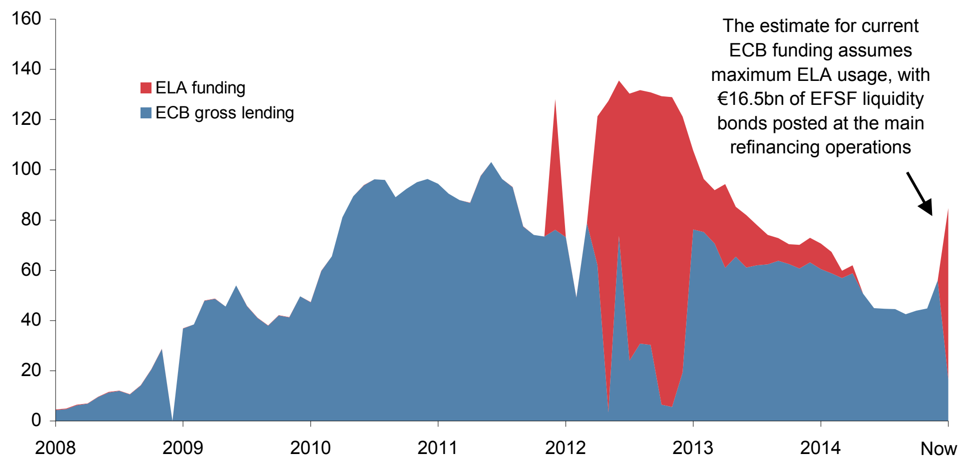
Source: RBS Credit Strategy, Bloomberg

SYRIZA has proposed a debt moratorium, with plans to suspend foreclosure on primary residences which are lower than €300,000 in value. Currently, the Hellenic Financial Stability Fund (HFSF) owns 67% of Piraeus, 66% of Alpha Bank, 57% of National Bank of Greece and 35% of Eurobank. Officially, borrower relief would target first-home mortgages only, but the impression across market participants is that it could go wider, given the government's rhetoric on banks and the stated desire to amend legislation governing the HFSF to allow for exercising of the state-held majority. The only way to isolate deposit flight risk and imbalances would be to introduce capital controls now, which we doubt will happen.

Greek banks remain reluctant to lend on rising NPLs and funding uncertainty. SMEs in Greece reported a continued fall in willingness of banks to lend: 32% of SMEs cited financing as their most pressing problem, rating it with a score of 7 out of 10 in terms of severity. A net 27% of applications for loans were rejected outright by banks, the second highest rate in Europe (ECB).

We remain cautious on Greek banks, given weak asset quality and thin capital buffers. Volatility has increased since SYRIZA's victory, and during the ensuing troika negotiations. Banks have suffered along with other high-beta credit, which remain vulnerable to low growth and inflation in Europe, as well as credit outflows and a price correction as the Fed gets closer to hiking rates. We have ongoing coverage of Piraeus Bank and maintain our neutral recommendation on its senior debt.

ECB lending to Greek banks
Eurosystem lending to Greek banks, €bn



Source: RBS Credit Strategy, ECB, Bloomberg, Moody's

1.4 Greece's strategic importance: A Spartan shield against Russia

The importance of Greece to Europe is not only economic. Greece has a key site in the Mediterranean as a NATO ally, checking Russia's expansion into Europe.

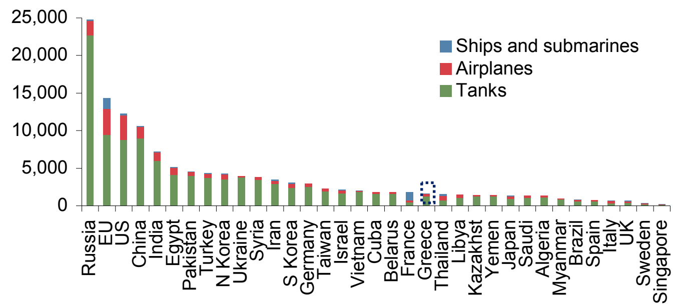
Greece has historically played a strategic role between Europe and Russia, acting as a shield and deterrent, and continues to maintain one of the largest military arsenals in Europe, as a single country (and considering its size). It also remains one of a few countries that has kept up with NATO defence spending commitments. The Hellenic Air Force (HAF), for example, has 170 F-16 warplanes, and runs more aircraft than Italy, the UK or Sweden. Greece hosts several NATO bases, including one in Crete with missile installations, and following the Russia-Ukraine conflict, NATO has been reinforcing its bases in Eastern Europe (mostly North-East: Poland, Romania, Lithuania, Latvia, Estonia) to counter a potential escalation. A recent visit by NATO Secretary General Stoltenberg underlined Greece's importance, praising Greece as an "active and effective member of our Alliance for over 60 years".

Greece is located in a strategically vital position, with access to the Mediterranean and the Black Sea. Greece has been a long term Western diplomatic partner, and a Euro or EU exit could push them to strengthening ties with Russia. There have already been warning signs of this: upon election, Greek PM Tsipras threatened to vote against extending EU sanctions on Russia.

Recently, Rossiiskaya Gazeta said Cyprus is likely to lease two air/naval bases to Russia, creating a foothold in the Mediterranean. The announcement was later denied by Cyprus (BBC), yet signs of Russian expansion or military provocation are becoming more frequent (e.g. recent Russian bombers flying over the Channel). Despite last week's agreement in Minsk for a cease fire in Ukraine, Russia appears to remain in expansionary mode in the Mediterranean and Black Sea.

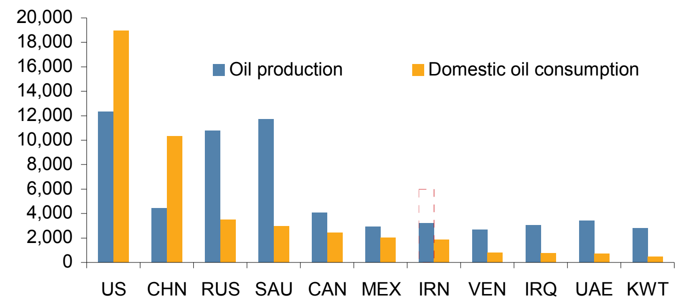
Recent US-European strategy has been to focus on increasing Russia's isolation. This began with economic sanctions, with recent threats of excluding Russia from the SWIFT bank payment system. The US has moved to strengthen ties with potential Russian allies: US President Obama recently visited China, and also lifted some sanctions on Iran. Iran is still banned from exporting oil to Europe, although this may be lifted shortly. Iran holds 10% of the world's crude oil reserves, producing around 3.2mn barrels of oil a day vs 10.7mn by Russia. Removing sanctions could lead to an Iranian oil export surplus to rival that of Russia, which would further reduce government revenues and weaken Putin's position. Greece remains key in ensuring Russian encroachment is kept in check, increasing the effectiveness of isolationist policies.

Greece's defence capability shows its strategic importance
Number of military vehicles



Source: RBS Credit Strategy , Wikipedia

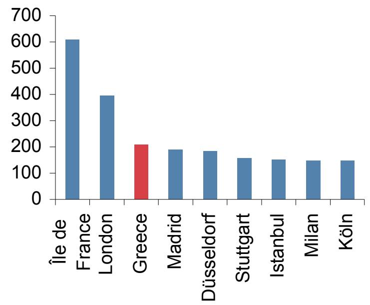
Iran could increase oil production if sanctions are lifted
National oil production, 000s barrels per day



Source: RBS Credit Strategy , USEIA

2. How a Grexit would hurt Europe

Greece's GDP is comparable to a large European city
€bn



Source: RBS Credit Strategy, Eurostat

A Greek Euro exit would damage both Greece and the remaining Euro zone members. We continue to think the probability of Grexit is low (<10%) as the cost of an exit is too high; not only for Greece, but also the rest of the Euro area when compared to the size of the problem.

How a Grexit could happen in practice. EU treaties do not contain any formal mechanism for an exit: it was intentionally left out of the documents as a commitment incentive, sending the message that monetary union is irreversible. If Greece did decide to leave, one way would be for the government to call a referendum on Euro (and potentially EU) membership. This avenue is unlikely to result in an exit: polls suggest between 70-75% of Greeks want to keep the Euro. Another route would be a forced exit, including some combination of ECB and EC capital controls on Greece and a cut of ELA access for Greek banks. Both actions would serve to isolate Greece from the European monetary system and the single market, with the Bank of Greece having to step in and issue Euro-denominated IOUs as a parallel currency. This could lead to a bank run and high stress in the financial system, as well as a potential breakdown in trade and lack of basic imported goods, like food and medicines.

For Greece, either a voluntary or a forced exit would see its new currency (or IOUs) depreciate by 50% given historical estimates (IMF). This would likely be followed by years of double-digit inflation and the longer-term use of capital controls to help control weakness in the banking system. In the case of a forced exit, commerce would likely break down, as exporters to Greece may not want to accept Euro-denominated IOUs. This means the crisis would endanger society, absent basic goods, like food or medicines. Medium-term, there would also be a long-term question on future reforms: a Greek government outside of the Euro would be more likely to use "competitive devaluations" in the future, rather than fighting corruption or improving competitiveness. This is also why the Greek people may want to stay in the Euro,

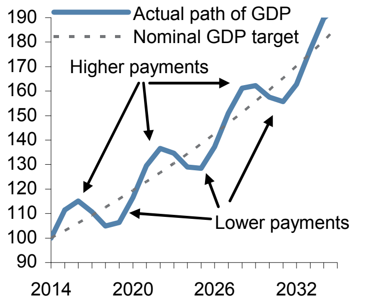
For the rest of the Eurozone, the cost of pushing Greece out would be equally high. Our estimate of a €64bn reduction needed to make Greek debt sustainable represents less than 1% of annual Eurozone GDP – Greek GDP itself is roughly the same size as Madrid or Düsseldorf. A Greek exit would push the Euro higher after a period of some volatility, hurting exports. In the case of a German exit, the impact could be similar to the recent case of the SNB exit from a Euro peg: a sharply higher "German Euro", which would reduce exports outside the Euroarea which account for 64% of the total, and 24% of German GDP.

