EURO AREA BANK DELEVERAGING

How much and how painful?

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EQUITY RESEARCH – EUROPEAN BANKS

Deleveraging: How much and how painful?

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- **We believe that EU/EBA pressures to raise capital ratios ahead of the June 2012 deadline – combined with dislocated funding markets – raise the risks of deleveraging across the European Bank Sector.**
- **Depending on the ability to rely on earnings generation, this deleveraging could amount to between €0.5trn and €3trn, up to 10% of eurozone bank assets.**
- **With around one third of the balance sheet of European banks deployed outside of developed Europe – and for most, outside their home country – the economic impact is likely to be widespread.**

One of the most frequently heard arguments articulated by bank managements since the post-crisis regulatory environment started to take shape was that more onerous banking regulation would damage the ability of banks to provide credit to the "real economy". How credible is this threat, and have the events of the past few weeks increased the chances of this type of credit crunch developing?

The official response to fears that regulation will drive deleveraging has been largely twofold. Firstly, there have been a series of studies undertaken that in general appear to minimise the impact of tougher regulation Secondly, almost all of the proposed regulatory changes have been announced with very long lead times (eg, Basel III and the UK ICB report are not fully implemented until 2019), precisely to avoid the risk of a rapid and potentially dislocating response by banks. Even this, however, has succumbed to market conventions; for example, most banks have been targeting 2013 (not 2019) for compliance with Basel III rules, in some cases actively encouraged by their regulators to achieve early adoption.

In our view one of the most damaging aspects of the recent EU Summit proposals for the European Bank Sector was the effective further shortening of the timeframe for regulatory compliance. Instead of target ratios being reached over several years, target ratios now need to be achieved over several months. The EU Summit endorsed work done by the EBA setting a 30 June 2012 deadline for banks to reach a 9% Core Tier 1 ratio, after incorporating a mark-to-market exercise on their holdings of sovereign debt, resulting in a €106bn capital deficit. This significantly increases the risk of the bank sector deleveraging. We think that a requirement to either reach a target ratio immediately or else meet a target quantum of capital would have been much better since it would have discouraged banks from shrinking assets. The chosen timeframe of 9 months in our view risks meaningful economic damage.

The European bank sector has, inevitably, grasped at shrinkage as a key way to close the identified €106bn deficit. Figure 1 shows that – focussing only on the larger quoted banks – an identified deficit of €48bn is intended to be closed by a combination of Liability Management Exercises (30%), retained earnings (half) and shrinkage/RWA reductions (around one third).

Figure 1: Breakdown of European Banks response to closing their capital deficit

€m		As % Total Deficit
Identified deficit, major banks only	48,574	
Filled by:		
Liability Management Exercises	14,588	30%
Retained Earnings	24,630	51%
RWA reductions (partly via model changes)	**7,622**	**16%**
Shrinkage	**9,478**	**20%**
Total	56,318	116%

Note: Total exceeds 100% deficit because some banks' deficit reduction plans will move them into a capital surplus
Source: Barclays Capital

Recognising this risk, the EU Summit warned that:

"*National supervisory authorities, under the auspices of the EBA, must ensure that banks' plans to strengthen capital do not lead to excessive deleveraging, including maintaining the credit flow to the real economy and taking into account current exposure levels of the group including their subsidiaries in all Member States, cognisant of the need to avoid undue pressure on credit extension in host countries or on sovereign debt markets. "* [1]

But in practice we would view this statement as virtually impossible to enforce. National regulators are unable to set absolute lending targets (witness the failure of such targets in the UK for example) and they clearly lack the resources to assess whether rejected credit applications are because of poor credit worthiness or as a result of planned deleveraging.

Some banks have already been explicit about their intentions. For example, Commerzbank CFO Dr Eric Strutz said on a recent conference call following the EBA exercise:

"*As announced last week, we are currently assessing all options in order to reach the additional capital requirements set by EBA. Our management team has already agreed on immediate measures…… which amongst others (means) temporarily no new lending business that does not have any link to Germany and Poland."* [2]

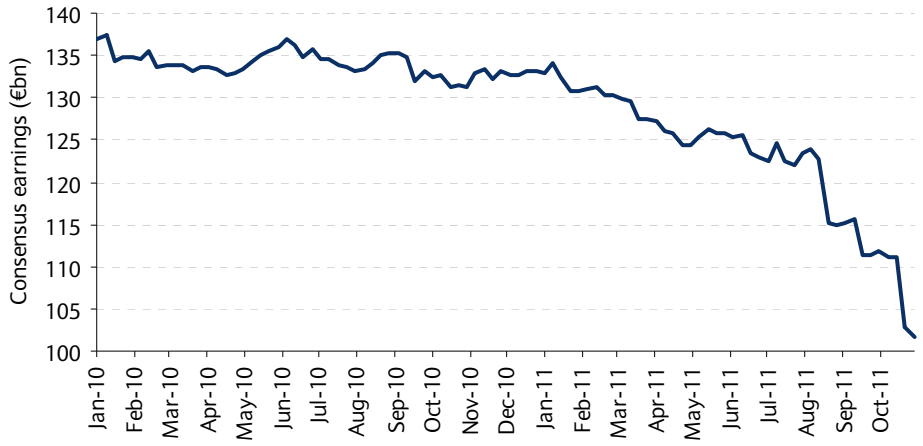
We believe that this is an inevitable problem with setting a target ratio and giving banks nine months to reach it. Put another way, if banks had been given a much shorter period (say a few weeks) then inevitably it would have forced them to raise the capital rather than rely on shrinkage or retained earnings. And that, we believe, would have been a much better result.

How much deleveraging?

Figure 1 suggested that the banks think that around one fifth of the sector's capital deficit will be filled via shrinkage. Keeping the maths simple, a capital "save" of c€20bn (one fifth of €106bn, scaled up for the whole sector), assuming a 40% average risk weighted asset ratio and a 9% Core Tier 1 ratio translates into asset shrinkage of c€550bn (ie, €20bn/9%/40%). This is only c2% of the eurozone's €30 trillion banking system assets. However, embedded within that apparently modest number is the assumption that retained earnings over the next nine months will close much of the identified capital deficit. And, stating the obvious, bank earnings are under enormous pressure at the moment. Indeed, as Figure 2 shows earnings forecast have fallen 20-25% across the sector with the pace of downgrades accelerating.

[1] EU Summit Statement, 26th October 2011
[2] Commerzbank Q3 Analyst Conference Call, 4 November 2011

Figure 2: 2012 consensus earnings for European banks



Source: DataStream, Barclays Capital

So what if – in extremis – banks closed their capital deficits purely via shrinkage? Figure 3 shows the potential asset shrinkage by country on this basis, focussing only on those eurozone countries where a deficit was identified. Clearly this would result in a severe economic dislocation, with overall eurozone balance sheets shrinking c10%, equivalent to around one third of GDP.

Figure 3: Converting the capital shortfall into assets

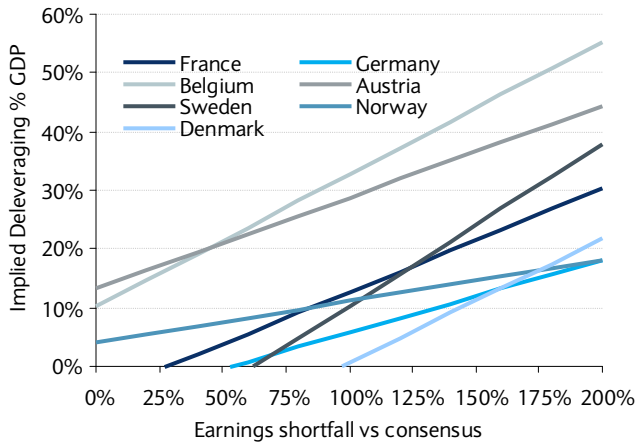
€m	EBA Capital Shortfall	Convert to RWAs @ 9% CT1 ratio	Convert to Assets @ 40% Avg Risk Weighting	Shrinkage	
				% GDP	% MFI Assets
Cyprus	3,587	39,856	99,639	571%	73%
Greece	30,000	333,333	833,333	362%	170%
Portugal	7,804	86,711	216,778	126%	38%
Spain	26,161	290,678	726,694	68%	20%
Belgium	4,143	46,033	115,083	33%	10%
Austria	2,938	32,644	81,611	29%	8%
Italy	14,771	164,122	410,306	26%	10%
Slovenia	297	3,300	8,250	23%	16%
France	8,844	98,267	245,667	13%	3%
Norway	1,312	14,578	36,444	11%	5%
Sweden	1,359	15,100	37,750	10%	3%
Germany	5,184	57,600	144,000	6%	2%
Denmark	47	522	1,306	1%	0%
Total	**106,447**	**1,182,744**	**2,956,861**	**33%**	**10%**

Source: EBA, Barclays Capital.

Figure 4 and Figure 5 show potential deleveraging scenarios relative to possible earnings downgrades across the sector.[3] The message is clear; the bigger earnings downgrades are, the greater the potential reliance on deleveraging to achieve the June 2012 9% target.

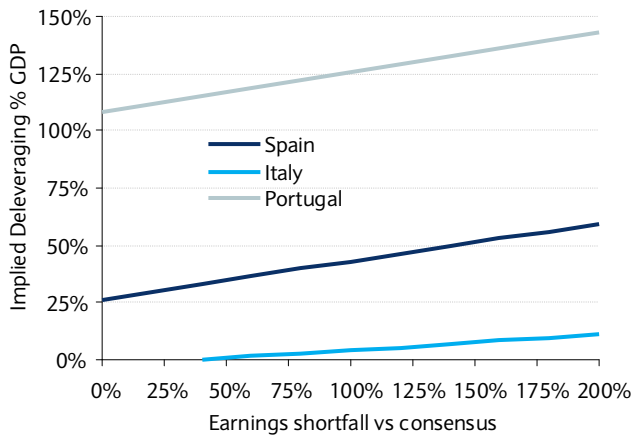
[3] After factoring in the impact of liability management exercises

Figure 4: Relationship between deleveraging and earnings estimates



Source: Barclays Capital

Figure 5: Relationship between deleveraging and earnings estimates

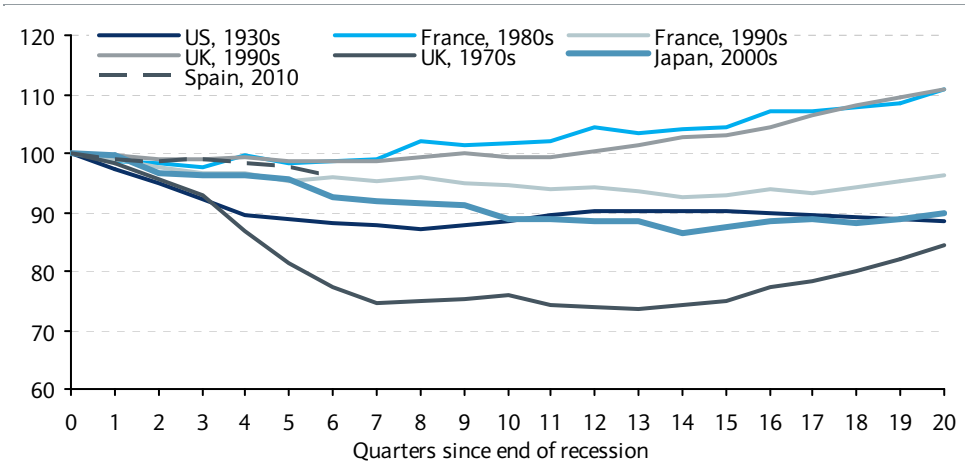


Source: Barclays Capital

So it seems to us that the combination of a nine-month capital ratio deadline and a weakening earnings environment represent clear deleveraging risks. Very approximately, this could range from €0.5trn to €3trn of assets, representing up to 10% of total eurozone banking assets or nearer one third of GDP.

Of course, it's entirely possible that some of this potential deleveraging would happen anyway, regardless of more onerous capital requirements. As shown in Figure 6, a feature of several deep recessions – especially those preceded by a financial crisis – is deleveraging. For example, in Spain the real value of outstanding loans has fallen c6% since the end of the 2008/2009 recession, which is currently tracking the UK experience of the early 1990s, although is a much slower pace of contraction than experienced in the US in the 1930s.

Figure 6: Real Loan Growth, Post Recessions



Source: Barclays Capital

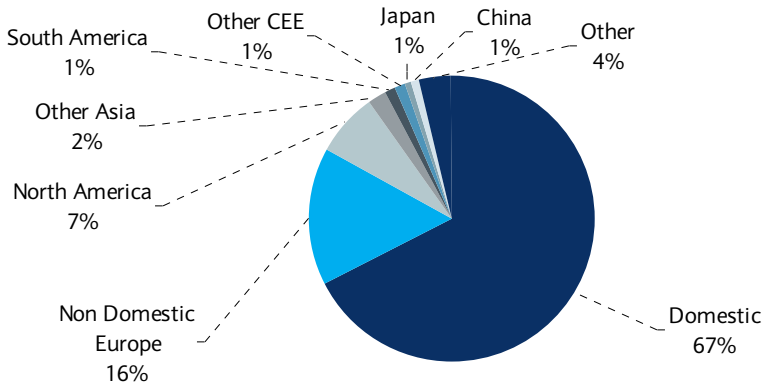
Separating that part of deleveraging that is happening anyway (arguably "healthy" deleveraging) from that induced by regulatory changes is impossible. However, intuitively at least it seems reasonable to conclude that the deleveraging process has been accelerated and deepened by the EBA stress test.

The following chapter analyses borrowing structures across Europe and the potential for other financing routes (such as the bond market) to replace bank debt.

European Banks are active globally

But of course, deleveraging isn't just limited to where a bank is domiciled. European banks are enormously active internationally. Figure 7 shows that around one third of European bank activities happen outside a bank's home country.

Figure 7: European Banks Geographic Location of Assets



Source: BIS, ESCB, Bank of England

So the potential implications beyond a deleveraging bank's" own borders is obvious. The Commerzbank comment noted earlier highlighted its focus on shrinking its overseas activities. This has been echoed by others, including SocGen at their recent results announcement:

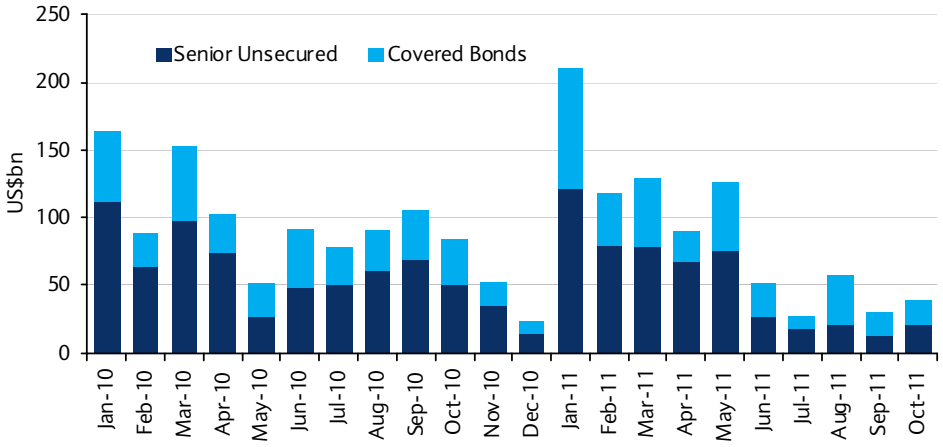
"*So, in September, indeed, we announced that we would review a series of businesses either on the global view or regional…..in terms of regional, it's mostly about LBO acquisition finance, infrastructure finance, export finance in Americas and Asia.*" [4]

The "Implications for Emerging Markets" chapter considers the impact beyond Europe in more detail.

One final observation; while banks are clearly under some pressure to shrink as a result of capital requirements, inconsistent funding markets are also continuing to place substantial pressure on banks to shrink. Figure 8 shows monthly issuance of term debt across the European Bank Sector. With around €800bn per annum of term debt maturing, banks need to issue in the region €50-70bn of term debt each month (after accounting for growth/shrinkage, deposit flows and pressure to extend maturities). Only once since May has issuance exceeded €50bn, and indeed cumulative issuance over the past five months (€150bn, US$200bn) is well below the "required" rate of €250bn to €350bn. Ironically, further balance sheet deleveraging may help ease some of these funding pressures.