A forced exit would set a dangerous precedent for the Eurozone, transforming the Euro into currency peg from a monetary union. Pushing Greece out of the Euro would risk creating long-term economic uncertainty. A forced exit would show that the 'irreversible' monetary union is in fact reversible if governments disagree, and could lead to future doubts in the event other governments decide to dissent with the EU's policies. Investors would ask themselves "who's next" at every election, and deposit flight may become more tangible in other countries.

An exit would also counter recent moves to strengthen the union in Europe, which ECB President Draghi called for. Recent years have seen the creation of the ESM, a banking union, and the EC is now starting the formation of a capital markets union. Doubts about the viability of European economic union can have serious financial repercussions: European economic union contributes around €800bn in efficiency gains annually (European Parliamentary Research Service). A 3-6 month extension on the Greek bailout is a small price compared to the consequences. The European Union is not only about a common currency, it is a longer-term political and economic project.

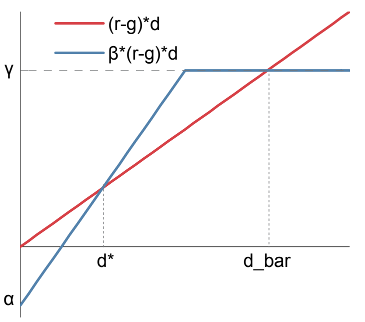
3. The solution: Growth-linked bonds

State pays less if GDP < target
GDP target for GDP-linkers 100 = ‘14



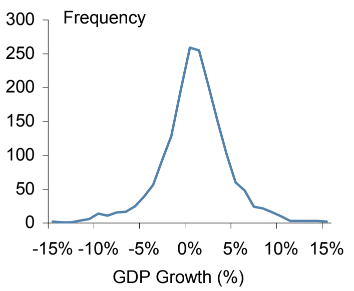
Source: RBS Credit Strategy

GDP-linked bonds better align debtor and creditor interests
Debt dynamic phase diagram



Source: Bank of England

GDP variance is modest
Histogram GDP growth since 1870



Source: Bank of England, Schularick and Taylor (2012)

Growth-linked bonds can act as shock absorbers, shifting cyclical volatility from economies to markets. With fixed debt, economies undergoing a recession will be inclined to reduce spending, thus potentially entering an austerity spiral. For instance, IMF data shows Greece’s GDP has shrunk nearly 24% since the crisis started, and the IMF itself later declared that austerity programmes were part of the problem.

Growth-linked bonds can reduce the cyclicality of fiscal policy. They allow governments to pay less interest and therefore temporarily lessen the burden of debt following negative shocks. But they also reward bondholders if growth is faster.

The concept is simple: rather than making economic decisions tied to debt and the financial system, financial instruments can be created with flexibility that serves the economy. There are, of course, potential issues with moral hazard and conditionality, which we discuss below. But the initial results are very promising.

Traditional bondholders are essentially sellers of a put option on a firm's (or government's) assets and shareholders buyers of a call (Merton 1973). This creates misaligned incentives between shareholders and bondholders: the first ones prefer to leverage up and maximise their payout, protected by limited liability. Similarly, governments have the incentive to take on more debt and over-spend, to get re-elected. Growth-linked bonds create a more linear payoff profile (Bank of England).

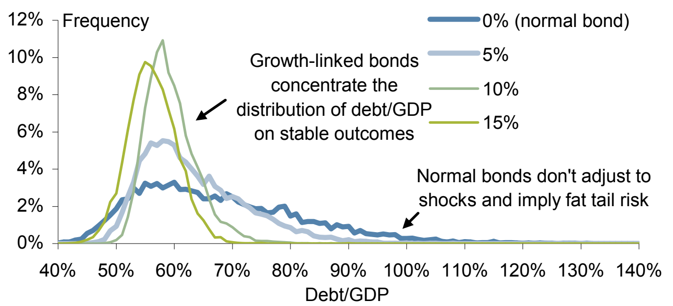
Growth-linked bonds better align the interests of debtors and creditors: taxpayers face less austerity in a downturn, and creditors can improve the chances of recovering their money. The catch is moral hazard: to avoid that, growth-linked bonds should come with conditionality on reforms, and possibly should be used to pay public officials too.

Growth-linked bonds help absorb shocks, smooth cycles

Growth-linked bonds stabilise the distribution of debt/GDP outcomes for a country, reducing the chances of negative spirals. We model a relatively simple GDP-linked perpetual bond where interest payments rise when nominal GDP growth exceeds a pre-set trend, and fall if growth is below trend (see also Borensztein and Mauro). Interest payments are adjusted according to the difference between actual GDP and the target, multiplied by a “flexibility coefficient” (e.g. a flexibility coefficient of 5% means interest payments increase by €50k if GDP is 1% above target on a €10mn bond). We simulate 10,000 outcomes where countries are hit with positive/negative growth shocks over a horizon of 20 years: **our results below show that countries using growth-linked bonds are more able to withstand negative shocks.**

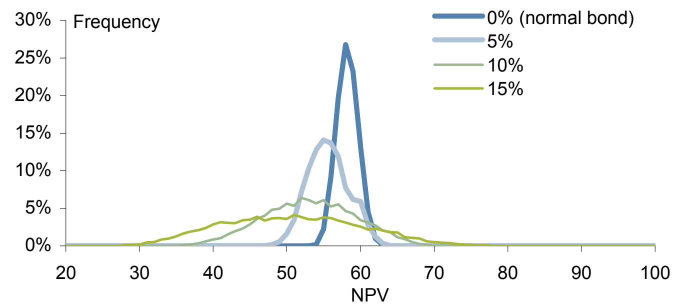
But there is no free lunch: flexibility has a cost. Bondholders will demand higher risk premia for more volatile bonds with growth-linked coupons. In each scenario of our analysis, we link interest rates with debt/GDP and the deficit, and discount coupon payments by the risky rate (i.e. including spreads). All else equal, growth-linked bonds have higher volatility, and therefore a lower NPV.

GDP-linked bonds would lower debt/GDP in the long run
Distribution of debt/GDP with normal bond and GDP-linked bonds



Source: RBS Credit Strategy

Bondholders lose out the higher the flex coefficient is
Distribution of bond NPV with normal bond and GDP-linked bonds



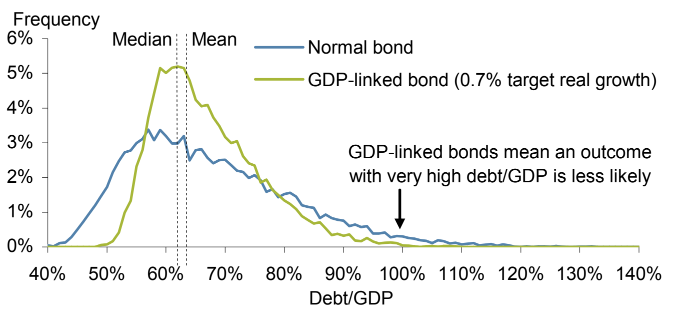
Source: RBS Credit Strategy

To make an apples-to-apples comparison we equalise the price of a growth-linked bond with a normal bond by estimating the premium for flexibility and adding that to the growth-linked bond interest payments. We do so by solving for the higher average coupon that makes the fixed and growth-linked bond NPVs equal on average.

Even after compensating for their additional risk, our results show that growth-linked bonds still smooth cyclical volatility and debt/GDP outcomes, and transfer some of that volatility to bondholders. Again, the two charts below show the debt/GDP distribution of a country hit by random positive or negative growth shocks using normal vs growth linked bonds. The country using growth-linked bonds presents a more stable debt/GDP distribution, with fewer chances of high debt outcomes (and also fewer chances of very low debt). Some of the volatility taken out from the economic cycle is reflected in more volatile bond prices: growth-linked bonds have on average the same discounted value of normal bonds (after discounting by the risky rate), but they expose the investor to a more fat-tailed distribution of price outcomes.

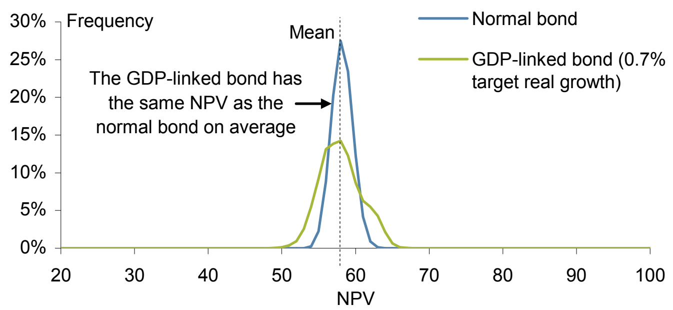
In a currency union, growth-linked bonds arguably make even more sense, especially for small countries. When monetary policy is set centrally and depending mostly on growth in core countries (as for the ECB), growth-linked bonds can perform a stabilising effect for smaller countries. In our model, we shut down the monetary policy channel (e.g. risk-free rates are constant), but include changes in spreads.

Debt/GDP would be less volatile with GDP-linked bonds
Distribution of debt/GDP outcomes with normal vs GDP-linked bond



Source: RBS Credit Strategy

The volatility of growth cycles is passed onto bondholders
Distribution of bond NPV with normal bond and GDP-linked bond



Source: RBS Credit Strategy

Growth linked bonds or hope-linked bonds?

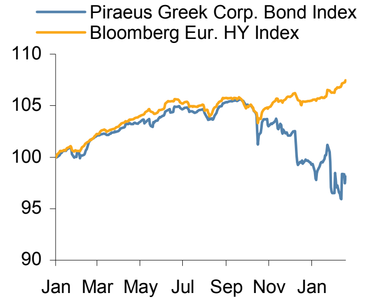
Are growth-linked bonds an implementable solution? We believe there is a chance that Greece and the troika could implement a debt swap over the coming months. This may be wishful thinking , given Germany's stance has been strictly against changes to the current programme. Yet, things could change with strict conditionality.

Conditionality is key: the flexible component of growth-linked bonds should link to a reform timetable. Despite the general scepticism, Greece's track record on reforms is good: it has been the most responsive country at implementing reforms over the past 7 years, according to the OECD's Going for Growth 2015 report. Another way to align incentives and improve the chances of meeting reforms conditions is to pay public officials in growth-linked bonds as well, at least in part (Wall Street Journal).

Bondholders may require an even higher premium to hold growth-linked debt for its volatility. Borensztein and Mauro argue that the premium of a GDP-linked bond over a normal bond could be minimal, as investors can minimise their exposure to random economic shocks by diversifying across countries. In our model, we adjust coupons from growth-linked bonds to match the risk-adjusted NPV of a par bond (see section 5 below). Investors may require also a higher premium because of moral hazard, i.e. because they are afraid that a government may "cheat" on growth numbers. In this case, however, the debt swap would only entail public debt (EFSF, IMF) and therefore these concerns become less relevant. Alternately, growth-linked bonds could be linked to other "harder" figures, like tax receipts.

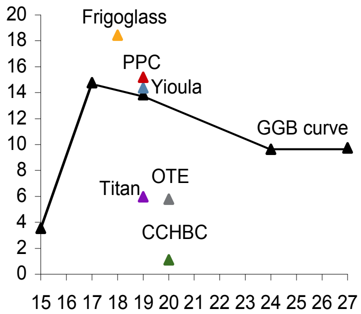
4. Larger corporates are healthy: Buy OTE

Greek firms underperformed €HY
Total return index, 100 = 2 Jan 2014



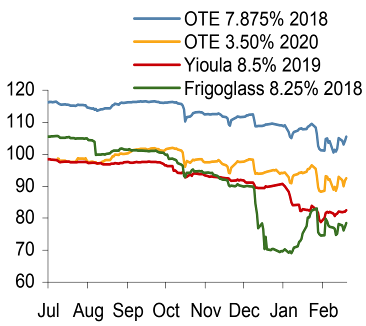
Source: RBS Credit Strategy, Bloomberg

Bonds price some risk of Grexit
Yield to worst (%) vs maturity (year)



Source: RBS Credit Strategy, Bloomberg

High beta names hit the hardest
Price of bond, €



Source: RBS Credit Strategy, Bloomberg

With an extension deal likely in the near-term, we expect Greek corporates to outperform. Smaller firms remain vulnerable with weak fundamentals, but larger corporates like CCHB, OTE and Titan Cement have good fundamentals and should tighten if Greece reaches an agreement with the troika.

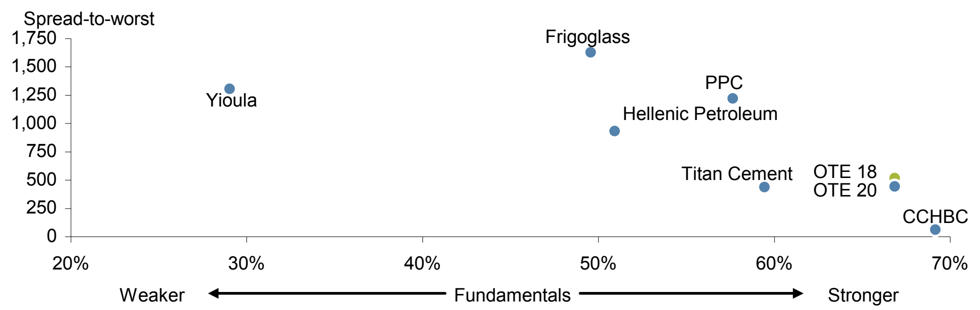
New trade: Buy OTE (HTOGA 7.875% 2018). We recommend buying OTE bonds. OTE has good fundamentals and yet still trades wide on political/Grexit fears. We expect it to tighten once a Greece-troika deal is done. As we discussed recently, OTE is one of the strongest corporates in Greece, along with Titan Cement and CCHB (The Revolver | Bailout renegotiation likely, OSI later, but no Grexit, 23 January 2015). An extension of Greece's loan agreement could also mean lower demands for austerity, e.g. keeping primary surpluses around 1-1.5% of GDP. This should help improve growth in the near-term and may lead to higher revenues for OTE and other corporates. Our rates strategists are also long 3-year GGBs, in anticipation of a Greek deal (European Rates | A Greece resolution could be worth 700bp).

We think OTE offers the best balance of good fundamentals and good valuations. CCHB is a stronger company, with more diversified revenues, higher profitability and better liquidity/cashflows, but it also trades tight. Titan Cement appears slightly weaker yet offers the same spread as OTE. We recommend OTE's 2018 bond because it trades widest in the curve and has more upside potential if Greece reaches a deal.

We are more cautious on smaller, low-HY Greek corporatres. Smaller Greek corporates like Yioula Glassworks and Frigoglass have weaker fundamentals than their larger peers, with higher leverage, worse liquidity and weak cashflows. Their bonds are likely to remain volatile even with an extension deal, as before the Presidential election.

Risks to the trade: the longer Greece takes to agree an extension the more volatile the bonds are likely to be. Even so, we expect OTE to remain resilient because of its relatively strong fundamentals and wide valuations: it is still close to the wides since the political turmoil started. We think Grexit is a very low probability tail risk (<10%), but if it did happen OTE has sufficient liquidity that it may even still be able to repay its bonds.

Buy OTE, which trades wide relative to fundamentals
Spread-to-worst vs resilience rank: buy OTE (HTOGA 7.875% 2018, in green)



Source: RBS Credit Strategy, Bloomberg

CCHB, OTE and Titan Cement are resilient, with low leverage, good liquidity and cashflows: summary financials, TTM Q3 2014

Issue	Industry	Resilience Rank	Non-Euro revenues	Δ EBITDA margin	Net Debt / EBITDA	Assets / Equity	Cash / Debt	EBITDA / Interest	Rating (M / S)	Z-STW (bp)
CCHB 2.375% 2020	Industrial	69%	38%	-2%	2.0x	9%	82%	10.7x	Baa1 / BBB	72
OTE 3.50% 2020 **OTE 7.875% 2018**	**Telecoms**	**67%**	**0%**	**-4%**	**1.0x**	**18%**	**76%**	**5.6x**	**Ba3 / BB-**	**476** **565**
Titan Cement 4.25% 2019	Industrial	61%	35%	-4%	2.8x	7%	92%	3.2x	BB	491
PPC 5.50% 2019	Energy	56%	0%		4.1x	2%	32%	5.1x	B-	1,315
Hellenic Petroleum 5.25% 2019	Energy	51%	0%	-5%	6.1x	18%	231%	1.5x	NR	1,010
Frigoglass 8.25% 2018	Industrial	50%	89%	-13%	4.7x	8%	69%	2.0x	B2 / B+	1,701
Yioula Glassworks 8.5% 2019	Industrial	29%	0%	-1%	5.2x	3%	4%	2.7x	CCC/Caa1	1,390

Source: RBS Credit Strategy, company filings

5. The economic impact of growth-linked debt

To assess GDP-linked bonds we create a simple forecast of government debt/GDP, in which the government responds to shocks in GDP by adjusting spending and taxes.

$$g_t = \bar{g} + \Phi_t + \mathrm{M}_t + \varepsilon_t$$

- **Real GDP growth** (g) is determined by 4 factors:
  1. **Trend growth** ($\bar{g}$): we assume 1%, Greece's average growth since 1980
  2. **A fiscal shock** (Φ): the change in the government's primary balance (s) from the previous year, multiplied by a fiscal multiplier (ϕ) – we assume 0.7

$$\Phi_t = \phi \cdot (s_t - s_{t-1})$$

  3. **A monetary shock** (M): the difference between the natural rate ($\bar{r}$, we assume 1%) and the risk-free rate in the previous year, multiplied by 0.5 (μ)

$$\mathrm{M}_t = \mu \cdot (\bar{r} - r_{t-1})$$

  4. **An exogenous shock** (ε): a normally distributed random variable with a mean of 0% and a standard deviation of 2%

$$\pi_t = \bar{\pi} + \lambda \cdot (\bar{u} - u_{t-1})$$

- **Inflation** (π) is determined by the unemployment rate in the previous year according to a straight-line Phillips' curve, where inflation would remain at the target 2% rate ($\bar{\pi}$) when unemployment equals its "natural" rate ($\bar{u}$, i.e. NAIRU)

$$u_t = u_{t-1} + \chi \cdot (\bar{g} - g_{t-1})$$

- **Unemployment** (u) is determined by GDP growth in the previous year relative to trend growth. We assume a sensitivity of unemployment to growth (χ) of 0.5
- **Interest rate** (this determines the discount rate of the bonds) is split into two parts:
  1. **Risk-free rate** (r): set by a simple Taylor rule with a zero-lower-bound and coefficients of 0.5 (α) and 1 (β). To approximate the low sensitivity of Greece vs ECB policy decisions, set based on larger economies, we keep interest rates constant. The result is growth-linked debt effectively performs the shock-absorbing function of monetary policy

$$r_t = Max[0, \bar{r} + \alpha \cdot (\pi_{t-1} - \bar{\pi}) + \beta \cdot (u_{t-1} - \bar{u})]$$

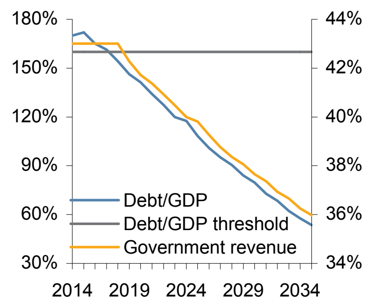
  2. **Credit spread** (c): set according to a linear function of the primary deficit and debt/GDP, based on current spreads of Euro area government bonds.