[4] Michel Péretié, Head of CIB, SocGen Q3 2011 earnings transcript, 8 November 2011

Figure 8: European bank issuance of term debt



Source: Dealogic, Barclays Capital

Recognising the risks posed by dislocated term funding markets, the October 2011 EU Summit committed to look into some form of guarantee scheme. We agree with the EU that this is an essential part of the policy response and await further details:

"Guarantees on bank liabilities would be required to provide more direct support for banks in accessing term funding……this is also an essential part of the strategy to limit deleveraging actions. A simple repetition of the 2008 experience with full national discretion in the setting-up of liquidity schemes may not provide a satisfactory solution under current market conditions. Therefore a truly coordinated approach at EU-level is needed regarding entry criteria, pricing and conditions. The Commission should urgently explore together with the EBA, EIB, ECB the options for achieving this objective and report to the EFC" [5].

In addition to deleveraging, widening sovereign spreads and higher bank funding costs are inevitably going to result in banks charging their customer higher interest rates, a process that itself could exacerbate already established deleveraging trends. This is something we consider in more detail in later chapters.

[5] EU Summit Statement, 26 October 2011

MACROECONOMIC IMPLICATIONS

Macroeconomic impact for developed Europe

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- **The much greater size of euro area banks' balance sheets relative their US counterparts can be attributed to the substantially larger degree of US loan securitisation and the extended role of the US federal government in providing mortgage guarantees. Euro area banks' balance sheets have been reduced since 2008, but that this has tended to come from foreign assets.**
- **Despite a record post-war drop in euro area real GDP in 2009 (-4.2%), concerns about a credit crunch back then did not materialise. Nonetheless, the failure of governments to provide credible backstops thus far suggests significant risks of a substantial credit tightening, particularly in southern Europe.**
- **It will be important, in our view, for entities such as the European Investment Bank (EIB) and national bodies such as the German government-owned development bank (KfW) and French Caisse des Dépôts (CDC) to provide additional financing support. As well, it will be critical to develop the ability of euro area firms to access capital markets directly.**

Comparing balance sheets of the euro area and United States

It is often observed that euro area banks' balance sheets amount to about three times the countries' GDP, whereas in the United States the balance sheet of credit institutions is approximately equal to US GDP.

Figure 1 compares the aggregated balance sheets of euro area and US deposit-taking credit institutions. We endeavour to show data on a like-for-like comparison based on consolidated information provided by the ECB and Federal Reserve Board (FRB). Hence, the US data include not just federally chartered domestic banks, but also foreign bank branches, savings institutions and credit unions.

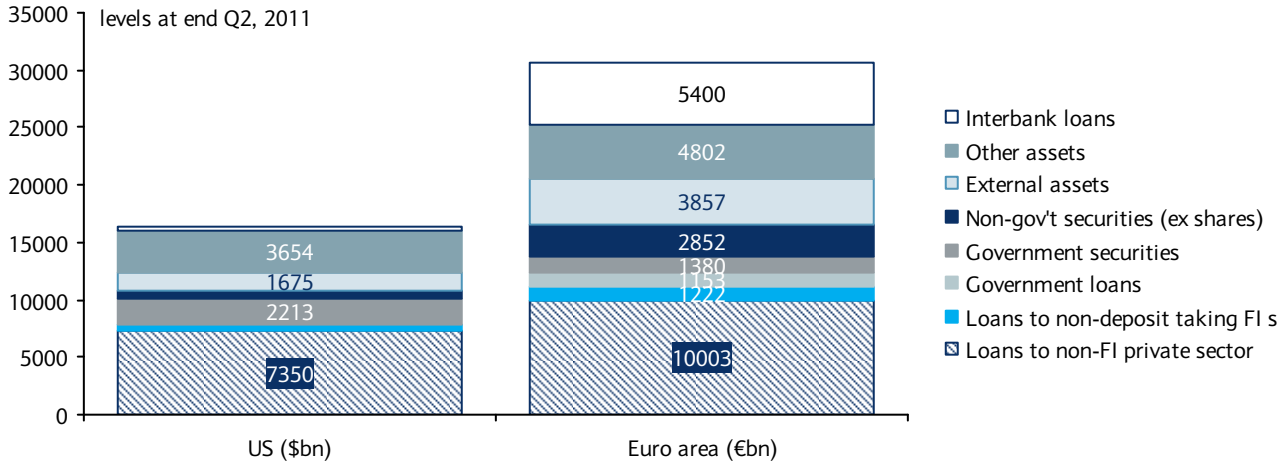
According to our assessment, the aggregate assets of US credit institutions at end-Q2 were $16.1trn, compared with €30.1trn for euro area credit institutions (Figure 1). The assets held by euro area banks are significantly greater in all categories other than for holdings of government securities, particularly for loans to the non-financial private sector, non-government securities, external and other assets, and interbank loans.

Comparing assets to the non-financial private sector

Even though the size of credit market liabilities of the US non-financial domestic private sectors (ie, households and non-financial businesses) is substantially greater than that of euro area ($24.3trn for the US, compared with $21.4trn for the euro area at end-June 2011), the total size of loans to these sectors carried on banks' balance sheets is significantly greater in the euro area ($10.0trn, compared with $7.35trn for the US). This disparity is accounted for by securitisation and by the much greater direct issuance of securities by US firms.

For example, loans owed by US households in June were $13.3trn (of which mortgages were $9.9trn), while loans to the non-financial business sector were $5.9trn, a total of $19.2trn. This was significantly greater than the $7.35trn of loans carried on the books of US credit institutions (of which mortgages were $2.9trn). Accounting for some of the $11.9trn difference, home mortgages held by the US government-sponsored enterprises (GSEs) amounted to $4.7trn, while GSE and agency-backed home mortgage pools were a further $1.2trn.

Figure 1: A comparison of US and euro area credit institutions



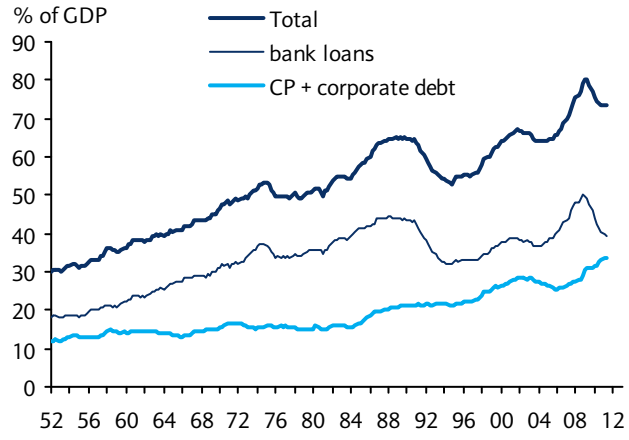
Note: US definition includes foreign banks in the US, savings institutions and credit unions. Euro area refers to Credit Institutions (ECB definition). Source: Barclays Capital based upon data from Federal Reserve Board and European Central Bank

Additionally, privately backed pools of home mortgages amounted to a further $1.2trn. Similarly, of the $3.1trn of commercial and multifamily mortgages, less than half ($1.3trn) were carried on banking books, and of the $2.4trn of outstanding consumer credit, $1.38trn was held by credit institutions. Meanwhile, the US non-financial business sector carried additional direct credit market liabilities in the form of CP and bonds amounting to $5.08trn.

By contrast, in the euro area at end-June, €5.3trn of the €6.1trn of household loans were held by credit institutions. Of the €8.6trn of non-financial corporate (NFC) loans, €4.76trn was from banks, while €2.4trn was intra-sector (ie, the headline is 'non-consolidated'). Meanwhile, the securities issued by NFCs were just €0.88trn (Figure 2).

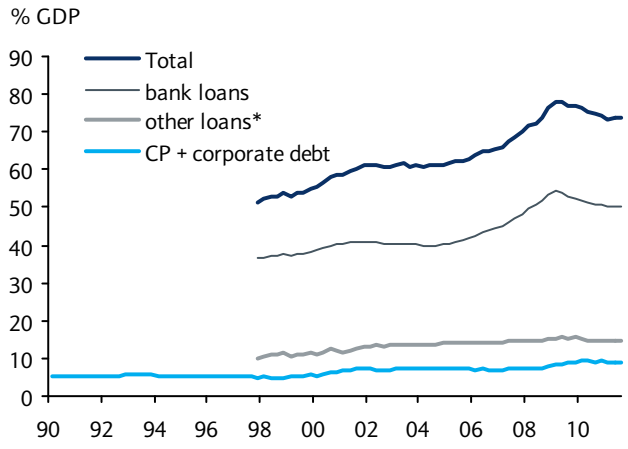
Figure 2: Financing of the non-financial business sectors - Direct securities issuance much smaller in euro area

US (non-financial business sector)*



Note: * The 'Non-financial business sector' category is non-financial corporates, non-corporate non-financial firms and farms.
Source: Barclays Capital, using FRB data

Euro area (non-financial corporate sector)

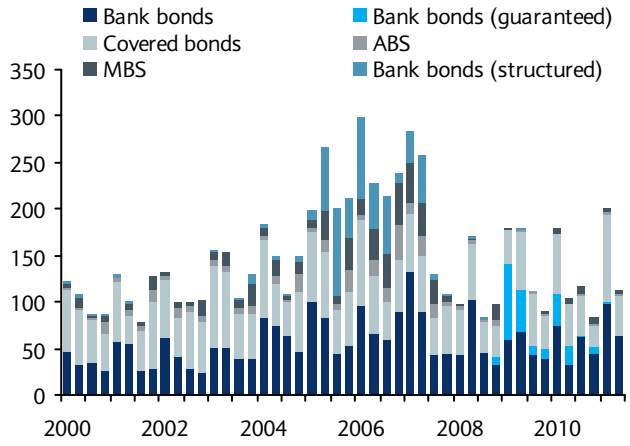


Note: *'other' loans: from other (non-bank) financial institutions, government, households and rest of world
Source: ECB Haver Analytics, Barclays Capital

Figure 3: Euro area bank loan securitisations and sales (€bn, monthly)

Source: Barclays Capital using ECB database

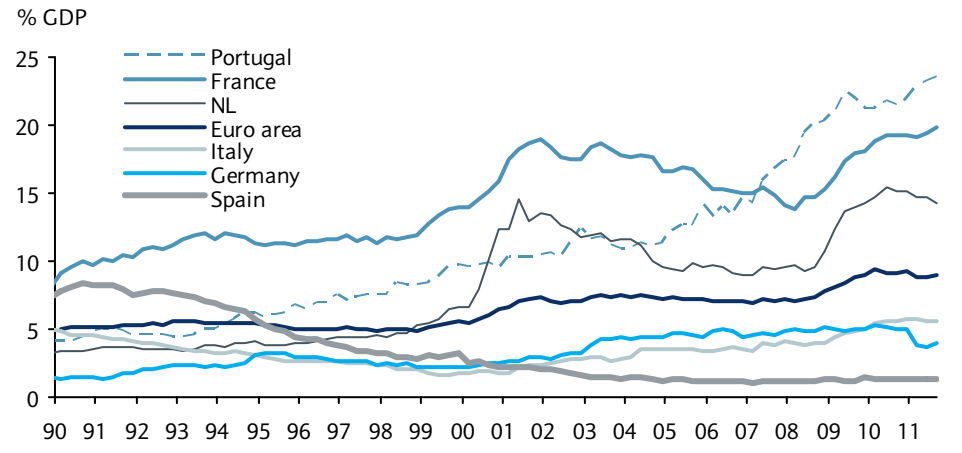
Figure 4: Euro area banks' long-term debt financing instruments - Issuance activity (€bn, quarterly)



Source: ECB Monthly Bulletin (October 2011)

In general, euro area banks have not been especially active in terms of outright sales or securitisation loans (Figure 3). However, covered bond issuance has been a strong part of their long-term financing (Figure 4). Meanwhile, direct issuance of debt by euro area non-financial corporates did rise gradually after the start of EMU in 1999, but in general it has not grown in a way comparable to that in the US. Whereas the non-financial corporate issues of bonds and CP now amounts to 34% of US GDP, having risen strongly from 26% in Q2 06 (and compared with bank loans to the entire non-financial business sector of 39% of GDP in Q2), for the euro area the equivalent ratio is 9.0% of GDP. There is, however, a broad divergence of ratios across countries, with, for example, the French ratio at 20% of GDP but the German ratio at only 4% of GDP (Figure 5). This suggests that there is substantial potential for the corporate bond market to grow across many parts of the euro area, particularly in Germany, Italy and Spain.

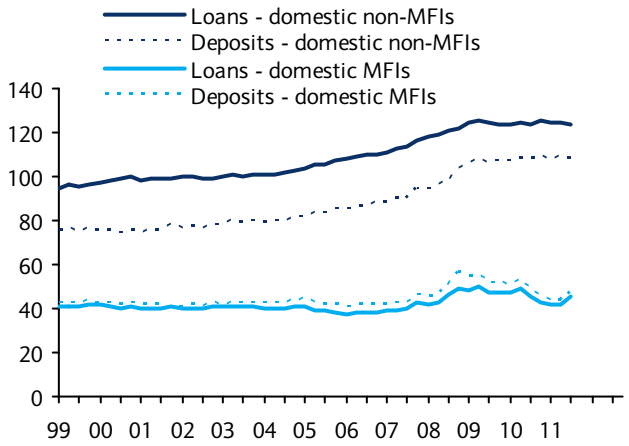
Figure 5: Securities outstanding issued by non-financial corporates in the euro area



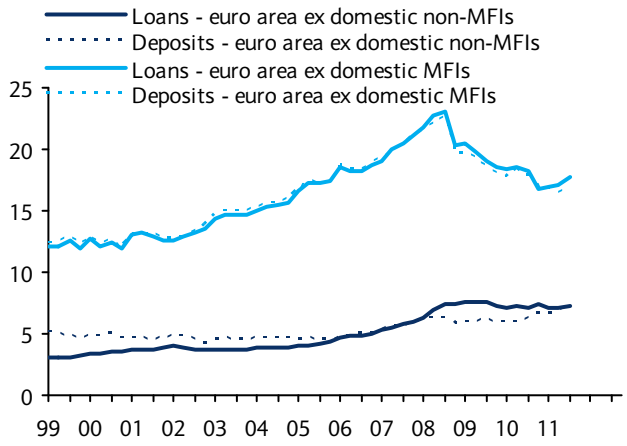
Source: Haver Analytics, Barclays Capital based on ECB database

Figure 6: Euro area MFI* exposures - domestic, intra-euro area, and extra-euro area (% euro area GDP)

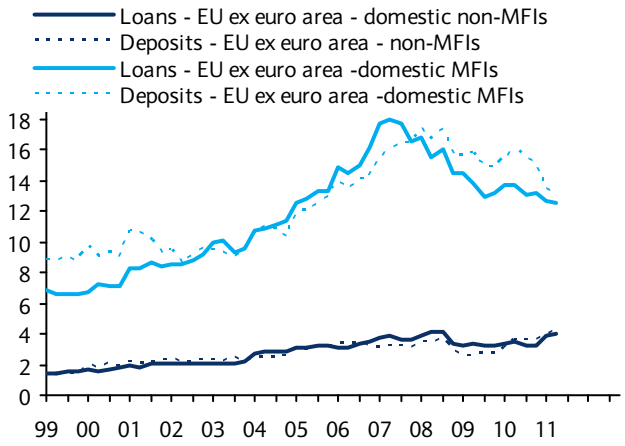
i. Domestic loans and deposits



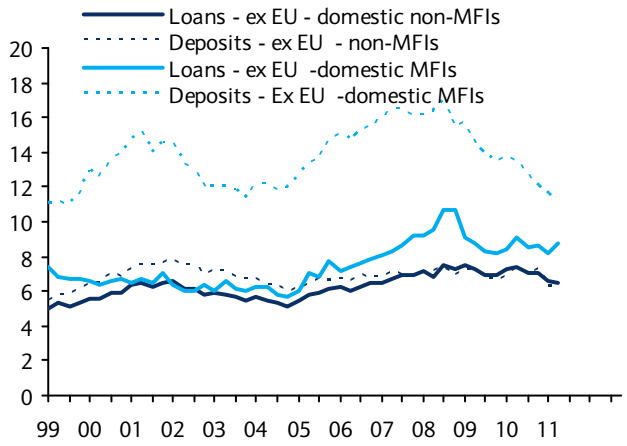
ii. Euro area excluding domestic: loans and deposits



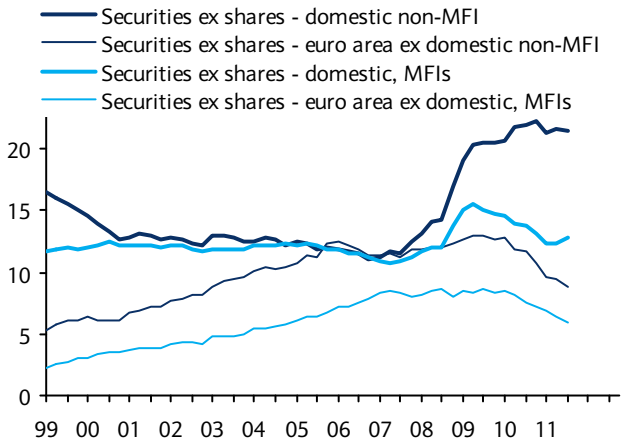
iii. EU ex-euro area: loans and deposits



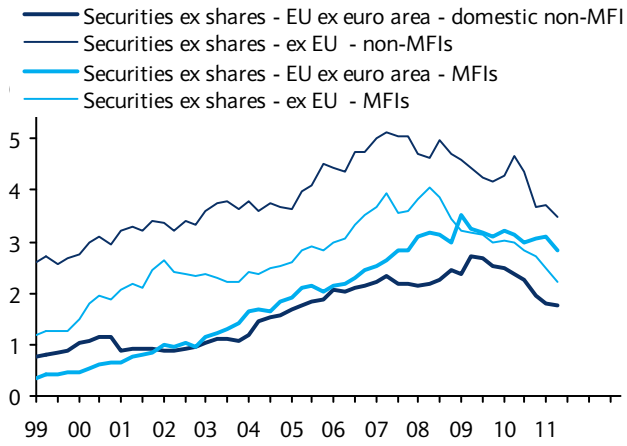
iv. World ex-EU: loans and deposits



v. MFIs' holdings of securities: domestic & intra euro area



vi. MFIs' holdings of securities: extra euro area

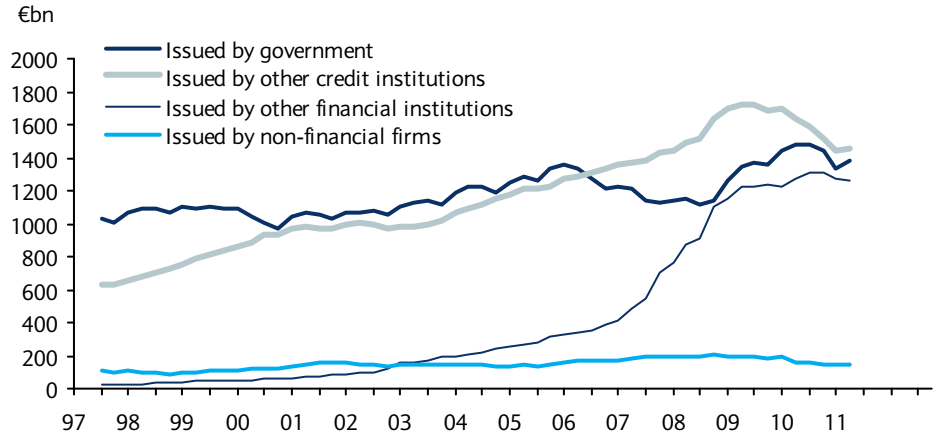


Note: * MFI = "Monetary Financial Institutions". This definition includes money market mutual funds, but these play only a small part in terms of aggregate securities holdings, and have no impact on loans and deposits. Source: Barclays Capital, using European Central Bank database

Holdings of non-government securities ex-shares

A second category that shows large divergences between US and euro area credit institutions is holdings of non-government securities ex-shares, where the US series at end-June was at $0.7trn, compared with €2.9trn ($3.84trn) for euro area banks. Nearly all of the euro area holdings excluding government securities were of securities issued by other financial firms, comprising €1.45trn of bank-issued securities and €1.26trn of securities issued by other financial institutions (Figure 7). The former category includes covered bonds, whereas the latter is dominated by securitisation vehicles.

Figure 7: Holdings of euro area securities (ex-shares) by euro area credit institutions



Source: Barclays Capital, based on ECB database

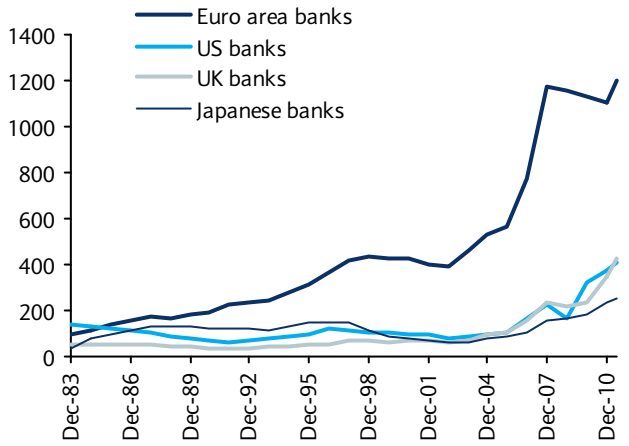
External assets

Please see the chapter, "Macroeconomic implications for Emerging Markets", for more analysis of the implications of external de-leveraging.

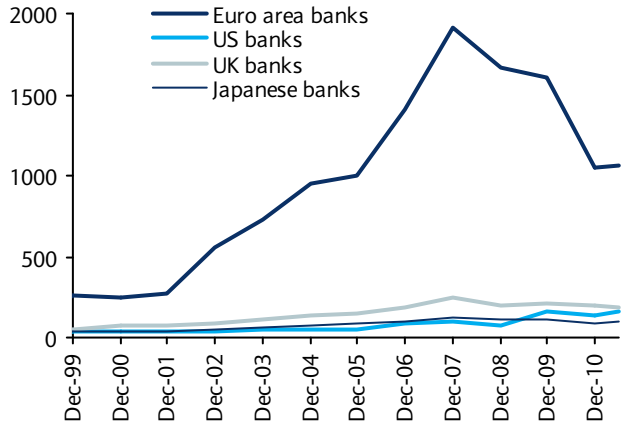
A third category demonstrating wide divergences is external assets, where the position for US banks was $1.7trn at end-June, compared with €3.9trn ($5.2trn) for euro area credit institutions. Beyond the 'headline' figure, the main source for a detailed breakdown is the BIS cross-border database on bank assets, although the ECB does provide a breakdown in terms of holdings of loans and of securities excluding shares; these show that just over half of the euro area bank external assets were to other banks in the form of loans (€1.2trn) and securities holdings. In particular, at end-June, euro area banks had loans to other EU countries outside of the euro area worth €1.56trn, of which €0.4trn was to non-banks and €1.18trn were to banks. Meanwhile, loans outside of the EU amounted to €1.44trn, of which €0.61trn was to non-banks and €0.82trn to banks. As well, euro area MFIs (a category which includes money market mutual funds as well as banks, but which is dominated still by banks) had holdings of non-euro EU securities ex-shares of €0.4trn and of non-EU securities ex-shares of €0.5trn. For further information, please see the charts in Figure 6.

Figure 8: BIS data on consolidated international claims ($bn)

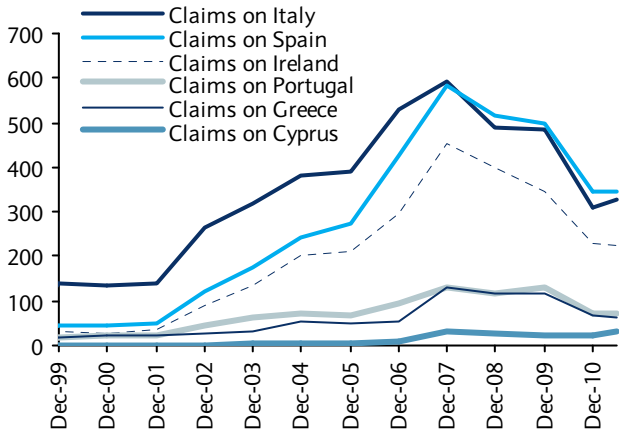
i. Banking system exposure to emerging countries



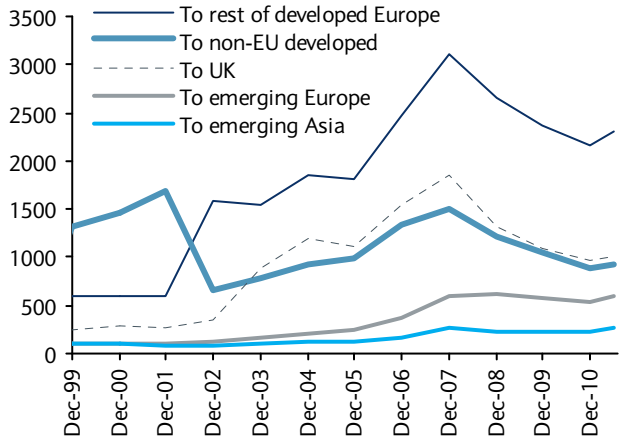
ii. Banking system exposure to the euro area peripherals*



iii. Euro area bank exposure to the peripherals*



iv. Euro area banks' international lending



Note: * 'peripherals' defined here as: Cyprus, Greece, Ireland, Italy, Portugal and Spain. Source: Barclays Capital, using BIS database

We can also use the BIS data to obtain a further breakdown of euro area banks' external assets, including in comparison with other banking sectors.

Figure 8.i shows how euro area banks have been particularly active in expanding their lending to emerging economies, with total exposure of about $1.2trn in June. However, they have been already curbing significantly their exposure to the euro area periphery, which has declined from a peak of $1.9trn at end 2007 (€1.3trn) to $1.07trn (€0.74trn) in June (Figure 8.ii). Note that a considerable part of the sharp increase in exposure during 2002-07 was due to acquisitions (and therefore the assets tend to be matched by liabilities in the country of acquisition). Figure 8.iii provides further information about euro area banks' exposures to the periphery: this has been cut since the peak in 2007 by similar proportions (the reduction in Spanish exposure has been 40%, Italian and Portuguese exposure c45%, Irish exposure 50%, and Greek 48%). Meanwhile, Figure 8.iv shows that while cross-border exposure has been cut significantly across Europe (including to the UK, where it has also declined 45%, a reduction of €570bn since end-2007), euro area banks have continued to maintain, and in some cases (eg, to Asia) increase, exposure.

Interbank assets

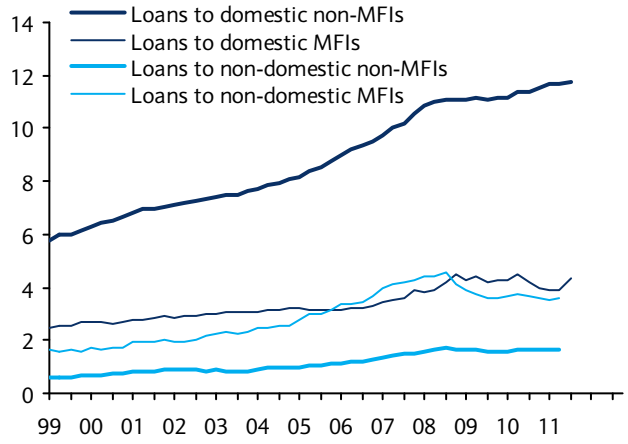
One final comparison between the asset side of US and euro area banks' balance sheets concerns the substantial divergence in exposure to the interbank sector within the euro area. This reflects the heterogeneity of the approximately 7,000 euro area credit institutions, and therefore of the importance of the interbank market as a means of distributing reserves. Interbank transactions are important when some institutions (such as savings banks) tend to have excess banking system reserves (ie, liquidity), while others (such as wholesale banks) tend to have liquidity deficits. As well, there are many vertical linkages across the banking industry, particularly in Germany, which reinforce these transactions. In the United States, gross interbank assets are not recorded separately by the Federal Reserve Board, and many interbank transactions occur as repos within the federal funds system.

What form might further balance sheet contraction take?

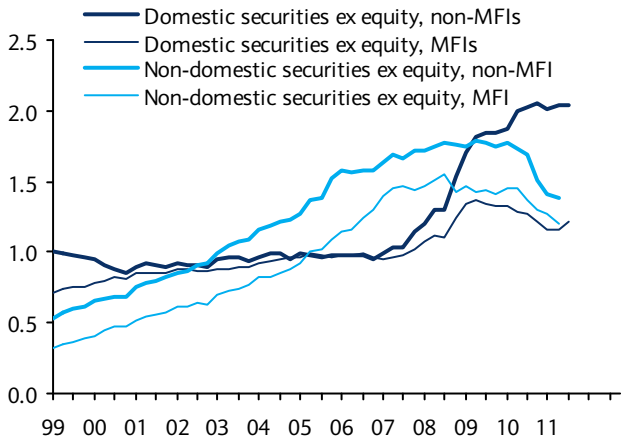
The previous analysis suggests that there is considerable scope for euro area banks to lower the size of their balance sheets without necessarily affecting the 'core' business of making loans to domestic customers. Indeed, euro area banks have been in a process of trimming balance sheets since 2008. In particular, and as discussed previously, euro area banks' external assets (outside of the euro area) fell from €4.62trn at end-Q3 08 to €3.86trn at end-Q2 11, while over this period their euro area holdings of securities issued by other corporates (non-financial and financial) also was reduced (by €0.2trn since Q2 09). By contrast, loans to euro area non-financial corporates and households have remained largely steady (the only form of loan to have decreased inside the euro area is that to other banks (MFIs), which has decreased from a high of €6.22trn in Q3 08 to €5.4trn in Q2 11. Figure 9 recaps the information presented in Figure 6 to show how domestic assets have continued to rise, even as some forms of non-domestic assets (such as interbank loans to non-domestic MFIs and holdings of non-domestic securities have fallen back).

Figure 9: Euro area MFI balance sheets: a summary view of domestic vs. non-domestic assets (€bn)

i. Loans



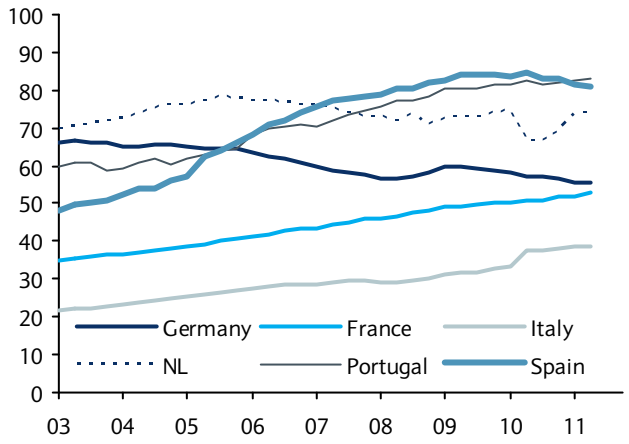
ii. Securities ex-equities



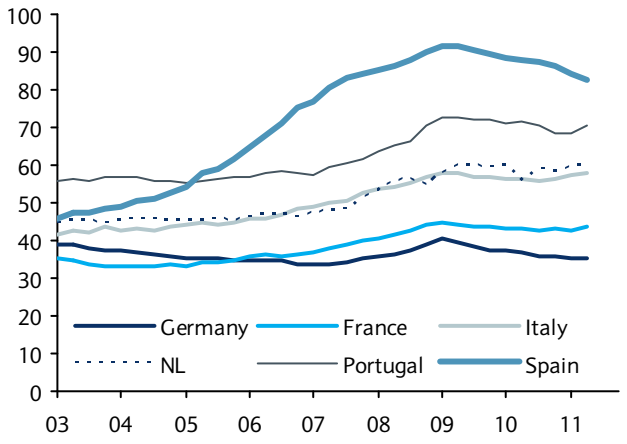
Source: ECB database, Barclays Capital

Figure 10: Bank lending to non-financial firms and to households (% GDP)

i. To households



ii. To non-financial corporates



Source: Haver Analytics, Barclays Capital, using ECB database

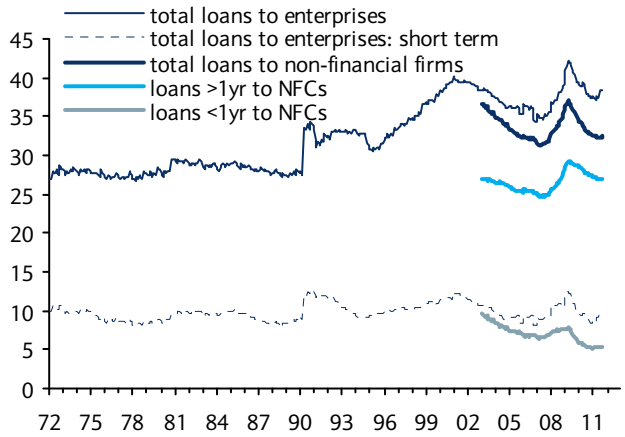
Figure 10 shows the heterogeneity of bank lending across the euro area. In particular, during 2000-2009 there was rapid growth in lending to both households and to non-financial firms in Spain, Portugal and Ireland, However, as real estate prices and the construction sector have weakened in these sectors, so there has been a correction (particularly in terms of loans to non-financial corporates). In contrast, since EMU began there has been a de-leveraging (in terms of loans to GDP) for the German household sector (which began EMU with a relatively high ratio of debt to GDP), while the German and French corporate sectors have recorded a relatively stable share of bank loans to GDP.