$$c_t = x + y \cdot \frac{D_t}{Y_t} + z \cdot s_t$$

- **Government revenue** (T) is set as a fixed percentage of GDP (Y) that would be reduced if debt (D) or primary surplus beat certain thresholds, in our example set to <160% and >4% of GDP, respectively. In our model, the government effectively shares a quarter of the "excess primary surplus" with taxpayers by reducing taxes

$$\frac{T_t}{Y_t} = \frac{T_{t-1}}{Y_{t-1}} - 0.25 \cdot (s_{t-1} - \bar{s}) \text{ if } \frac{D_t}{Y_t} < 160\% \text{ and } s_t > 4\%$$

Gov cuts taxes if debt/GDP < 160%
Government revenue vs debt/GDP

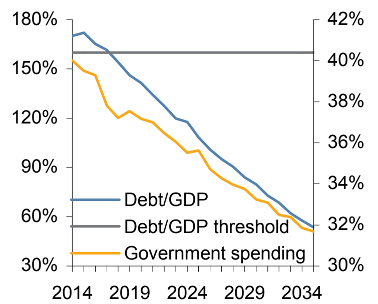


Source: RBS Credit Strategy

- **Government expenditure** (G) is set at a fixed level that is adjusted if the debt or primary surplus do not meet the thresholds above. If debt and deficit fall short of the thresholds, the government cuts expenditure by half the difference between the primary balance and the threshold. If the debt and deficit beat the threshold, then expenditure increases by half the excess primary surplus.

$$G_t = G_{t-1} + 0.5 \cdot (s_{t-1} - \bar{s}) \text{ if } D_t < 160\% \text{ and } s_t > 4\% \text{ or } D_t > 160\% \text{ and } s_t < 4\%$$

Gov spends less if debt is high
Government spending vs debt/GDP



Source: RBS Credit Strategy

- **The cost of debt** varies according to the following simplified debt structure:
  - **Perpetual normal bonds**: fixed at 3%
  - **Perpetual GDP-linked bonds**: 3%, plus or minus the difference between actual GDP and the target level, multiplied by a "flexibility coefficient" (f) – effectively the portion of extra GDP that the government pays to bondholders.

$$c_t = Max[0, D_t + f \cdot (Y_t - \hat{Y})]$$

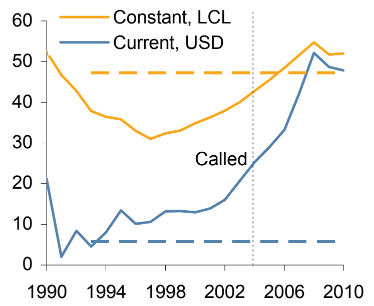
Past experiences & problems with growth-linked bonds

Growth-linked bonds are not new: Greece issued some in its 2012 PSI, Argentina after its default and Bulgaria, Costa Rica and Bosnia issued them under the Brady Plan. These experiences suggest GDP-linked bonds also need to compensate for the risk of falsified or unreliable data and early redemption risks.

Greece issued GDP-linked warrants in the 2012 PSI. Payments occur if nominal GDP is above "a defined threshold" and real GDP growth is above a "specified target". Payments are capped at 1% of the face value.

Under the Brady Plan, countries were offered a "menu" of debt options including discount bonds with a cut in face value, par bonds with long maturities and below-market interest rates but no debt reduction. Costa Rica (1990), Bulgaria (1996) and Bosnia Herzegovina (1997) were the first countries to issue bonds indexed to GDP.

Bulgaria never paid coupons due to ambiguity over units
GDP, current prices (USD) and constant prices (LCL) vs trigger level



Source: RBS Credit Strategy, World Bank, IMF

Bulgarian GDP-linkers show risks of poor design and callability. Bulgaria's GDP-linked bonds were to pay out if GDP exceeded 125% of the 1993 level. However, there was ambiguity over which GDP measure the bonds were linked to. The bonds would have triggered in 1994 if linked to nominal GDP in Dollars, but the government decided to link to real GDP in the national currency, the Lev, so they never triggered. Bulgaria eventually called the bonds 20 years early in 2004, before they triggered.

Unreliable data is a problem for the Bosnian bonds, because payments are linked to GDP per capita and political sensitivities mean a census was not taken between 1995 and 2013. The coupons became effective in December 2009, but some holders contend that they should have triggered in 2006 and 2007 (Stumpf, 2010). Prices are rarely published and trading activity appears to be limited (IMF).

Brady / exchange issue amounts and debt relief ($bn)

Country	Brady debt issued	of which GDP-linked	Debt relief	Issue date	Maturity	Called
Costa Rica	0.6	0.08	N/A	May 1990	May 2005	Aug 1999
Bulgaria	5.1	1.9	50%	Aug 1996	Jul 2024	Jul 2004
Bosnia and Herzegovina	0.4	0.3	70%	Dec 1997	Dec 2017	-

Source: RBS Credit Strategy, Bloomberg

Argentina's experience shows the need for continued fiscal discipline. Argentina issued $62bn of GDP-linked warrants in 2005 in exchange for $82bn of defaulted bonds, and in 2010 on the holdouts (Growth-Linked Bonds, Griffith-Jones and Hertova, 2013). Payments are made if the real level GDP and growth rate exceed base case forecasts, and are capped at 48% of the original notional amount. Argentina grew rapidly after the debt exchange, resulting in high payments: $3.5bn in 2012 and $10bn cumulatively. There have been no payments since then, given poor recent growth. Argentina's finances also deteriorated again, with a more than 4% deficit in 2012. Consequently, the large payouts on GDP-linkers became onerous, at more than 30% of interest paid in 2011 and 2012. This shows the need for continued budget surpluses, even many years after an exchange.

GDP-linked bonds must price the risk of false data. There is widespread scepticism of Argentina's economic data, for example, the Billion Prices Project suggests official CPI data underestimates actual price inflation by around 15pp per year, or 375% since 2008. As a result, in 2013 the IMF issued a declaration of censure and called on the government to take action to improve CPI data. The unreliability of Argentina's price data also calls into question its GDP data – a risk that its GDP-linked bonds must price to a greater degree than its nominal bonds. Paying officials in GDP-linked notes – as we recommend above – may increase the incentive to falsify data, so must be monitored closely. Another potential risk is the chance of substantial GDP revisions after initial publication, even without malign intent. GDP data are often revised (albeit usually marginally) years or even more than a decade after initial release, if nothing else creating additional volatility, and potentially also opening up the risk of investors later challenging payouts.

Argentina's payments on GDP-linked bonds exceeded a third of total interest payments by 2012

	2005	2006	2007	2008	2009	2010	2011	2012
Payment on GDP-linked warrants ($bn)		0.395	0.812	0.996	1.416	0	2.481	3.536
as % of total servicing of interest on public debt		10.5%	15.6%	24.8%	22.1%	0.0%	30.0%	34.2%
as % of GDP		0.19%	0.31%	0.31%	0.46%	0.0%	0.56%	0.74%
GDP growth (%)	9.18%	8.47%	8.65%	6.76%	0.85%	9.16%	8.87%	1.90%
Fiscal balance (% of GDP)	-1.69%	-0.97%	-2.11%	-0.85%	-3.61%	-1.36%	-3.47%	-4.31%

Source: Griffith-Jones and Hertova, 2013; Argentine Ministry of Finanace, Instituto Nacional de Estadistica y Censos (INDEC), Central Bank of Argentina and IMF WEO April 2013 database

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Trade map: summary of trade ideas, country/sector and bank recommendations

	Core Europe	Semi-Core	Non-EMU	US	EM	Periphery: Spain	Periphery: Italy	Periphery: Ireland	Periphery: Portugal	Periphery: Greece	Overall
Ins sub							Generali				OW 25%
Bank sub		SG, Credit Ag, BNP, ING, ABN, KBC	Lloyds			Santander, BBVA, Caixabank	UBI, Mediobanca				OW 20%
	Deutsche Bank, Commerzbank	Rabobank	SEB, Nordea, Handelsbanken, Swedbank, Danske								
Bank senior		SG, Credit Ag, BNP, ING, ABN, KBC	Lloyds			Santander, BBVA	Intesa, Banco Popolare, UBI, Mediobanca, BP Milano, BP EM, Veneto Banca, BP Vicenza	Bank of Ireland			OW 5%
	Deutsche Bank, Commerzbank, Erste, RBI	Rabobank	Barclays, HSBC, SEB, Handelsbank, Swedbank, Nordea, Danske				UniCredit				
Ins senior											OW 10%
Telecoms		KPN (h)	Everything Everywhere			Telefonica					OW 10%
			Telenor								
Utilities	RWE (h), Linde (h), EnBW (h), OMV (h)	Vinci (h), Veolia (h)	SSE (h), Dong Energy (h)			Enagas, Gas Natural, Iberdrola	Acea, A2A, Enel, Hera, Snam, Terna				OW 10%
Fins Services							EXOR				OW 5%
Industrials						Abertis	Atlantia, SISIM	CRH			OW 5%
Cons Services		Casino									UW -15%
Cons Goods	Morrisons										UW -15%
Technology											UW -50%
Oil & Gas						Repsol	2i Rete Gas, ENI				UW -50%
Materials			Holcim								UW -55%
Healthcare											UW -75%
HY	Stena, Metsa Board	Alcatel	Ineos			Obrascon	Fiat, Astaldi			OTE	OW
Overall	UW	OW	OW	OW	UW	OW	OW	OW	UW	OW	OW

Source: RBS Credit Strategy

Our views in bullets

Spreads. We forecast investment grade spreads to tighten to 45bp by the end of 2015, and high yield spreads to tighten to 300bp. We expect spreads to tighten across Euro IG, double-Bs and selected single-Bs on ECB QE.