Figure 11 shows the breakdown of bank lending, primarily to non-financial corporates according to loan maturity. Fears of a credit crunch were widespread in the euro area banking sector in 2009 (when real GDP contracted in the euro area by a post-war record 4.2%). However, as the figures illustrate, most of the weakness in bank lending was concentrated in loans of up to one year's duration (the main exception was Spain, but our chart illustrates that it is experiencing a much more pronounced de-leveraging, given that loans to the non-financial sector had reached a peak of 90% of GDP, considerably higher than for the other countries shown here, of which loans to the construction and commercial real estate sectors had accounted for much of the expansion). It is likely, therefore, that the concentration of reduced lending in the sub-one year category was related to a decline in demand for working capital, which in turn arose on account of a very sharp de-stocking.

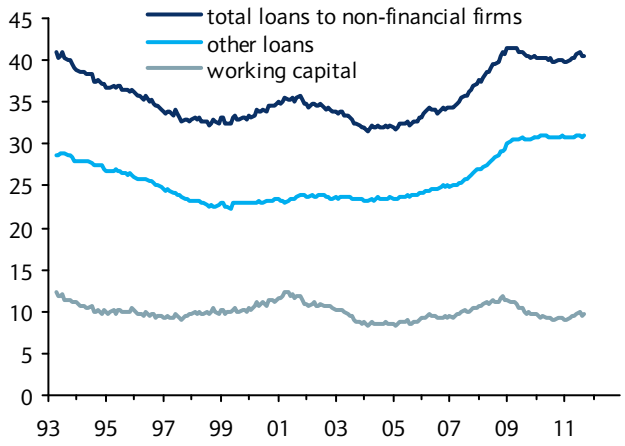
In aggregate, euro area combined bank loans to non-financial corporates and to households did not decline appreciably during 2009 (Figure 13), after adjustment for sales and securitisations, despite the 4.2% drop in real GDP that year. Yet in the US, which experienced a slightly less severe recession (-3.5% in 2009), commercial bank loans and leases fell from a peak of $8.02trn in September 2008 to $6.72trn in March 2011, a decline of 16%.

Figure 11: Data on lending to non-financial firms - Breakdown between short-term loans and remainder (% GDP)

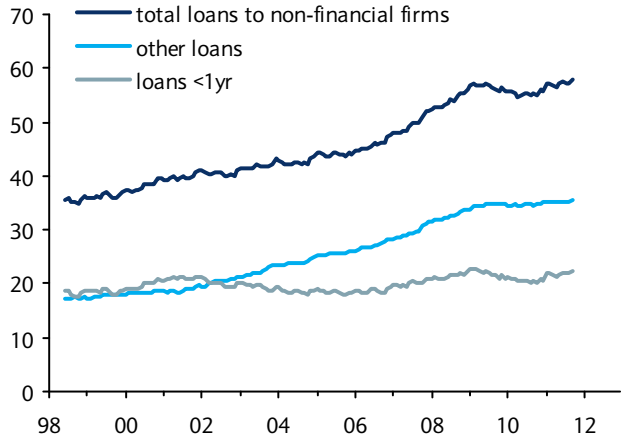
i. Germany



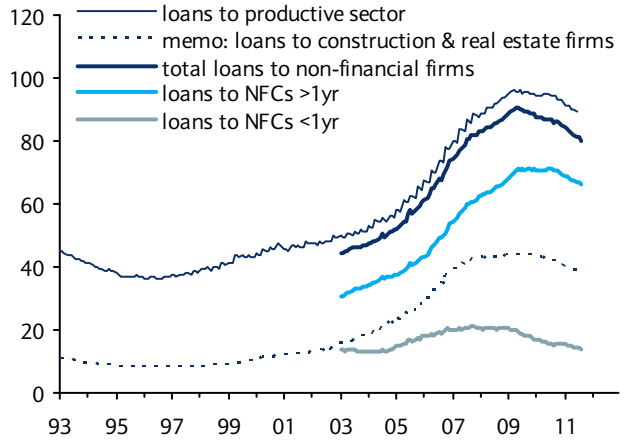
ii. France



iii. Italy

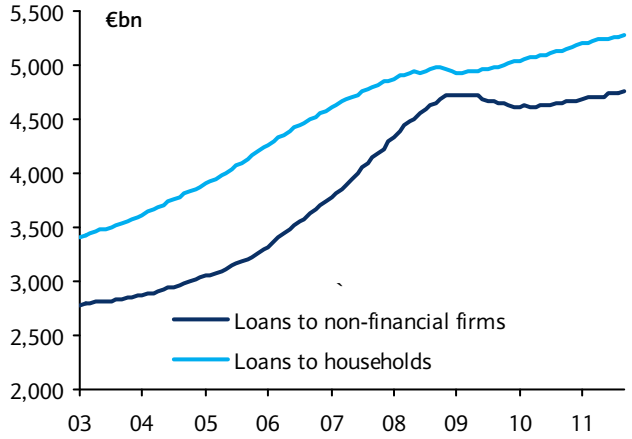


iv. Spain



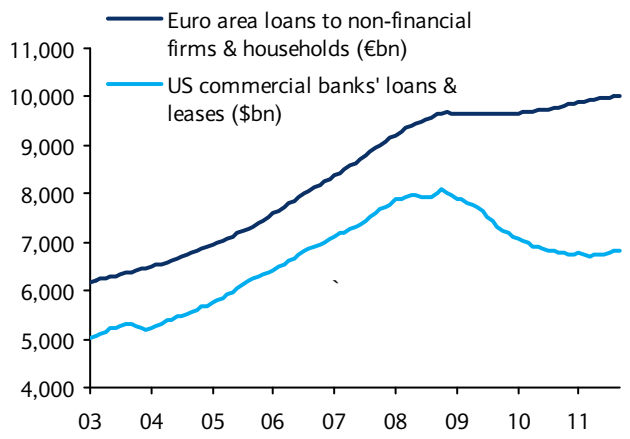
Source: Haver Analytics, Barclays Capital, using ECB database

Figure 12: Euro area bank loans to non-financial priv. sector



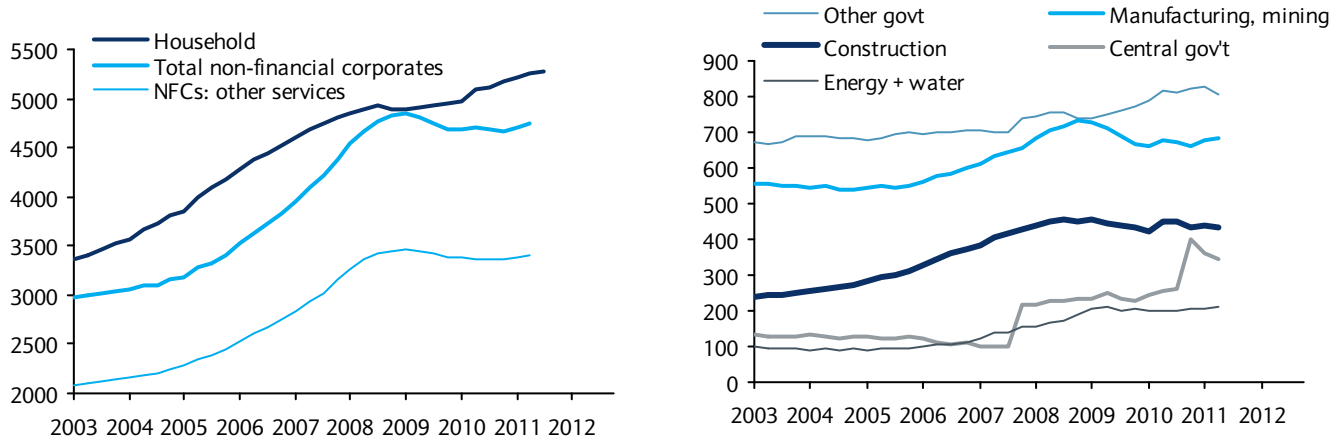
Note: Series shown are adjusted for breaks and, since 2009, for loan sales and securitizations. Source: Haver Analytics, Barclays Capital

Figure 13: Euro and US bank loans



Note: Series shown are adjusted for breaks (see also footnote to Figure 11). Source: Haver Analytics, Barclays Capital

Figure 14: Euro area bank loans by business sector and government tier (€bn)



NB: The series for central government loans is subject to two structural breaks, in 2007 (for Italy) and in 2010 (for Germany, related to HRE)
Source: ECB database, Barclays Capital

Overall, a series for euro area bank loans to non-financial corporates, adjusted for loan sales and securitisations and based on flow information, shows only a minor moderation during 2009, from a peak of €4.73trn in February to a low of €4.611trn the following January (Figure 12). Meanwhile, household loans, on the same basis, showed an even small dip.

In conclusion, the significant decline in euro area aggregate bank lending was avoided because of several factors:

- Much of the weakness in bank loans both in the euro area and in the US was related to the construction sector, which, however, experienced a much broader and more severe downturn in the US than in the euro area (Figure 14).
- US bank lending tends to be more concentrated in the commercial and industrial sectors, including to commercial real estate (since conventional home mortgages are largely securitised). Hence, the aggregate volume of loans in the US was more heavily depressed, compared with euro area balance sheets, which have a large proportion of household debt (which has been, so far, more stable).

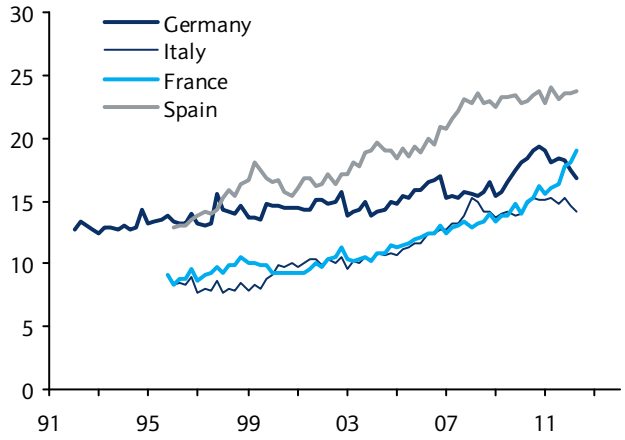
- EU governments and the ECB took anticipatory actions, via guarantee schemes for bank debt issuance and via the provision of unlimited liquidity in the ECB refinancings, which helped forestall a credit crunch.

Additionally, euro area corporates – as was also the case for their counterparts in the US, Japan and especially the UK – went into the 2009 recession with relatively good balance sheets (notwithstanding the excesses in parts of the real estate sector). This can be seen by considering the deposits of non-financial firms (Figure 15). Moreover, firms in France have improved this buffer (expressed as a share of GDP), while the ratio also remains high for Spanish non-financial firms as a whole. Related to this, the financing gap of the euro area non-financial corporate sector is roughly zero (ie, gross investment is covered by retained earnings plus capital consumption).

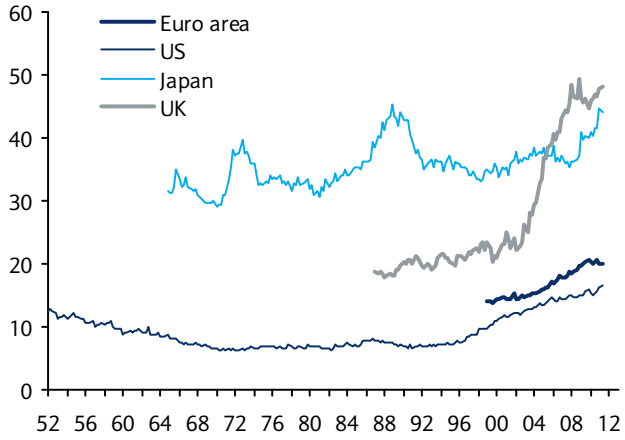
Nonetheless, it is vital not to be complacent about the outlook. In particular, financial markets now no longer have the widespread degree of confidence that they had in 2008-09 in the ability of various euro area governments to backstop their banking sectors. Also, such had been the expansion of lending to the non-financial private sector in several euro area countries (Figure 16) that further debt de-leveraging appears likely for some of them.

Figure 15: Deposits of non-financial corporates, % GDP

i. Major euro area countries

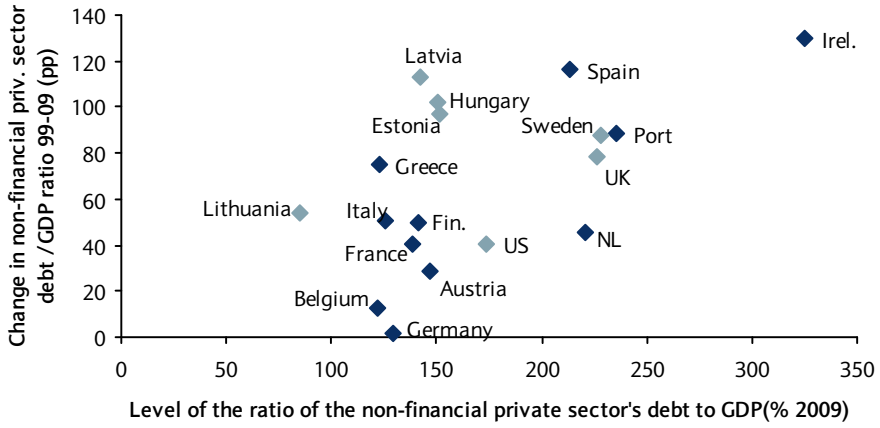


ii. International



Source: Barclays Capital, Haver Analytics

Figure 16: The level and change in non-financial private sector debt ratios

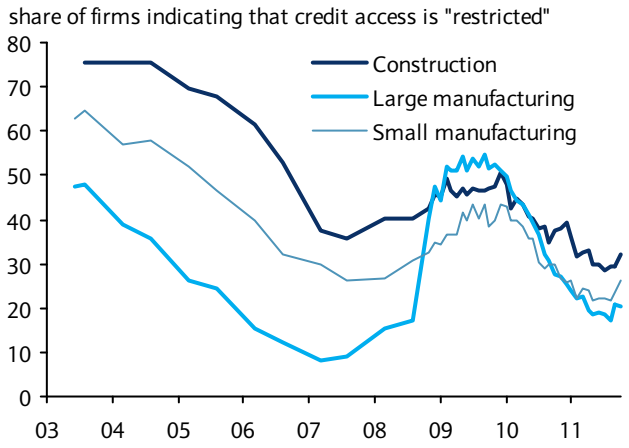


Source: Eurostat database, Barclays Capital

Therefore, as discussed elsewhere in this publication, the danger of substantial funding constraints for various euro area banking sectors during 2012 is a critical factor. It is also clear from various surveys of banks and of non-financial firms that financing conditions are poised to tighten significantly again (Figure 17), intensifying the divergence across economies. While it is still early days for this process, it is likely that the availability of credit in the euro area, particularly its provision across southern Europe, is set to tighten appreciably in the quarters ahead. In turn, this compounds the pernicious spiral of interaction between asset prices, the business cycle, perceptions of sovereign solvency and banking sector risk.