Default rates. We think default rates will stay around 2%, on flatlining growth, stable unemployment and a gradual stabilisation in lending. Default rates in the US should also stay around 1.7%, on continued robust growth.

Ratings. Ratings will gradually improve for sovereigns, and later on for banks on new policies from the ECB, EIB and structural reforms to the banking system. Ireland, Portugal and Spain will benefit from positive rating actions.

Financials. We are long financials. We stay long periphery banks in senior debt on improving capital and liquidity as well as negative net supply of bonds, and long senior and sub debt in UK, France, Holland and Spain. Bank LT2 sub debt will continue to outperform this year on ECB measures to strengthen the banking system and more issuance of equity. We avoid banks that are dependent on investment banking and those that trade too tight in core Europe and Scandinavia, which could face increasing regulatory risk. We also avoid banks which are exposed to EM, like in Austria.

Corporates. Periphery corporates offer a good premium to those in the rest of Europe. Larger companies with diversified revenues and stronger fundamentals should benefit as investors increasingly look to the periphery to capture this yield. BBB corporates in Italy and Spain should benefit the most from potential ECB corporate or sovereign QE, particularly long-dated bonds. We would avoid tight names in core Europe, as well as names in the materials and consumer cyclical sectors, including autos and retail.

Capital structure. Banks will continue to issue more equity and coco debt, particularly given regulators' increasing focus on the leverage ratio. We think the sweet spot will be LT2 debt. We are very selective on coco and corporate hybrid bonds.

Regions. We prefer European periphery (Spain and Italy) and semi-core; we avoid fake havens like Germany, Scandinavia, UK, US, Austria and Australia and are also underweight Emerging Markets. We are also underweight Portugal and Greece on political risk and vulnerability to deteriorating growth. We expect Euro IG to return 3.9% in 2015. We forecast 6.1% returns for US HY and 6% for Euro HY, with US HY outperforming over the remainder of the year, on wider valuations and robust growth and fundamentals. We recommend switching to Yankee and Sterling credit from European issuers for higher yields and spreads.

Duration. We prefer exposure to idiosyncratic and default risk vs systemic risk and volatility. We see rates risks coming back in the US and UK, which could hurt the front-end. We prefer to be long spread duration, as long-dated spreads tend to be more resilient during a rates sell off.

CDS-Bond basis. The positive basis collapsed to neutral across corporates during the latest rally in CDS, while it remains positive in financials. We think the CDS premium over cash could decline on positive policy risk.

Primary issuance. Bank issuance of senior unsecured bonds may slow going forward as the ECB conducts its TLTROs and purchases of covered bonds and ABS.

Secondary volumes. Banks are de-risking trading and capital markets businesses as well as deleveraging loan portfolios. This means lower secondary volumes.

Our trades in bullets

When the Fed and China sneeze again…
27 June 2013

1) Short Australia vs Europe. Australia's economy is too dependent on mining, construction and exports to a slowing China for growth, while the domestic real estate market also appears highly overvalued. Australian bank spreads do not price in these risks, in our view, and will widen as EM turmoil continues.

Buy protection on iTraxx Australia vs sell protection on iTraxx Europe.

2014 Outlook: Europe's recovery
20 November 2013

2) Long single-A CLO senior tranches. European firms need to borrow but banks are pulling back, creating opportunities for non-bank sources. CLOs can give investors exposure to these loans and give the leverage needed to make loan yields attractive.

Credit crunch, phase III: A postcard from EM
5 February 2014

3) Sell EM-exposed corporates, buy European and US-focused firms. Sell corporates with revenues from emerging markets or EM-dependent products. Buy firms which will benefit from the US and European recovery.

Sell: Casino (COFP 3.994% 2020); Buy: Morrisons (MRWLN 2.25% 2020)
Sell: Holcim (HOLNVX 2.625% 2020); Buy: CRH (CRHID 2.75% 2020)
Sell: Telenor (TELNO 1.75% 2018); Buy: Everything Everywhere (EVEVRV 3.25% 18)

Austrian banks: A dangerous waltz with emerging markets
21 February 2014

4) Sell EM-exposed Austrian Banks, buy domestic core banks. Switch out of EM-exposed banks into domestic banks.

Sell: Erste Bank (ERSTBK 1.875 05/13/19); Buy: BNP Paribas (BNP 2 01/28/19)
Sell: RBI (RBIAV 1.875 11/08/18); Buy: ING (INTNED 1.875 02/27/18)
Sell: UniCredit (UCGIM 3.625 01/24/19); Buy: Intesa (ISPIM 3 01/28/19)

The Exit Shock
13 June 2014

5) Short CDX EM vs long iTraxx Xover, to position for the *market impact* of higher rates.

European banks: Fit for stress, still unfit for purpose
10 October 2014

6) Short BoAML contingent capital instrument index vs S&P US preferred stock index. Cocos trade tighter than prefs but are more volatile and may be subordinated in a conversion.

2015 Outlook: The Waterworld Recovery
18 November 2014

7) Buy 7-10-year BBB-rated Spanish and Italian corporate bonds, on the potential for ECB corporate bond purchases.

Buy: ABESM 3.75 2023, ATLIM 5.875 2024, HERIM 2.375 2024, ACEIM 2.625 2024, ENELIM 5.25 2024, IBESM 1.875 2024, AEMSPA 3.625 2022, ENGSM 2.5 2022, SISIM 3.375 2024, EXOIM 2.5 2024, SRGIM 3.25 2024, FIREIT 3 2024, TELEFO 3.987 2023, ASSGEN 7.75 2042, GASSM 2.875 2024, TRNIM 4.9 2024

8) Short Portugal vs long Spain, on the re-emergence of political risk in the periphery following Greece's election.

Sell PGB 5.65% 2024 vs buy SPGB 3.8% 2024

9) Long CDX HY vs short iTraxx Xover, as European growth and inflation stay weak but the US recovery remains robust.

10) Short ETF/mutual fund-held bonds vs long iBoxx € IG corporates index, on their lack of liquidity and vulnerability to potential outflows.

Sell: BACR 4.75 2049, HTHROW 6.25 2018, THAMES 5.75 2030, LLOYDS 15 2019, SISIM 4.5 2020, CNPFP 6 2040, CPKLN 7.239 2024, SPAROG 2 2018, GTKIM 5.375 2018, HSEGR 6.125 2041, TVO 6 2016, CORANA 3.25 2021, RLMI 6.125 2049, INTNED 0 2017, HEIANA 2.875 2025

Searching for yield in overseas markets
15 January 2015

11) Buy $ and £ bonds from European corporates, as ECB QE will keep the spreads of Euro-denominated bonds squeezed, while spreads in Dollar and Sterling stay wider.

Buy $: MTNA 10.35 2019, AALLN 9.375 2019, TSCOLN 5.5 2017, AALLN 4.45 2020, MTNA 6.125 2018, ISPIM 6.5 2021, BPCEGP 4 2024, TELEFO 3.992 2016, GSZFP 2.875 2022.

Buy £: LGFP 10 2017, TELEFO 5.289 2022, ORAFP 7.25 2020, DT 6.5 2022, IBESM 8.375 2017, ELEPOR 6.625 2017, EDF 6.875 2022, RENAUL 3.25 2018, TELEFO 5.375 2018, ACAFP 5.5 2021.

Trading Q€: Buy long-end BBB, Yankees & Popolari
23 January 2015

12) Buy long-dated Italian Popolari banks, on Italian Popolari bank reform.

Buy: BPIM 2 2019, UBIIM 1.25 2019, BPEIM 3.8 2016, VICEN 5 2024, VENBAN 4 2019, PMIIM 4.25 2019

The Credit Black Hole: Investing without getting swallowed
10 February 2015

13) Buy selected € single-B issues with an export focus, who will benefit from a weaker euro as well as lower oil prices.

ALUFP 8.5 2013, OBRAS 4.75 2022, FCAIM 4.75 2021, ASTIM 7.125 2020, METSA 4 2019, STENA 7.875 2020, INEGRP 5.75 2019

14) Buy low-beta vintage Euro corporate hybrids: ECB QE and low yields mean many corporates are likely to refinance their hybrids, either by issuing less-costly senior, or by issuing another hybrid. We think investors should buy those vintage hybrids likely to be called.

SSELN 5.025, DONGAS 5.5, RWE 4.625, DGFP 6.25, OMVAV 6.75, DONGAS 4.875 2018, LINGR 7.375, VIEFP 4.45, ENBW 7.375, KPN 6.125

15) Buy ultra-long 10y+ periphery BBBs. Returning growth in Italy and Spain, combined with falling oil prices and ECB QE should lead to further compression in long end periphery BBB spreads.

ABESM 2.5 2025, ATLIM 4.375 2025, ASSGEN 4.125 2026, REPSM 2.25 2026, ENEL 5.625 2027, HERIM 5.2 2028, ENIIM3.625 2029, TELEFO 5.875 2033

16) Buy OTE trade: HTOGA 7.875% 2018. Buy OTE bonds on relatively strong fundamentals and potential for tightening on a Greece loan extension deal.