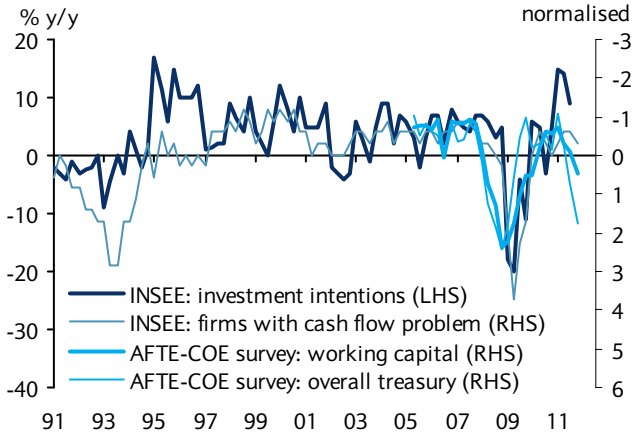
Figure 17: Surveys of credit constraints experienced by industrial firms

i. Germany*



Note: *A survey of c.4k firms; semiannual during 2003-2008
Source: IFO, Barclays Capital

ii. France



Note: For Q1, Q2, and Q3, shows the readings of the Jan., Apr. and Jul. surveys of manufacturers' investment intentions for that year; for Q4 shows the expectation for the next year Source: Haver Analytics, Barclays Capital based on INSEE database, AFTE-COE Rexecode survey of large firms' treasurers

IMPLICATIONS FOR EMERGING MARKETS

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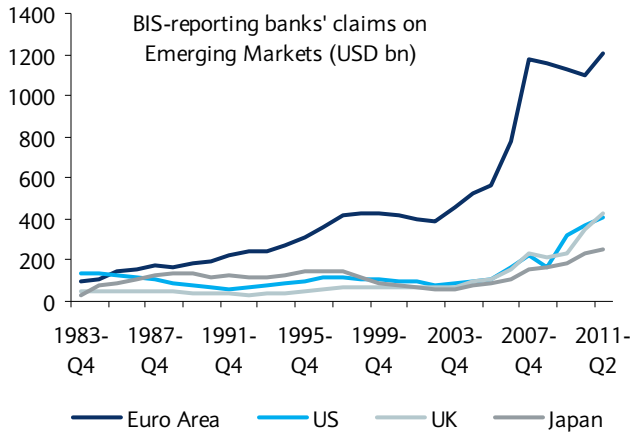
- **As euro area banks consider how to reduce their risk-weighted assets (RWA) to meet required capital adequacy ratio (CAR) targets, they are likely to look across their entire balance sheet structures.**
- **While facing political pressure to maintain lending in their host countries, it may also be difficult for euro area banks to focus exclusively on reducing their exposures in the euro area periphery. This draws attention to their assets outside the euro area, including in EM economies.**
- **In this article, we discuss the potential for EM economies to become the collateral damage of a euro area bank deleveraging.**

Euro area banks' significant exposure to EM, especially EM Europe

Euro area banks' cross-border activity goes well beyond the euro area and, indeed, well beyond just the developed economies. BIS data shows clearly how euro area banks have grown their exposure to EM markets much more rapidly than US, UK and Japanese banks. Euro area banks now have around USD1.2trn in 'claims' in EM, more than the other (BIS-reporting) core market banks combined (Figure 1).This not only means that euro area banks are exposed to EM but also that the relevant EM economies have become quite dependent on euro area banks' support. Hence, the exposure goes both ways, and in some smaller EM countries, the outlook could be significantly affected by the destiny of euro area banks. (Figure 3)

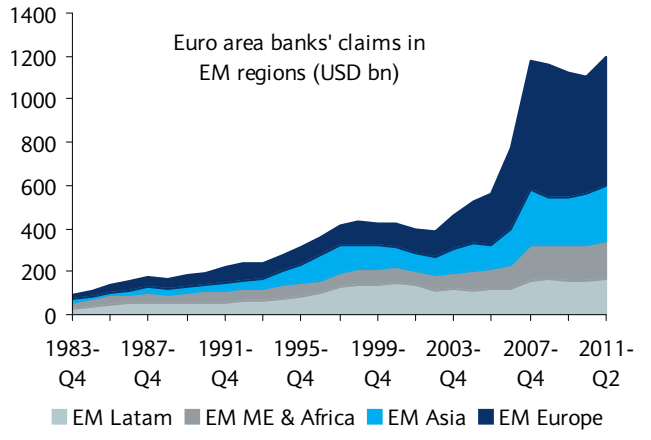
In this regard, EM Europe clearly stands out among the EM regions. Euro area banks' exposure to EM Europe is higher than elsewhere in EM, and the overall exposure to BIS reporting banks overall is far higher in EM Europe than in EM Asia or in LatAm. (Figure 2 and 3). In other words, the exposure of euro area banks to EM Europe is far above, for instance, the exposure that Japanese banks have in EM Asia, or that North American banks have to LatAm. It re-confirms that Europe as a whole (East and West) is the most integrated region not only through intra-regional trade but also its banking links[6] (Figure 4).

Figure 1: Euro area banks are big in EM….



Source: BIS, Barclays Capital

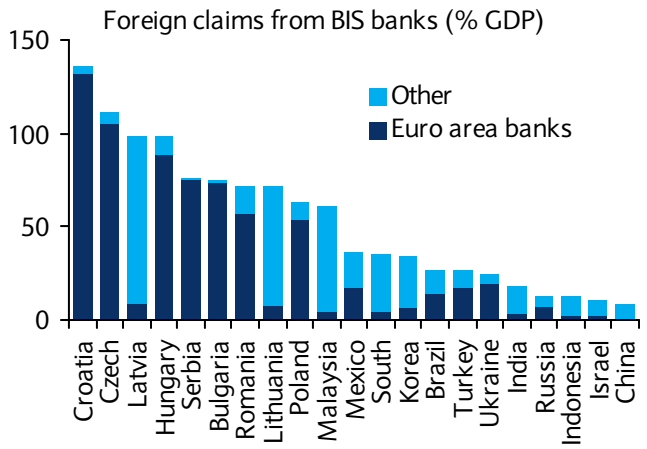
Figure 2: … but their claims are mostly on EM Europe



Source: BIS, Barclays Capital

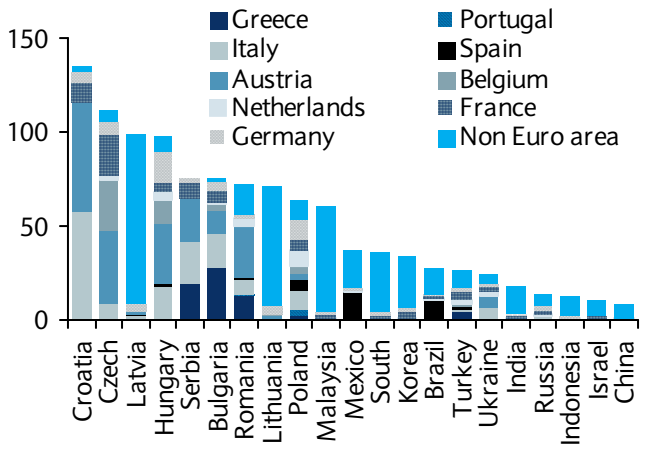
[6] To be more precise, 'EM Europe' here refers mainly to Central and South Eastern Europe. In larger, non-EU economies such as Turkey, Russia and Kazakhstan, euro area banks' play a smaller role.

Figure 3: These claims can present large shares of GDP…



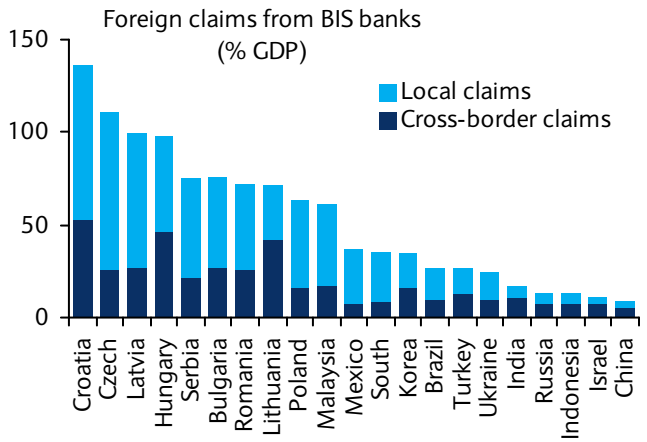
Source: BIS, Barclays Capital; In Latvia and Lithuania "other" are mainly Scandinavian banks.

Figure 4: often by euro area banks with problems (%GDP)



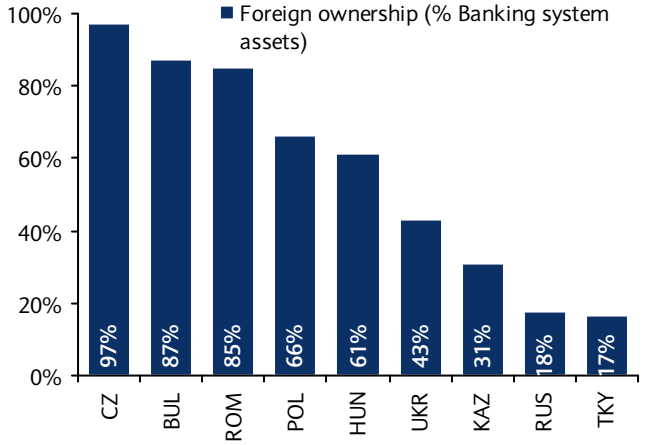
Source: BIS, Barclays Capital

Figure 5: But large share of these claims are 'local' ….



Source: BIS, Barclays Capital

Figure 6: …reflecting ownership of local banks

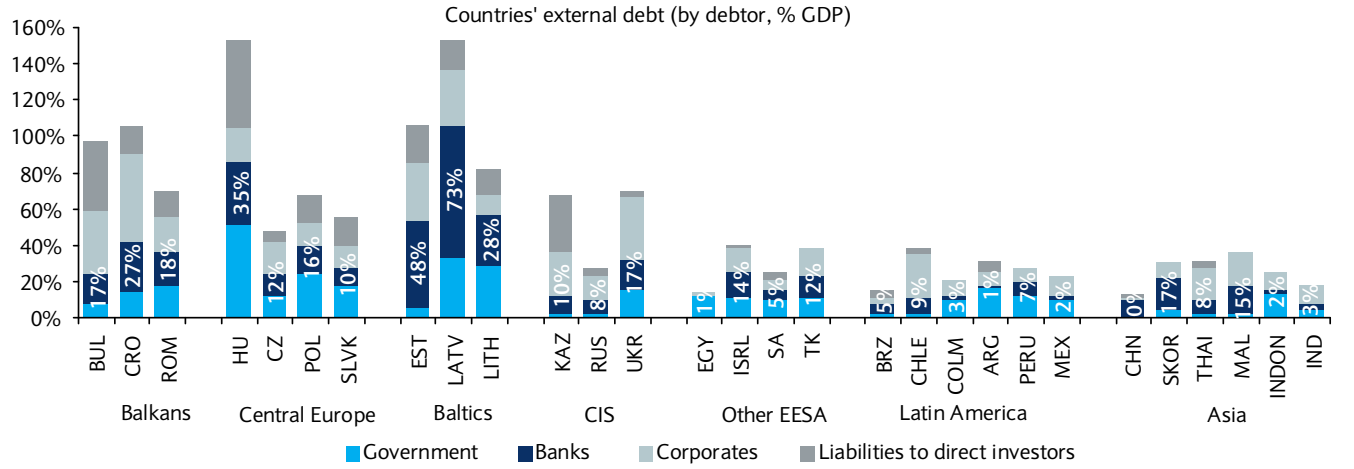


Source: EBRD, Barclays Capital

How can banks reduce exposure in EM?

The 'claims' reported by the BIS are claims banks have on other banks but also corporates and governments. Thus, one way euro area banks can reduce exposure is through any type of asset sale/credit reduction, including government bond holdings, participation in project finance or even trade finance (which we discuss further below). Clearly, while there are differences between the regions within EM Europe, EM Europe in general has higher external liabilities than other EM regions, particularly with regards to banks' external debt (Figure 7).

Figure 7: Deleveraging can in principle affect all external liabilities in all sectors



Source: IMF, National Central Banks, Barclays Capital

Reducing cross-border funding for CEE subsidiaries

Importantly, however, many of the euro area banks' so-called 'international claims' on EM Europe are not 'cross border' lending but are 'local claims' (See Figure 5 and 6; also appendix on BIS data). The latter are claims euro area banks have through their local subsidiaries: eg, a mortgage an Italian-owned Hungarian bank has given to a local resident.

It is useful to highlight that such subsidiaries are legally independent entities, incorporated and supervised in the country they operate in. Thus, attempts by parents banks in crisis (eg, Greek banks in a disorderly default scenario) to drain liquidity from their subsidiaries in EM Europe is closely monitored by local supervisors, who can intervene if they believe such actions threaten the stability of their financial system.

However, the more likely way EM Europe will feel the effects of euro area banks' deleveraging will be through the reduction of cross-border funding. In EM Europe, this often comes from parent banks in the euro area. Given the fast credit expansion by EM subsidiaries, in particular in the form of FX loans, loan-to-deposit ratios are often high, indicating strong reliance on such cross-border funding from parents.

In the post-Lehman environment, such links to euro area banks turned out to be a great support. While countries with little foreign bank involvement, such as Russia and Kazakhstan, experienced sharp cuts in the availability of foreign financing (leading to defaults, for example, in Kazakhstan), the bank funding in economies with Western European bank subsidiaries remained strong. Indeed, in some cases, it even increased. Swiftly organised IMF-EU programmes reassured Western European banks that EM European economies would not collapse and, in return, the banks committed to support their subsidiaries (which had been extremely profitable and accumulated large capital buffers). This commitment was formalised in the so-called 'Vienna Initiative'. Thus, the general conclusion has been that foreign bank involvement was an element of strength for EM Europe.

This may have changed now, given that it is euro area banks and indeed their sovereigns that are under stress. Most EU-IMF programmes have now expired, as has the 'Vienna Initiative'. Indeed, the message from Vienna has changed profoundly, as the Austrian regulator (whose banks are by far the most exposed to EM Europe) has recently started to explicitly ask Austrian banks to move away from cross-border funding of their subsidiaries, ie, forcing subsidiaries to become more self-sufficient (see Figure 12). At the same time, authorities in EM Europe are also discouraging FX lending (eg, Hungary has prohibited CHF

lending), which was typically funded by cross-border (FX) parent loans. Hence, there is both a pull and a push on reducing cross-border lending.

How rapidly will the effects be felt? In principle, parent banks can withdraw their cross-border loans only as the corresponding local assets can be sold (eg, government bond holdings) or local loans fall due (and are not extended). Alternatively, the subsidiaries could try to substitute parent lending with local funding, ie, by raising local deposits. However, the latter may not be easy in a market where several banks may try the same. Thus, particularly in markets where banks may have revised downward their growth projections, the reduction of the local balance sheets – as fast as the maturities allow – seems the most likely outcome.

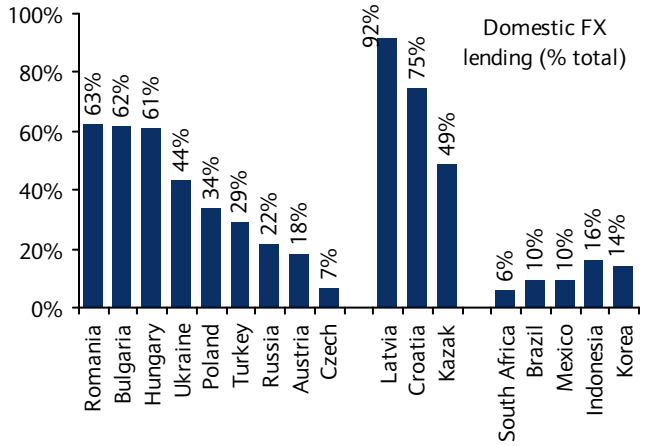
Many local assets, such as mortgage loans, may only gradually fall due, thus disallowing a rapid withdrawal by parent banks. However, in cases such as Hungary, new legislative initiatives by the government to allow for the pre-payment of CHF mortgages at favourable exchange rates for the local households also allow the affected parent banks to accelerate their balance sheet reduction. It must also be noted that while the foreign banks in Hungary have largely maintained their cross-border funding overall, they have reduced its maturities over the past years, making much of the cross-border funding short term.

Selling subsidiaries where buyers exist

Another way to reduce exposure is through selling stakes in EM banks or fully owned subsidiaries. This is already underway. In Poland, ailing Irish and Greek parent banks have sold local banks. While some M&A deals may be held back by current market conditions, some European banking groups such as Belgium KBC have officially announced exit strategies from CEE. Thus far, buyers were other euro area banks (Austria and Spain), which implied simply a change of foreign owners. However, looking ahead, the willingness of other euro area banks to pick up such assets may be reduced. If the buyer is not foreign but local, any such sales represent FDI outflows.

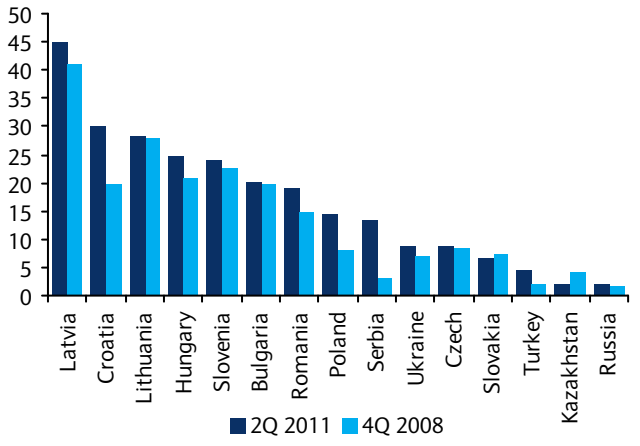
The need to find a buyer may also mean that banks have to consider selling their subsidiaries in exactly those markets where banks are still seen as having better prospects, such as, for example, Poland, Czech, Russia and Turkey. In the more problematic markets (Hungary, Romania, Bulgaria, Ukraine), buyers may be more difficult to find. For example, Greek banks have started to sell profitable Turkish bank assets, while still owning many banks across South Eastern Europe, where profits have been very high as well, but future prospects may be less promising.

Figure 8: Less FX lending implies less cross-border funding



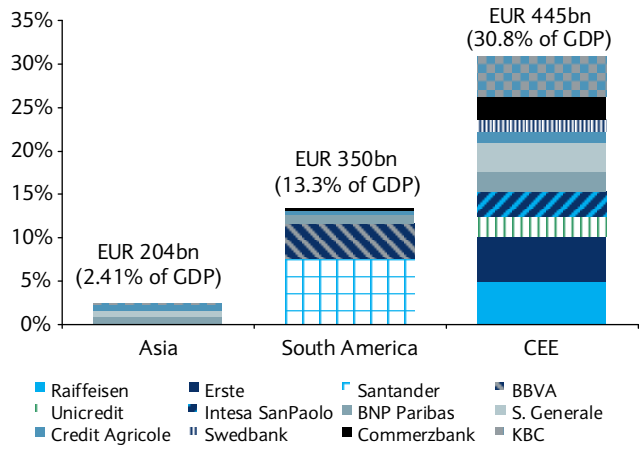
Source: EBRD, Barclays Capital

Figure 9: Our proxy for 'parent funding' (based on BIS data, % GDP)



Source: BIS, Barclays Capital

Figure 10: EM assets of selected euro area banks (% GDP)



Source: European Banking Authority, Barclays Capital

Figure 11: Examples of euro area banks selling subsidiaries

Poland:

POLBANK – Raiffeisen stake from Greek EFG BANK.
WestLB Poland - Bought by IDM SA together with Arbis Capital bought
PBP – Polski Bank Przedsiebiorczosci or Polish Entrepreneurs Bank)
BZWBK – Sold byIrish AIB to Spanish Banco Santander.
Bank Millennium - Banco Comercial Portugues SA intends to sell stake.
Kredyt Bank- KBC is exiting Poland, Santander is in exclusive talks

Turkey :

Millenium Bank – Earlier this year, Banco Comercial Portugues SA sold banks to Ozyegin's Fiba Holding AS for EUR61.8m
Eurobank Tekfen – sold by Eurobank, Greece

Brazil and Chile:

Santander intend to sell stakes in Brazilian and Chilean banks

Source: Bloomberg, Reuters

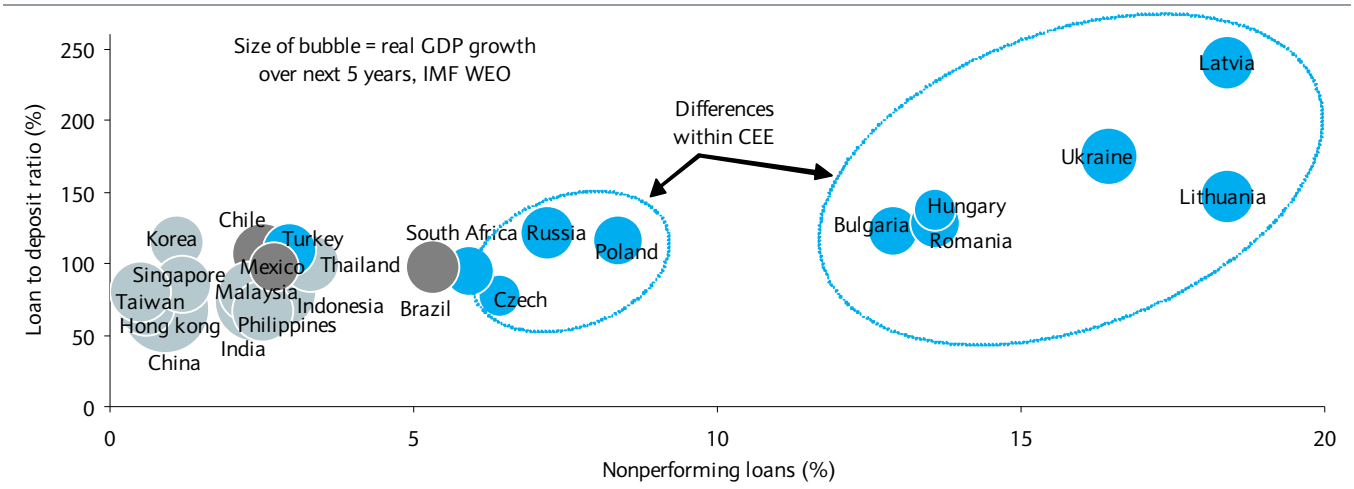
Importantly, any 'fire sale' of a subsidiary below the book value would also imply a capital loss for the parent bank and thus not help their aim of raising their CAR. This need to sell bank assets where there are buyers holds true beyond EM Europe. Indeed, recent news on Bloomberg that a Spanish bank was considering a sale of its stake in a Brazilian bank ("Santander may sell Brazil unit stake", 17 Nov 2011) and also in Chile seems to support this: euro area banks may have to exit some of the better markets (within and outside EM Europe) where they are more likely to find buyers to manage a profitable exit.

Figure 12: Austria's Central Bank required new measures for Austrian banks operating in CEE

- Banks operating in Eastern Europe must hold as much as 3% of extra capital beginning in 2016.
- New Basel Committee on Banking Supervision rules will be fully implemented in January 2013.
- Banks active in CEE should limit new loans in the region to what can be locally refinanced via deposits or other local currency option.
- The ratio of new loans to local refinancing must not exceed 110%.

Source: Bloomberg , 21 November 2011.

Figure 13: Where will banks be inclined to stay? Where growth is good, NPLs manageable and local funding available i.e. bottom left of the distribution



Source: IMF, EBRD, Haver Analytics, Barclays Capital

Reduction of trade credit– risk beyond Europe?

Thus far, the most immediate risks of a potential euro area bank deleveraging seem to imply funding risks for Emerging European banks reliant on cross-border funding from parents. Other regions could also be affected by general asset sales, including stakes in banks (eg, Spanish banks in LatAm), but the potential impact seems limited, given euro area banks' lower exposure and the higher likelihood of other investors being willing to step in as they exit. However, one area where the impact could quickly expand across regions is trade financing.

The available data suggests that among the larger identifiable banks, French banks have a share of about 18% in global trade finance. When adding the other larger euro area banks, the share quickly rises to 36% (Figure 14). Interestingly, in contrast to euro area banks' strong involvement through subsidiaries in EM Europe, their share in trade credit seems much more evenly spread across the regions. In fact, according to the available data, Spanish and French banks seems to dominate trade financing in LatAm and Asia with a combined share of more than 40% in trade credit in these markets.

The typically short maturity of trade credit seems to lend itself to being reduced by simply not rolling over maturing credit or cancelling existing lines. This would appear to provide, for example, French and Spanish banks an opportunity to relatively quickly reduce their asset exposure in trade finance in regions such as LatAm and Asia. Even if other banks were to step up their activity in parallel to compensate, such a process may not go smoothly, causing disruptions and rising costs.

That said, predicting the effect seems difficult. Most of the research studying the link between trade finance and the collapse in trade in 2008/09 concludes that even under these global financial crisis conditions, trade financing only played a moderate role in the decline in global trade. It was global demand that fell first, while the financial crisis rather led to a shift in the composition of trade financing from higher to lower risk schemes (eg, away from 'open accounts' towards 'credit insurance') but not causing the massive decline in trade.[7] However, others have argued that a more comprehensive analysis of the financial sector's role in international trade, eg, including the concept of a 'financial accelerator', shows how export flows are actually significantly affected by financial shocks.[8]

With this in mind, the development of trade credit will remain an area that needs to be watched closely, in particular given the large role French and Spanish banks seem to play in it. In particular, if euro area bank problems were to deepen and to spill over into the global banking system, negative effects on global trade would likely become more relevant.

[7] Jesse Mora and William M. Powers: Decline and gradual recovery of global trade financing: US and global perspectives (2009).
[8] Mary Amiti and David E. Weinstein: Exports and financial shocks: New evidence from Japan (2009).

Figure 14: France and Spain are big in global trade finance

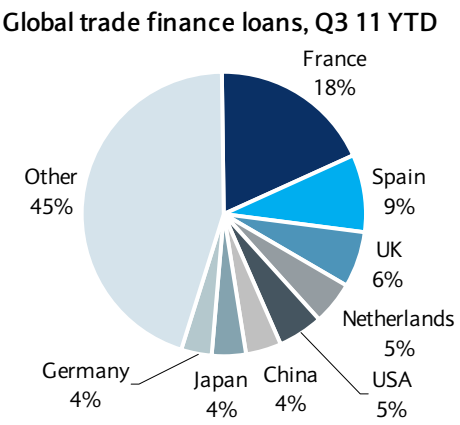


Figure 15: Not only in EM Europe….

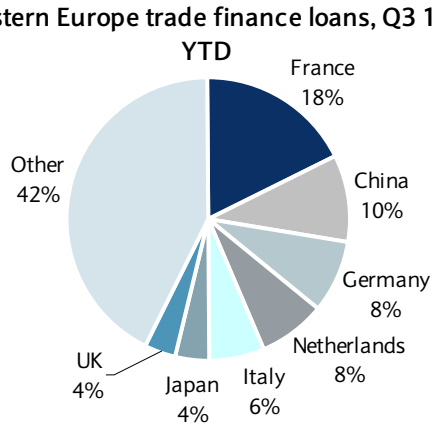


Figure 16: … but particularly in Asia …

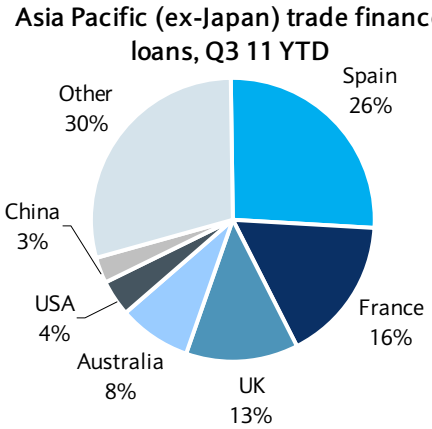
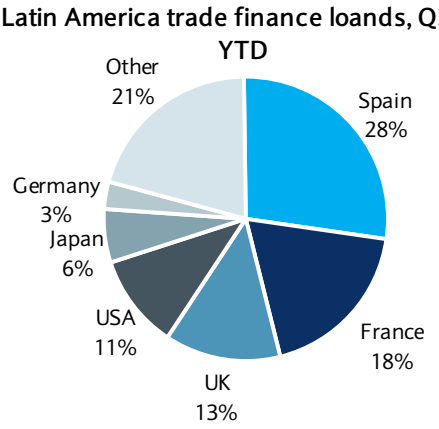


Figure17: … and LatAm



Source for all charts: Dealogic, Trade Finance Magazine, Barclays Capital

Near-term and longer-term consequences

Immediate pressure on capital accounts and FX

The more immediate effect in the coming months, as euro area banks attempt to reduce assets, is likely to be pressure on capital accounts, particularly in EM Europe. Capital outflows can take various forms: net repayments of cross-border loans to banks in the euro area; negative FDI flows (if local bank stakes are sold to local buyers); and reduction of portfolio positions in EM Europe. This could also impact countries that fundamentally have robust balance sheets but are dependent on capital inflows more generally due to their large current account deficits. Turkey comes to mind and, to a lesser extent, Poland. In general, these capital account developments are likely to continue to put pressure on exchange rates in the region. The ongoing pressures not only on spot FX but also on term FX financing, including basis swaps, are evidence of this.

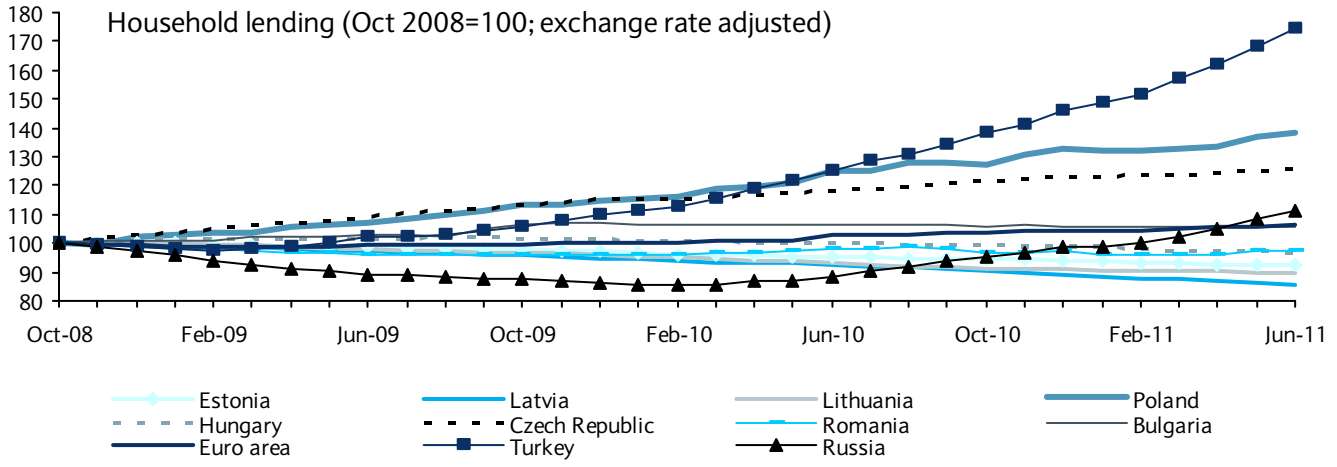
Credit growth in 2012

Moreover, credit growth in EM Europe could be severely affected. Thus far, credit growth in EM Europe has on average remained significantly below pre-crisis levels and also below credit growth in EM Asia or LatAm. The pattern clearly reflects country-specific

circumstances: in Turkey, Poland and Czech Republic, credit growth continued as banks' balance sheets had remained intact and households had no existing FX debts. In Russia, the absence of foreign parent banks support meant a sharp contraction in consumer lending during 2009, but lending recovered from mid-2010 as Russia's financial system stabilised.