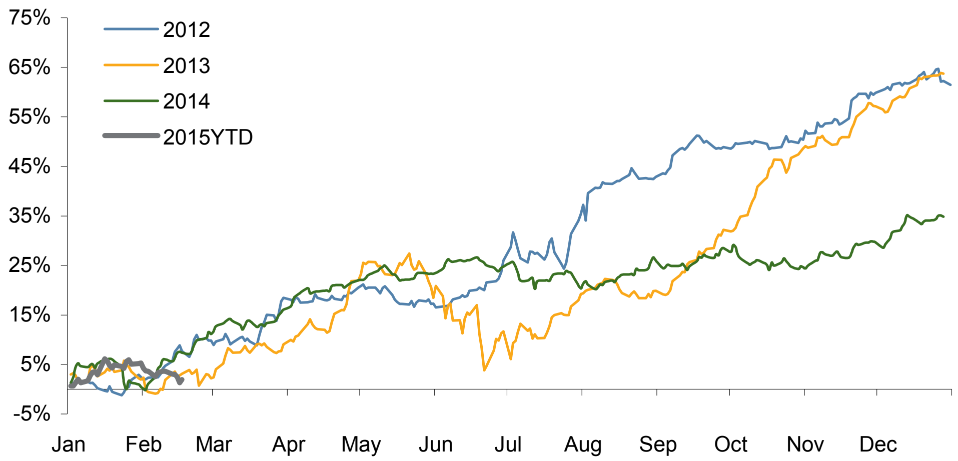
Trade performance: Open trades

Open trade recommendations

Trade	Start date	End date	Time horizon	Target Gain / Stop Loss	Total return	Revolver publication
European bank senior	6-Jul-12	Open			+1,209bp	H2 2012 Financials Outlook: Banking on Europe
European bank sub	6-Jul-12	Open			+379bp	H2 2012 Financials Outlook: Banking on Europe
Short Australia vs Europe	27-Jun-13	Open	18 months	+2/-1	+29bp	When the Fed and China sneeze again…
Buy single-A CLO senior tranches	20-Nov-13	Open	12 months	+6/-6	-	2014 Outlook: Europe's recovery
Sell EM-exposed corporates, buy European and US focused firms	5-Feb-14	Open	18 months	+2/-2	+10bp	Credit Crunch, Phase III: A postcard from EM
Short Austrian Banks (EM exposed) vs Long Domestic banks	21-Feb-14	Open	12 months	+4/-1.5	+139bp	Austrian banks: A dangerous waltz with emerging markets
Short CDX EM vs long iTraxx Xover	13-Jun-14	Open	6 months	+10/-2	+769bp	The Exit Shock
Short cocos vs US preferreds	10-Oct-14	Open	6 months	+5/-5	+50bp	European banks: Fit for stress, still unfit for purpose
Buy Italian & Spanish BBB bonds	18-Nov-14	Open	4 months	+6.5/-2.5	+447bp	2015 Outlook: The Waterworld Recovery
Buy SPGB sell PGB	18-Nov-14	Open	4 months	+6/-5	-365bp	2015 Outlook: The Waterworld Recovery
Short Xover vs long CDX HY	18-Nov-14	Open	6 months	+5/-5	-306bp	2015 Outlook: The Waterworld Recovery
Short crowded ETF/MF holdings vs iBoxx € IG corporates	18-Nov-14	Open	12 months	+2/-2	+57bp	2015 Outlook: The Waterworld Recovery
Buy Yankees from European Issuers	15-Jan-15	Open	12 months	+3/-3	+104bp	The Silver Bullet | Searching for yield in overseas markets
Buy Sterling bonds from European Issuers	15-Jan-15	Open	12 months	+3/-3	+46bp	The Silver Bullet | Searching for yield in overseas markets
Buy Italian Popolari senior bonds	23-Jan-15	Open	12 months	+3/-3	-12bp	The Silver Bullet | Trading Q€: Buy long-end BBB, Yankees & Popolari
Buy selected € single-B issues	10-Feb-15	Open	6 months	+6/-6	+82bp	The Credit Black Hole: Investing without getting swallowed
Buy low-beta vintage Euro corporate hybrids	10-Feb-15	Open	12 months	+6/-6	-02bp	The Credit Black Hole: Investing without getting swallowed
Buy ultra-long 10y+ periphery BBBs	10-Feb-15	Open	6 months	+3/-2.5	+14bp	The Credit Black Hole: Investing without getting swallowed

Source: RBS, Bloomberg. Prices as of 18 February 2015
Note: Mid-level spreads are used in performance calculations, and are not reflective of bid-asks for entering/exiting trades

Historical trade recommendations P&L



Source: RBS Credit Strategy; note: to calculate the P&L, we sum the return of each of our open and closed trades

Trade performance: Closed trades

Closed trade recommendations (2012-present)

Trade	Start date	End date	Time horizon	Target Gain / Stop Loss	Total return	Revolver publication
Buy protection on Air France/KLM, Carrefour, Deutsche Post, IAG and Ineos. Sell protection on iTraxx Xover	12-Mar-12	2-Jul-12	6m	+2.5/-2.5	+40bp	After PSI: The threat of rising oil prices
Buying protection on BBVA, Caixabank and Santander vs selling protection on US and UK banks	19-Mar-12	29-Mar-12	3m	+2/-1	+208bp	Spain: Structural challenges deeper than liquidity can solve
Buy Bank of Ireland senior unsecured 4.625% € 2013 bonds	4-Apr-12	30-Oct-12	12m	+5/-5	+715bp	Ireland: The Celtic Tiger is coming back on track
Buy protection on BBVA 5-year senior CDS vs Santander (sell)	20-Apr-12	22-May-12	6m	+2.5/-2.5	+147bp	Stress testing Spain's champions: Sell BBVA vs Santander
Sell protection on Societe Generale 5-year senior CDS	30-Apr-12	21-Aug-12	6m	+3/-5	+325bp	France: Election fears overdone, long Societe Generale
Sell protection on iTraxx Xover. (Removed short leg of buying protection on iTraxx Sub Financials on 2-Jul-12.)	17-May-12	06-Aug-12	4m	+3/-2.5	+323bp	Greece: The fallout through the banking system
Short Australian banks against US corporates	24-May-12	31-Jul-12	6m	+1.5/-2	-229bp	The global repercussions of the Eurozone crisis
Sell protection on buy protection on Spain (1x:1x ratio)	1-Jun-12	29-Jun-12	6m	+3.5/-3.5	+336bp	Spain's near death experience
Buy short-dated bonds of downgrade-resilient periphery corporates. Sell downgrade-exposed periphery corporates	13-Jul-12	21-Aug-13	6m	+2/-2	+20bp	Investing on the edges of the market
Sell 5-year senior CDS protection on UniCredit and buy 5-year CDS protection on BBVA	20-Jul-12	6-Aug-12	6m	+3/-3	+205bp	Spain needs surgery, Italy therapy
Long European HY Corporates vs Xover	6-Aug-12	30-Oct-12	6m	+1.5/-1.5	+50bp	High yield: Still a buy, but be selective
Sell 5-year CDS protection on Fiat and buy protection on Peugeot and Renault	28-Aug-12	11-Sep-12	6m	+1.5/-1.5	+322bp	The Silk Highway: Long Fiat vs Peugeot & Renault
Short Spain vs Long Xover	3-Sep-12	30-Apr-13	6m	+2/-5	+61bp	Same problems, new mistakes: Sell Spain
Short Investment banks vs Long Commercial banks	3-Oct-12	24-Jun-13	6m	+2/-2	+14bp	Bank to basics: The future of investment banking
Buy short-dated Spanish sovereign bonds; sell short-dated BBVA senior bonds	12-Oct-12	14-Jan-14	6m	+1.5/-1.5	-81bp	Tail risk is dead. Long live tail risk
Buy BESPL 5.625% 2014 and sell PGB 3.6% 2014	17-Oct-12	08-Nov-12	6m	+3/-3	+291bp	Portugal: Long Banco Espirito Santo vs sovereign
Buy BASQUE 4.15% 2019, NAVARR 5.529% 2016, CANARY 2% 2016, CASTIL 3.85% 2016 and MADRID 6.213% 2016	29-Oct-12	7-Feb-13	6m	+16/-7	+1394bp	The Spanish regions: Mirage and oasis in a yield desert
Short LT2 bonds ISPIM 5% 2019, UCGIM 5.75% 2017, BPIM 6% 2020 and MONTE 5% 2020 vs Long iTraxx SubFin	10-Dec-12	28-Feb-13	3m	+5/-3	+115bp	Italy: Brace for political risk
Long Periphery Corporates	8-Jan-13	1-Oct-13	12m	+6/-4	+325bp	Top Trades 2013: Making money in a yield desert
Long Periphery Banks	8-Jan-13	19-Nov-13	12m	+6/-4	+487bp	Top Trades 2013: Making money in a yield desert
Long European vs US high yield	8-Jan-13	12-Dec-13	6m	+2/-2	+5bp	Top Trades 2013: Making money in a yield desert
Sell UK consumer bonds vs iBoxx 7-10 year £ BBB	29-Jan-13	16-Apr-13	7m	+3.5/-3.5	+200bp	The UK: slowly losing safe-haven status
Long Corporate Hybrid Bonds	19-Feb-13	14-Apr-14	6 m	+10/-6	+992bp	Corporate hybrids: another oasis in the yield desert
Short Italian bank sub vs Xover	14-Mar-13	28-Mar-13	6m	+2/-2	+472bp	The State of Credit Markets
Buy BESPL 2015 5.875% and CXGD 2015 5.625%	19-Apr-13	01-Oct13	6m	+3/-4.5	+104bp	Buy Portugal
Buy Mid Cap Periphery HY	23-May-13	19-Nov-13	6m	+6/-6	+438bp	High yield: Small is beautiful
Sell Monte 5% 2020 LT2	10-Jul-13	04-Oct-13	12m	+10/-10	+551bp	EC bail-in rules: It's time for a haircut
Buy top 30 deleveraging, sell top 30 releveraging credits	24-Sep-13	26-Mar-14	6m	+4/-4	+350bp	The leverage temptation resurfaces
Buy Protection on iTraxx Xover	01-Oct-13	11-Oct-13	1m	+1.5/-1.5	-117bp	Banking union: The moment of truth for Europe's banks
Long sub debt of French, Dutch and British banks	11-Oct-13	19-Nov-13	6m	+4/-4	+245bp	Melt-up: Going all-in into year-end
Buy Yankees	11-Oct-13	6-Aug-14	6m	+6/-6	+365bp	Melt-up: Going all-in into year-end
Buy sub deb: British, French, Dutch, Belgian and Spanish banks	20-Nov-13	6-Aug-14	12m	+6/-6	+581bp	2014 Outlook: Europe's recovery
Buy bonds of mid-cap periphery companies	20-Nov-13	6-Aug-14	12m	+6/-6	+729bp	2014 Outlook: Europe's recovery
Buy periphery senior bank debt	20-Nov-13	6-Aug-14	12m	+6/-6	+650bp	2014 Outlook: Europe's recovery
Sell EM-exposed banks, buy domestic banks	5-Feb-14	10-Feb-15	12m	+2/-2	+122bp	Credit Crunch, Phase III: A postcard from EM
Sell Core IG Releveragers	26-Mar-14	9-Feb-15	6m	+2/-2	+6bp	Europe's corporates: Walking again, but not ready to run
Long Piraeus Bank Senior	08-Apr-14	10-Oct-14	6m	+2.5/-2.5	-170bp	Eureka! Buy the Greecovery and Greek banks
Short Snr Fin vs Long Eur	10-Oct-14	23-Oct-14	1m	+1/-1	+13bp	European banks: Fit for stress, still unfit for purpose
Long iTraxx Xover	22-Oct-14	24-Nov-14	6m	+3.25/-3.25	+142bp	The music is back on! Tactical buy

Source: RBS, Bloomberg. Note: Mid-level spreads are used in performance calculations, and are not reflective of bid-asks for entering/exiting trades

Recent research

The Credit Black Hole: Investing without getting swallowed – 10 February 2015. There is positive risk in Europe. ECB QE is large and open-ended, and is having an impact on demand. QE is necessary, not sufficient for a recovery: a solid recovery still depends whether EU governments will move to pro-growth policies. Yet, QE completely changes the dynamics of bond markets. It creates €0.7tn a year in extra demand for € IG debt, an asset class already in scarce supply as sovereigns, corporates and households continue to delever. The ECB has created a black hole in bond markets: negative supply and negative yields. There lies the challenge for investors: position to benefit from QE, but avoiding assets which are too expensive or too weak.

Greece: Bailout renegotiation likely, OSI later, but no Grexit – 23 January 2014. SYRIZA is likely to win the Greek elections this Sunday. But its 3-5pp poll lead may not be enough for an outright majority. We estimate there is an 84% probability that it needs a coalition, likely with a pro-European centre-left party. What would a SYRIZA led government mean for Greece and investors? We think it would push the troika to lower interest rates and extend maturities on bailout loans first, with a haircut of official sector debt later. But privately-held bonds should remain whole, with no Grexit. Portugal is at risk of contagion, but Greek firms CCHB, OTE and Titan Cement are more resilient

ABS: The missing piece to solve Europe's credit puzzle – 17 December 2014. More QE is on the way. Buying sovereign and corporate bonds may boost exports with a lower euro. But the stimulus may partly miss who needs it most: Europe's core engine of growth and job creation, its SMEs, which fund with loans and not bonds. With banks still too weak to grow, reviving the asset-backed securities (ABS) market in our view remains a long term policy goal to restart lending and diversify Europe's supply of credit. The ECB has bought €788mn of ABS since November, a tiny fraction of the €1.4tn market. To be effective, the ABS plan needs a combination of regulatory and fiscal support: simple and harmonised rules, lower risk weights and government guarantees.

Bull for a day, fool for a lifetime? – 4 December 2014. There's a conundrum across investors. Everyone is positive and believes that ECB QE will squeeze spreads further. Yet, very few believe it will kickstart growth. We asked investors what they think will happen, and also what they would do if they were Mario Draghi. Over 130 answered, and the message is clear: the ECB will deliver QE in H1 2015. But it will have limited impact. Many think the ECB should buy loans or EIB bonds to spur lending and investment, and few believe the Juncker plan will work. The answer to recession, says an overwhelming majority, is more reforms and investment.

2015 Outlook: The Waterworld Recovery – 18 November 2014. The world economy is inundated with central bank liquidity, but there are few grounds for growth. The ECB will likely implement more QE next year, but its real impact will depend on fiscal support and reforms. The EU is about to be tested on its promise of an investment plan. Without credible fiscal action, QE will only boost financial assets, leaving unemployment high, growth and inflation weak. Time is running out, and political risk is around the corner with Greek elections in February and others to follow. There will be plenty of volatility in 2015.

European banks: Fit for stress, still unfit for purpose – 10 October 2014. The ECB will publish its AQR and stress test results on 26 October. We expect most banks to pass, and the total capital shortfall to be small. But beyond the test, Europe's banking system remains weak overall and unable to grow lending activity in the near term. European banks are still the largest in the world at more than 3x GDP even after deleveraging by €3.75tn since 2012. Capital and profitability have improved across large institutions, but remains scarce overall. Banking systems in Italy and Germany remain highly fragmented and lack efficiency. In our view, the TLTRO does not address the lack of capital and will not be effective in boosting net lending – but the ABS programme could be, if supported by national regulators and central banks.

The credit liquidity trap 2 – 29 September 2014. Credit markets may have outgrown dealers' capacity to trade risk. We have now nearly $7.7tn of credit in the US, vs $22bn of inventories on trading desks, the lowest ratio in history. It is harder and more expensive to trade corporate bonds: liquidity is down roughly 70% since pre-crisis. As QE ends and the Fed gets closer to a change in guidance, credit investors are becoming nervous. Some, even large ones, are suffering outflows. The combination of outflows, lack of liquidity and a potential turn in Fed policy could exacerbate the re-pricing already happening in high-beta assets. Investors should stick to Europe and to liquid IG credit, avoiding the low-end of high yield.

ABS: A Better Solution for Europe – 1 September 2014. Europe is on the edge of deflation, while credit markets remain fragmented. "The ECB must do something" – say economists glued to their screens to forecast the size and shape of upcoming actions. But Europe's credit markets are complex, and those hoping for a Fed-style QE "bazooka" could end up disappointed. The solution in our view is reviving lending to the real economy – SMEs – through a new type of Asset Backed Securities. There are obstacles: the market is segmented and demand weak. A plan will have to start small and take time, and will require both monetary and fiscal support.

The credit liquidity trap – 23 July 2014. Trading liquidity is evaporating out of bond markets. The recovery in credit has been about low rates pushing capital into risky assets and helping firms to refinance. This has made bond markets "the new banks", providing most credit to the economy. But it has also pushed investors to take higher risks. What happens if low-for-long policy reverts and investors head for the exit? As regulators focus on banks, we fear that systemic risk is being left unchecked in financial markets. In this report we measure the decline in bond market liquidity, analyse the areas most exposed to a rapid sell-off, and discuss how yield hunters can avoid getting caught by the liquidity trap.

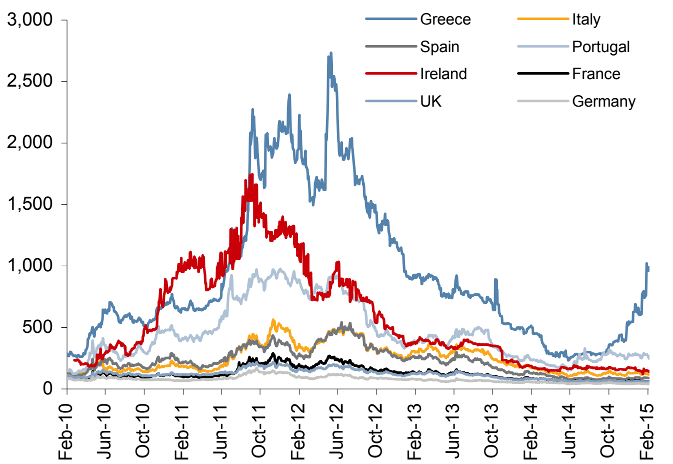
Coconomics: Pricing contingent capital risks – 3 July 2014. After supporting them to solve European banks' capital gaps, policymakers have grown wary on contingent capital instruments: "investors are underestimating the probability that AT1 instruments will be required to absorb losses", says the Bank of England in its latest Financial Stability Report, published last week. We have shown already that the coco market is dislocated, i.e. that market prices are not always reflecting the bonds' features. In this Revolver, we create and explain a model to simulate banks' earnings, and calculate conversion and cancellation risk.

The Exit Shock – 13 June 2014. Bond investors, prepare for Carneyage! Yesterday's change in forward guidance by the Bank of England is a shot across the bow, but investors have not reacted. The Fed could follow suit over the coming months, as the benefits of stimulus become less evident vs its collateral effects – asset overvaluation, releveraging in credit markets and rising income inequality. The taper tantrum sent a shockwave through EM, HY and other high-beta products last year. It can happen again. Europe is less exposed thanks to the ECB's aggressive stance, but not insulated: credit investors should prepare for the end of low-for-long, and its impact on spreads.