In most other countries, households are net re-payers of credit, particularly where pre-crisis excesses were the most extreme (eg, Latvia). Elsewhere, the household deleveraging has been perhaps more modest than one would expect, given the economic conditions, which may indeed reflect the commitment of euro area parent banks to their subsidiaries in the region (eg, Hungary, Romania). We believe this could change under the envisaged euro area bank deleveraging, accelerating the deleveraging of local households and corporates. Poland and Czech would likely feel the effects as well. Indeed, even a thus far seemingly unaffected country such as Turkey could feel the pinch. As Turkish banks significantly rely on external funding of their domestic credit extension, euro area banks' unwillingness to provide cross-border credit could slow credit also in Turkey.

Figure 18: Lending patterns since Lehman crisis clearly reflect country-specific circumstances



Source: NBH, National central banks, Barclays Capital

EM Europe's shift to a new growth model

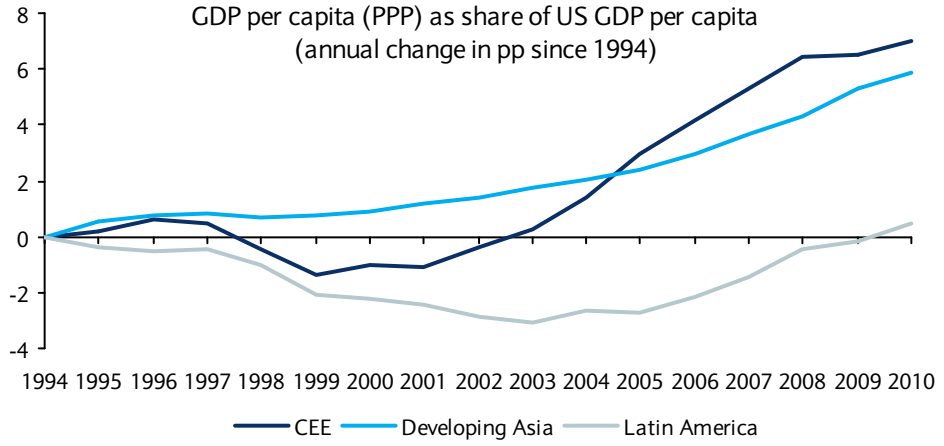
Even if the process of euro area banks' withdrawal from the region turned out to be rather gradual and so avoids the capital account pressures described above, it seems quite certain that credit growth in many parts of EM Europe will be constrained for a prolonged period. Local banks' balance sheets will work off their FX exposures, with foreign-owned banks aiming to increase their local deposit funding (which likely will imply also higher local interest rates). Our equity research bank analysts have described this process very thoroughly in a recent paper (*Emerging Europe Banks – Payback time for FX excesses: shrinkage and value reduction ahead*, 17 November 2011).

Taking a longer-term perspective, this will accelerate a process that was initiated with the first wave of bank deleveraging after the Lehman crisis (for related research from us on the issue see: *Emerging Europe: Where is the leverage?* 1 October 2008; *Emerging EMEA: How safe a haven? Considering contagion risks three years post Lehman*, 27 July 2011). The successful growth model of Europe since the mid-1990s – which led to a GDP per capita catch-up process similar to Asia and much faster than LatAm – was built on large capital inflows (reflected in C/A deficits), which allowed for rapid domestic demand-driven growth. This was accompanied, one should not forget, by a similarly rapid improvement in

institutional quality – in large part a result of EU accession processes. During that process, EM Europe's REER tended to appreciate continuously –in stark contrast to EM Asia, where REERs remained largely flat under a net export driven growth model with C/A surpluses.

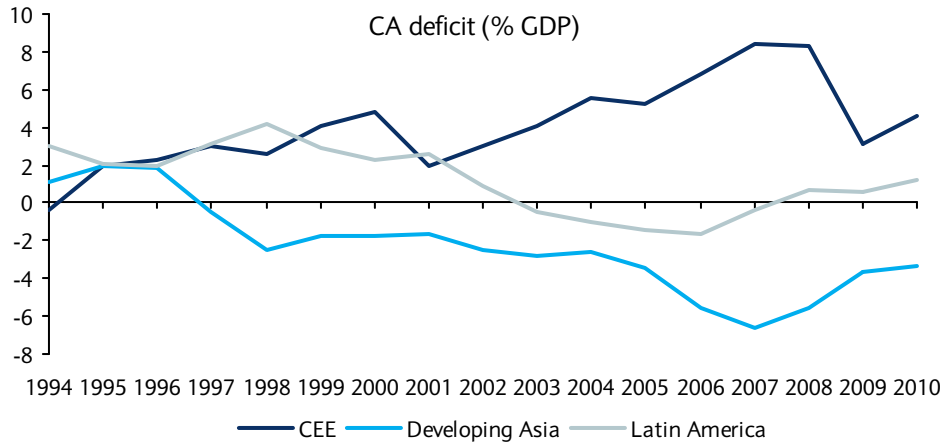
Importantly, the capital inflows that allowed this growth model to work came largely from cross-border lending from banks – mainly from the euro area. With this source now finally drying up, EM Europe's growth model will have to shift. True, to some extent. bank loans from abroad may be replaced by portfolio flows, which already have been more important for other EM regions, in particular in Asia. For example, corporate and banks may raise funding through issuance of bonds, which could be bought by dedicated EM portfolio investors from developed markets. Instead, lower capital inflows will likely imply a period of lower growth in EM Europe, as net exports will only partially compensate for the credit-slump-induced slack in domestic demand. As a consequence, some of the REER gains vis-à-vis other EM regions is also likely to reverse, partly through lower inflation (inflation is already less an issue in EM Europe versus Asia) and partly through weaker nominal currencies.

Figure 19: EM Europe's growth catch-up was faster than in other EM regions…



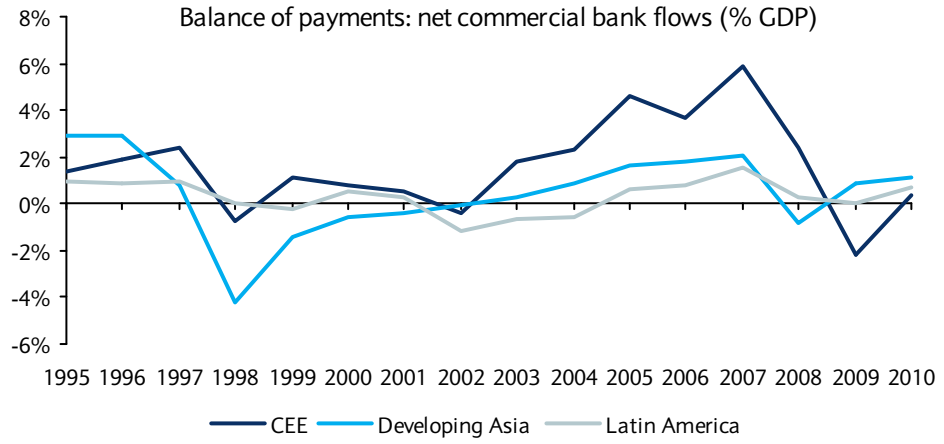
Source: IMF, Barclays Capital

Figure 20: … and growth was driven by capita inflows (and C/A deficits)…



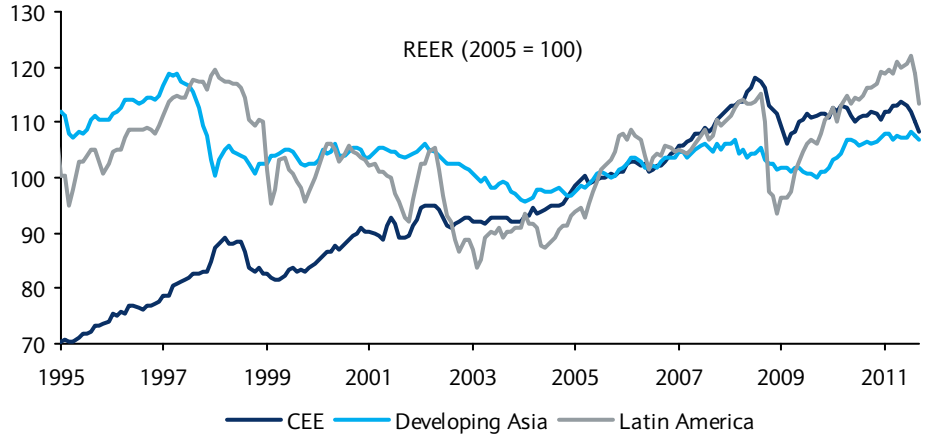
Source: IMF, Barclays Capital

Figure 21: …. with capital inflows from commercial (mainly euro area) banks



Source: IMF

Figure 22: This growth model led to REER appreciation, only partially reversed thus far



Source: BIS, Haver Analytics, Barclays Capital

Figure 23: EM economies' vulnerability to euro area bank balance sheet contraction

	Exposure to EU banks [1]		Risk of EU bank repatriation		Balance of payment backdrop		Official buffers			
	Exposure to EU banks	Exposure to EU periphery banks [2]	Loan-to-deposit ratio	Non-performing loans to total loans ratio	Current account balance	Gross Foreign Reserves	Budget balance	Central bank FX Reserves	Bilateral swap lines	Comment
	End-Q2 2011, % GDP		%, latest data		% GDP 2011 BarCap forecast	% GDP, latest data	% GDP, 2011, BarCap forecast	% of GDP, latest data		
EEMEA										
Czech	108	9.0	78	6.4	-3.5	20	-4.5	22		Exposure is mainly through euro area banks' ownership of local banks. But these subsidiaries are mainly funded locally.
Hungary	93	19.0	137	13.6	2.2	38	2.0	39	New EU and IMF help requested	The Austrian banks have been advised by the Austrian Central Bank to fund local operations locally
Poland	60	21.2	116	8.4	-5.0	20	-5.6	20	USD 30bn FCL with IMF	Exposure is through euro area banks' ownership of local banks.
Latvia	99	3.1	240	18.4	0.7	30	-4.5	32		Exposure is through Swedish banks' ownership of local banks.
Lithuania	69	1.5	146	18.4	-1.3	17	-5.3	20		Exposure is through Swedish banks' ownership of local banks.
Russia	11	1.8	121	7.2	4.6	31	-0.2	32		
South Africa	30	0.5	95	5.9	-3.4	12	-5.0	11		
Turkey	23	7.4	109	2.9	-9.0	15	-2.1	11		
LATAM										
Brazil	17	9.0	97	5.3	-2.1	15	-2.5	15		Exposure to Spanish banks is 8.6% of GDP [3]
Mexico	22	14.4	97	2.7	-1.6	12	-2.5	13	USD 72bn FCL with IMF (Jan 2011)	Exposure to Spanish banks is 13.7% of GDP [4]
Chile	34	25.6	107	2.5	1.6	17	2.3	15		Exposure to Spanish banks is 25.1% of GDP [5]
ASIA										
China	4	0.2	68	0.9	4.0	49	-1.9	44		Negligible exposure to EU banks
India	8	0.2	73	2.4	-2.5	19	-8.3	14		Only major Asian economy running c/a deficit but exposure to EU banks small
Hong Kong	147	3.6	69	0.6	5.2	116	3.1	109		Exposure only 32% of GDP if UK banks are excluded, a fraction of central bank's FX reserves
Indonesia	4	0.0	80	2.8	0.4	15	-1.5	13		Negligible exposure to EU banks
Korea	16	0.2	115	1.1	1.9	28	-1.8	25	KRW-CNY $56bn, KRW-JPY $30bn, USD-KRW $30bn	
Malaysia	21	0.2	80	2.3	11.7	50	-4.3	44		Negligible exposure to EU peripheral banks and sizeable current account surplus
Philippines	7	0.0	67	2.5	3.4	35	-2.5	29		Current account surplus close to EU bank exposure
Singapore	69	0.8	85	1.2	17.4	92	0	88		Exposure only 36% of GDP if UK banks are excluded, a fraction of central bank's FX reserves
Taiwan	19	0.1	80	0.5	7.0	85	-1.9	79		Large current account surplus and FX reserves provide buffer
Thailand	7	0.0	100	3.3	4.3	51	-2.3	48		

Notes: 1) Consolidated foreign claims of reporting banks, ultimate risk basis, amounts outstanding by end-Q2 2011 (BIS data, table 9D); 2) Aggregate exposure to banks in Greece, Ireland, Italy, Portugal and Spain; 3) Santander Brazil is the largest division in LatAm, accounting for 25% of the total profit of the group; 4) BBVA Bancomer is the largest financial institution in Mexico, with 20% market share. Santander Mexico is the country's third largest financial group by business volume, with a market share of about 14%; 5) Santander Chile is the largest bank in Chile by assets (USD47.9bn in 2010). Source: BIS, Barclays Capital

EQUITY RESEARCH – EUROPEAN BANKS

Will European Banks own Eurozone sovereign debt going forward?

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- **The treatment of European banks around the Greek PSI means that the sector is now a net seller of sovereign debt in SGIIP countries.**
- **Specifically, the non trigger (to date) of a Greek sovereign CDS is forcing banks to focus on reducing gross exposures rather than relying on protection.**
- **Furthermore, the absence of ECB participation in the Greek haircut and assumed senior status for all sovereign debt means that as the ECB buys more Italian/Spanish debt, so loss severity for banks rises. In effect, the SMP has become a subordination machine.**
- **Although less important, at the same time the current 0% risk weighted status enjoyed by many banks for their sovereign debt holdings is looking anomalous; potential increases in capital requirements adds to selling pressures.**

The European bank sector owns €687bn of sovereign debt in the five SGIIP countries, representing 22% of total sovereign debt outstanding by those countries.

Figure 1: European Banks Ownership of SGIIP Sovereign Debt

€bn	Total Sovereign Debt	European Banks own:	European Banks % Total
Italy	1843	**286**	16%
Spain	638	**264**	41%
Greece	328	**83**	25%
Portugal	160	**38**	24%
Ireland	148	**16**	11%
Total	3117	**687**	22%

Source : EBA, Barclays Capital

Going forward, we would argue that there are several reasons why banks are now sellers of their positions, thus placing considerable downward pressure on prices (upward pressure on yields). We split there into two areas – the direct fall out from the Greek PSI and regulatory pressures on sovereign debt ownership.

The damage from the Greek PSI

We would argue that the terms and structure of the Greek PSI has actively encouraged banks to sell their other sovereign debt holdings. Specifically:

- The Greek PSI deal saw governments renege on prior commitments to banks around losses.
- The absence of a CDS "credit event" in Greece – whilst entirely within the ISDA rules which centre around the voluntary nature of the PSI – in practice has undermined banks' confidence in their ability to rely on CDS protection for ***any*** sovereign debt. In turn, that has resulted in banks focusing on managing down their gross rather than focussing on net sovereign exposures.

- The ECB's non-participation in the Greek haircut via its protected status has subordinated all other private sector participants. As a result, ever-greater ECB purchases of SGIIP sovereign debt means that banks now need to incorporate higher Loss Given Default (ie, loss severity) assumptions, making them in turn a more willing seller. In effect, the Securities Market Programme has become a source of bank sector subordination.

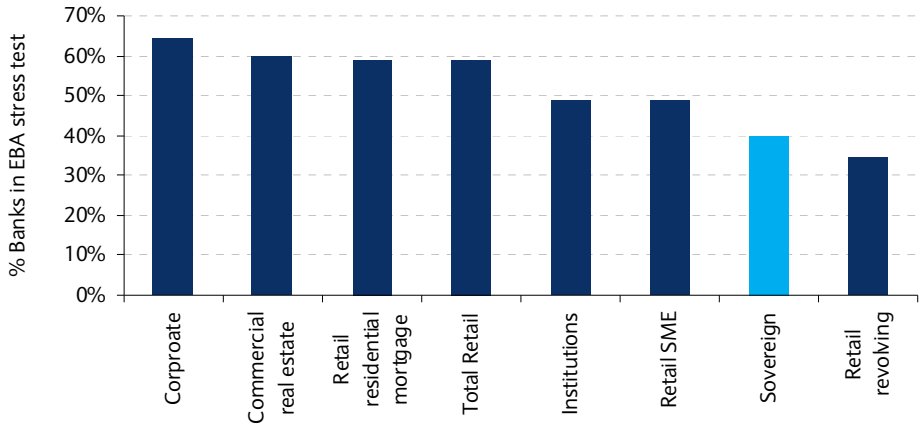
Importantly, this selling pressure will not be just confined to the European Bank Sector's ownership of sovereign debt. The same logic will encourage other holders of eurozone sovereign debt to liquidate positions.