Credit Markets Watch

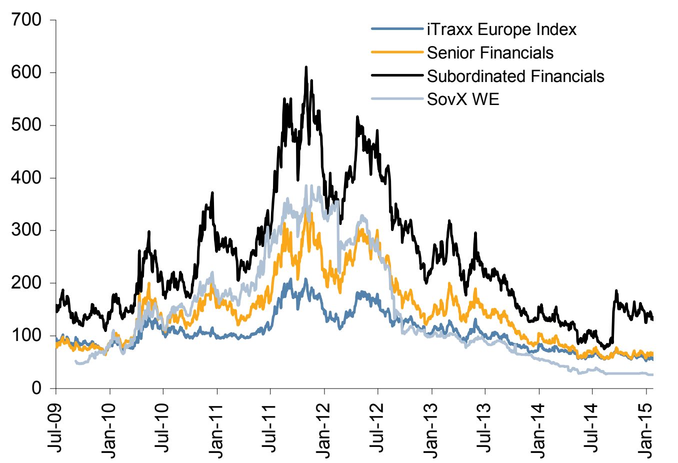
Spreads, sovereign risk, primary and secondary markets

Country average corporate credit spreads, bp



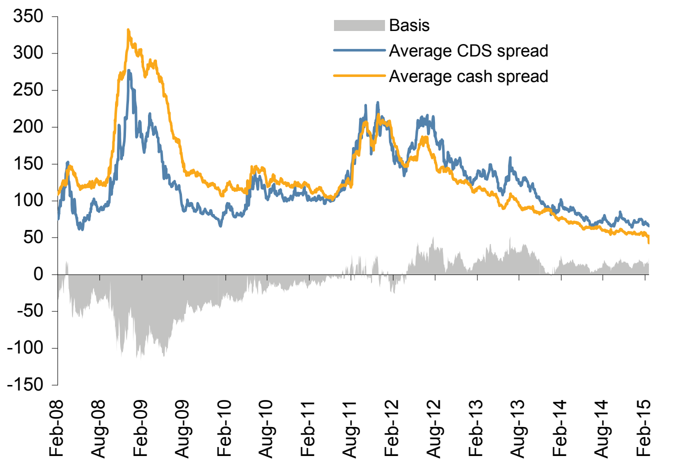
Source: RBS Credit Strategy, Bloomberg

iTraxx index spreads, 5-year on-the-run, bp



Source: RBS Credit Strategy, Bloomberg

iTraxx Main cash and CDS spreads and basis, bp



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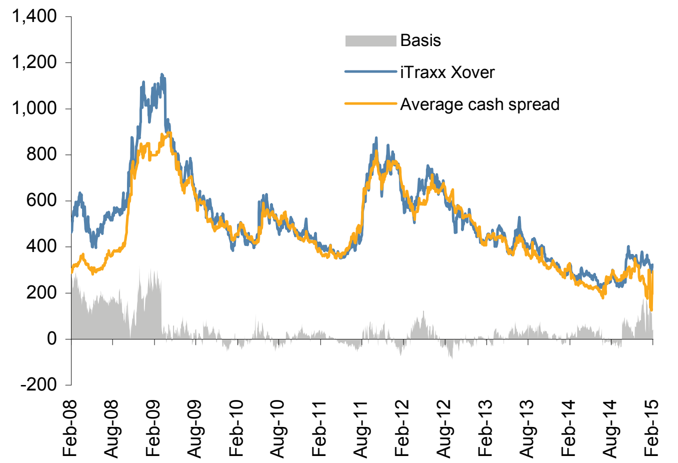
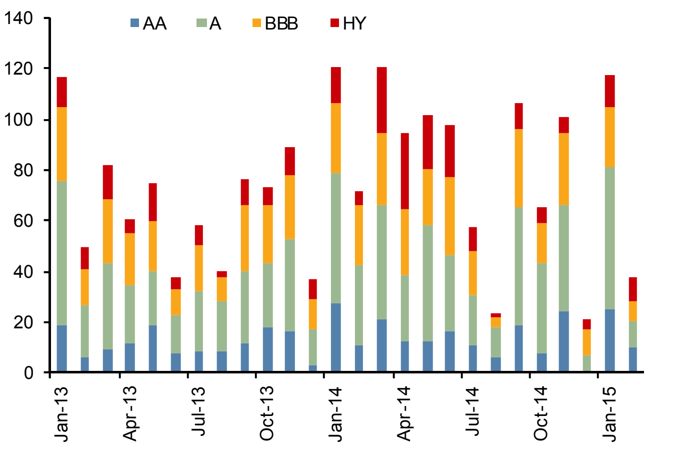
iTraxx Xover cash and CDS spreads and basis, bp



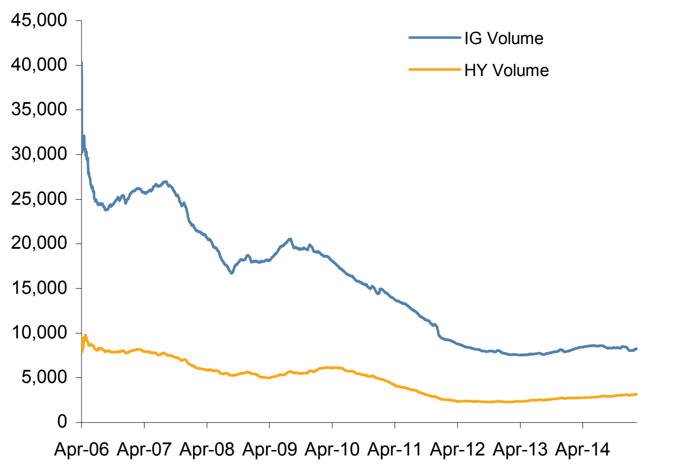
Source: RBS Credit Strategy, Bloomberg

Investment grade and high yield issuance, €bn



Source: RBS Credit Strategy, Bloomberg

TRACE 2-month trailing average daily trading volumes, $m

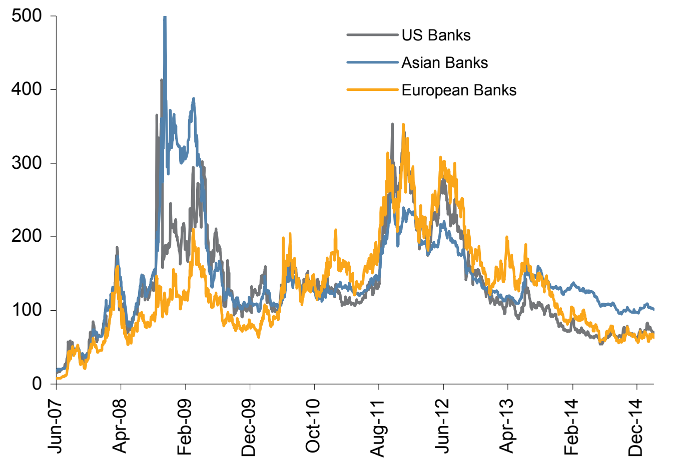


Source: RBS Credit Strategy, Bloomberg

Financial Stress Watch

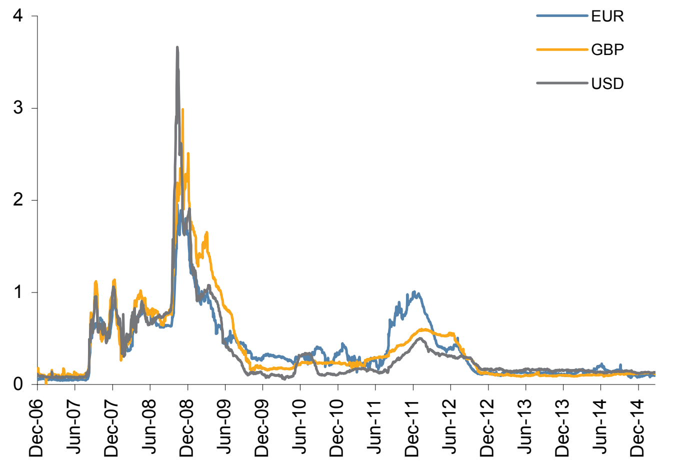
Bank spreads and risk in the financial system

Average bank spreads by region, bps



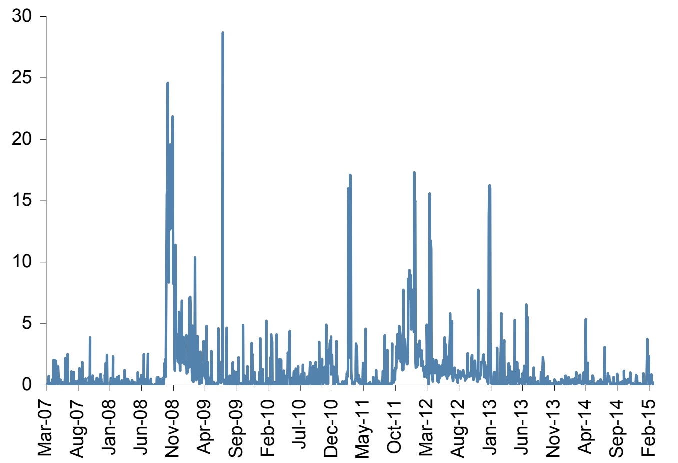
Source: RBS Credit Strategy, Bloomberg

Libor-OIS spreads, %



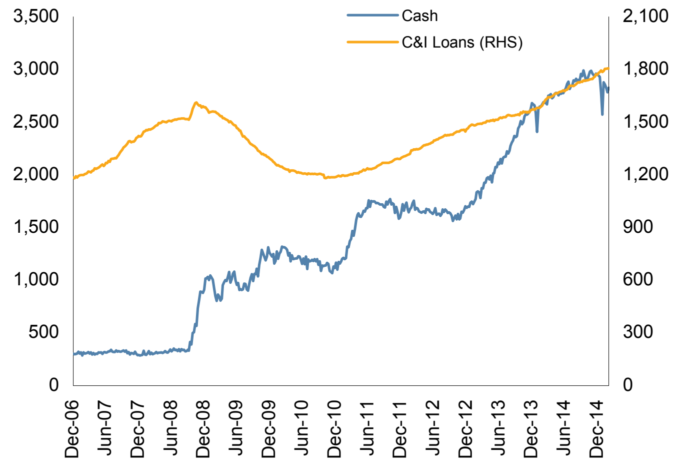
Source: RBS Credit Strategy, Bloomberg

Use of the ECB marginal lending facility, €bn



Source: RBS Credit Strategy, Bloomberg

Cash and C&I loans on banks balance sheets, $bn



Source: RBS Credit Strategy, Bloomberg

US primary dealer corporate bond inventories, $bn

Source: RBS Credit Strategy, Bloomberg

US commercial paper outstanding from foreign issuers, $bn

Source: RBS Credit Strategy, Bloomberg

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