Capital Requirement for sovereign debt likely to rise

In addition to rising risk, there is also a growing recognition that the current treatment of sovereign debt as 0% risk weighted in Europe needs to change. Actually we see the impact of this potential move as relatively limited, and whilst it does make holding sovereign debt less attractive, we think it is a much less important driver of banks' attempts to dispose of their sovereign debt than the fall-out from the Greek PSI.

There is some confusion over how banks currently risk weight sovereign debt in Europe. While it is widely reported that EU banks apply a 0% risk weighting, that is not strictly correct. For banks that adopt the Standardised Approach of Basel II, there is indeed a generalised 0% risk weighting for the sovereign debt of all member states.[9] However, this may not be the case for banks that adopt the Internal Rating Based (IRB) approach to their sovereign holdings. The 'textbook' treatment here is to treat sovereign debt in the same way as other corporate debt – ie, apply the Basel risk function, including the PD and LGD data. However, there is also something called "IRB permanent partial use" which means that some countries will let their banks apply the IRB approach for most of their assets, but adopt the Standardised Approach for their sovereign debt. This allows these banks to benefit from the 0% treatment of sovereign risk weights. As a result, banks generally place less of their sovereign debt into IRB models than is the case for other asset classes. Figure 2 from the EBA stress test illustrates this treatment.[10]

Figure 2: Usage of IRB approach by banks involved in the 2011 European stress test



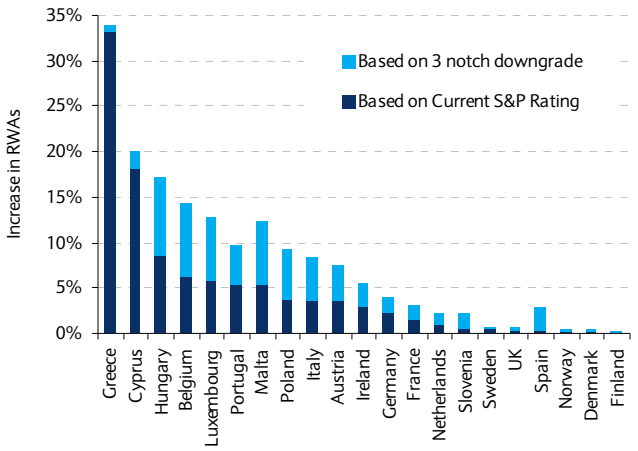
Source: BIS, EBA

[9] Article 89(1)(d) of the CRD (amended by Directive 2009/111/EC or "CRD II"), and Annex VI Part 1 paragraph 4 assign a risk weight of 0% for "exposures to Member States' central government […] denominated and funded in the domestic currency of that central government"

[10] So, if their host regulator allows, some banks can risk weight the debt of their own sovereign at 0% (because of the IRB permanent partial use), while still having the debt of other sovereigns risk weighted under the normal IRB / Basel rules. This means that data shown in Figure 3 may actually overstate the amount of sovereign debt risk weighted under the IRB approach – ie, even more sovereign debt may receive the zero risk weighting than indicated in Figure 3.

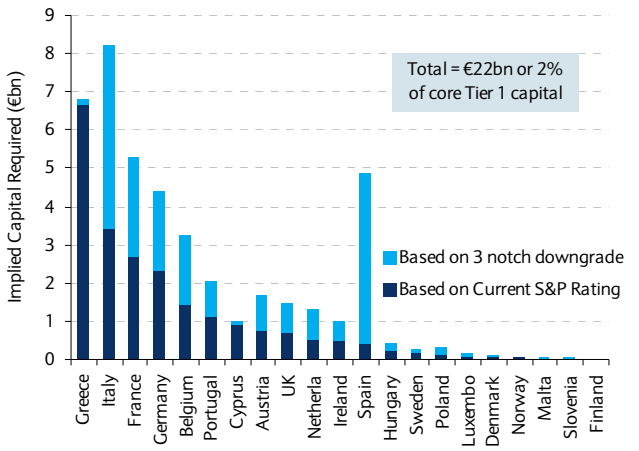
So what would be the impact of moving from 0% risk weighting on sovereign debt to a standardised approach, either based on current or potential credit ratings? Figure 3 and Figure 4 show the impact by country. Away from smaller countries, the effect is modest; in Italy and Spain, for example, the effect would be to increase RWAs by just 2-3%, equivalent to only a small capital deficit.

Figure 3: Increase in RWAs from removing 0% risk weighting on EU sovereign debt



Source: Barclays Capital.

Figure 4: Implied capital requirement from removing 0% risk weighting on EU sovereign debt



Source: Barclays Capital

In aggregate, however, the treatment of banks around the Greek PSI (specifically the CDS non credit event and the protection afforded to the ECB) combined with regulatory pressure means that investors are understandably putting banks under enormous pressure to sell down SGIIP sovereign debt. Indeed, in the Q3 earnings season it almost became a "badge of honour" to demonstrate how much your sovereign SGIIP exposure had come down. This will presumably place continued pressure on the ECB's Securities Market Programme.

CORPORATE DEBT FUNDING COSTS

Sovereign spreads increasingly driving private corporate funding costs

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- **Sovereign debt spreads are increasingly being passed on to private corporate debt-funding costs. On average, our estimates suggest that firms' debt costs rise by about 60 basis points following a 100 basis point increase in their sovereign's debt spread.**
- **Large corporate debt spreads add to the negative effects of bank deleveraging in these member states.**
- **If sustained, large corporate debt spreads across euro area member states may also trigger a relocation of capital intensive activities to low risk/debt-cost destinations.**

Sovereign and private debt funding costs have displayed a strong correlation over the past few years in several euro area member states. The link between sovereign spreads and private corporate debt funding costs is complex and causality can run in both directions. Moreover, both may at times reflect changes in overall economic conditions or a country's outlook, causing a spurious relationship between public and private funding costs. However, it appears that the sovereign debt crisis is having a marked impact on corporate debt funding costs in Europe. This is set to weigh on credit demand in addition to the pressures coming from bank deleveraging, as discussed earlier. Generally, differences in individual euro area sovereign debt spreads reflect default and liquidity risk given the absence of currency risk. The liquidity premium for smaller member states has likely increased but the sharp differences in the price of public debt for Austria and Finland, on the one hand, and Greece, Ireland and Portugal, on the other hand suggest that perceived default risk accounts for the bulk of these countries' debt spreads. There are several channels through which higher perceived country default risk may affect private borrowing costs, and vice versa:

- A country with significantly higher sovereign funding costs may have to reduce its deficit sharply and would be expected to take fiscal consolidation measures, possibly including higher corporate taxes. This would lower firms' net profits, worsen their credit risk assessment and drive up their credit-risk premia.
- Strict fiscal austerity may have a negative short-term impact on economic growth and weigh on firms' profits as well, again driving up credit-risk premia.
- In the extreme event of a disorderly sovereign default, a country's foreign debt financing often dries up completely, at least for some time and, especially for exporters, effective tax rates can rise sharply as the government seeks to raise revenue in foreign exchange.
- Large systemically important firms, including banks, are likely to receive some state support if a crisis hits, establishing a direct link between sovereign and private funding costs.
- At the same time, the financial health of private firms may have implications for public funding costs if these firms are considered systemically important for the country's economy, or the European financial system. The Irish case is a prominent example, where private banks' default-risk spread to the sovereign after debt liabilities were first guaranteed and later transferred to the government.

What's the impact of sovereign spreads on debt funding costs?

To explore the link between private and public borrowing costs, we have separated corporate CDS premia into sector-, credit-, and country-specific effects. Second is the estimation of a relationship between these country-specific factors and sovereign CDS premia. Corporate default spreads are modelled to consist of five components: a common factor (α), a credit risk factor (β), an industry, or sector-specific factor (γ), a country factor (δ), and a firm-specific disturbance (ε):

$$CDS_{it} = \alpha_t + \beta_{it} + \gamma_{it} + \delta_{it} + \varepsilon_{it} \qquad (1)$$

A time series for common, credit, industry and country factors is estimated by running the following cross-sectional regression each month:

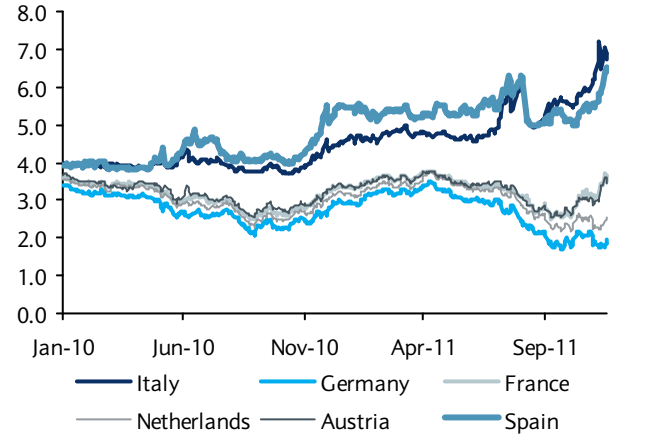
$$CDS_i = \alpha + \sum_{j=1}^{J} \beta_j I_{ij}^{Credit} + \sum_{k=1}^{K} \gamma_k I_{ik}^{Industry} + \sum_{l=1}^{L} \delta_i I_l^{Country} + \varepsilon_i \qquad (2)$$

Where (I) is a dummy variable that is one if the firm with CDS_i has credit rating (j), belongs to industry (k), or country (l). Credit ratings are used to approximate a firm's relative individual credit risk. Since each firm belongs to at least one country, credit rating and industry, the estimation can only reveal cross-sectional differences between countries, industries and credit ratings and the following parameter restrictions are imposed:

$$\sum_{j=1}^{J} \beta_j = 0; \quad \sum_{k=1}^{K} \gamma_k = 0; \quad \sum_{i=1}^{I} \delta_i = 0 \qquad (3)$$

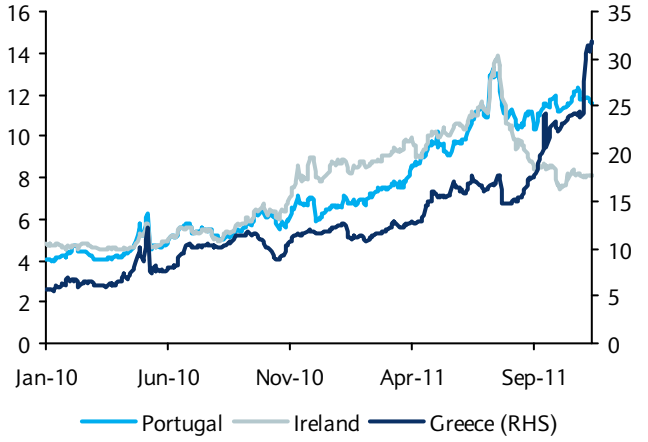
Credit rating and country effects may not be fully independent. Sovereign credit worries often lead to across-the-board downgrading of the credit ratings of that country's firms and especially banks. They may even spill over from one member state to others that are

Figure 1: Selected euro area government debt yields (%) (1)



Source: Datastream

Figure 2: Selected euro area government debt yields (%) (2)



Source: Datastream

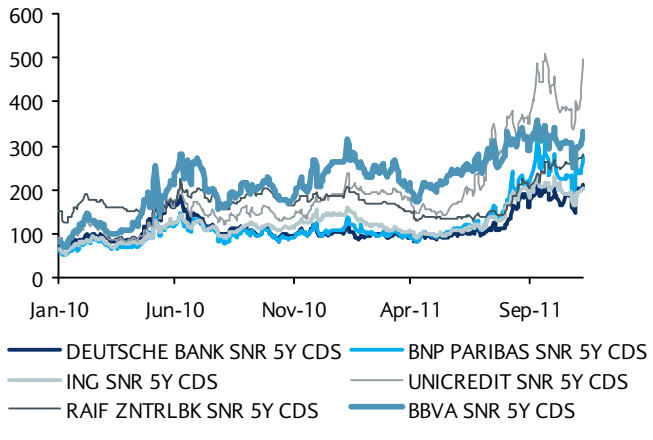
perceived to display similar characteristics. Therefore, it is possible that the above equation may feature a bias and likely underestimate country effects to some extent. Also, the relationship between corporates and their sovereigns is likely complicated in the case of names that are very globally diversified businesses.

The data

The sample includes monthly data of CDS for about 200 euro area firms, their credit ratings and industry classification, sovereign CDS and national stock market indexes of 11 euro area countries starting in 2008.[11] Differences in funding costs are measured by 5-year CDS for senior debt denominated in euro. While CDS premia and funding spreads should theoretically move in parallel, CDS premia for sovereign and corporate debt have deviated at times from debt spreads, defined as debt yield minus a benchmark rate, since the onset of the financial crisis. But the difference has rarely exceeded 100 basis points. Most euro area firms issue debt infrequently and at different maturities. The use of 5-year CDS simplifies the analysis and does not require correcting for differences in term structure across corporate debt. The credit rating is the lower of either Moody's or S&P's rating if available and adjusted over time. Industry classification includes the following sectoral classification: banking, non-bank financials, manufacturing, energy, transport and telecommunications. Figures 5-8 present CDS premia for a selection of euro area banks and telecoms.

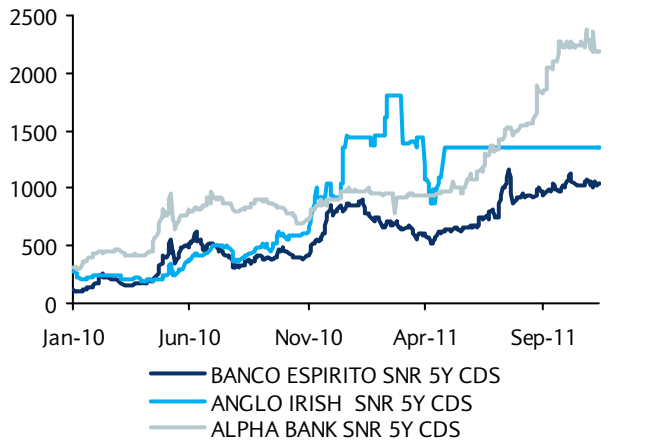
Figures 7 and 8 present the evolution of country effects since early 2009. The variation in country effects has risen markedly since early 2009, especially for countries in the periphery, and again Greece, Ireland and Portugal stand out with Italy/Spain being borderline cases. Other than for banks, sector-specific effects are not significant and, as a result, sectoral differentiation is reduced to banks and non-banks with the former, as expected, featuring higher CDS premia.

Figure 3: Selected euro area bank CDS spreads (bp) (1)



Source: Datastream

Figure 4: Selected euro area bank CDS spreads (bp) (2)



Source: Datastream

[11] Data source is Datastream.

Is sovereign risk or the poor economic outlook driving private funding costs?

Country effects may reflect sovereign worries. They could also signal changes in a country's economic outlook measured by changes in national stock market indexes, as discussed above, although most firms in the sample (with actively traded CDS) are relatively large and their operations internationally diversified. In a panel regression, the time series of country factors (δ) is regressed on sovereign CDS premia (x) and national stock market indexes (y) with various specifications of fixed/random cross-section and time effects.

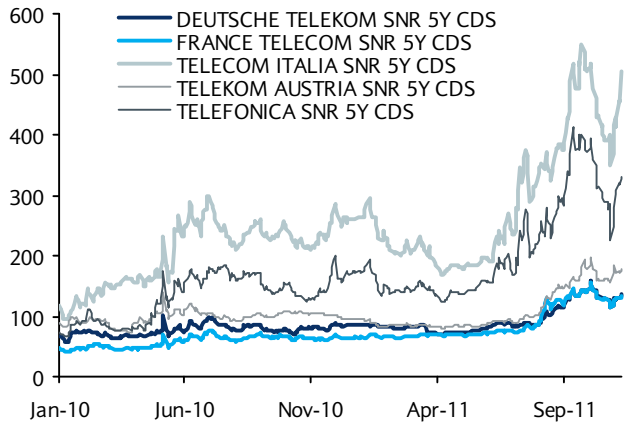
$$\delta_{lt} = \alpha + \mu x_{lt} + \sigma y_{lt} + \pi_l + \varpi_t + \varepsilon_{lt} \qquad (4)$$

Sovereign CDS premia and national stock market indexes may not be fully independent; however, regressed on each other, they do not exhibit any significant relationship over the sample. For various specifications (with/without fixed and random cross-section/time effects), calculating (4) reveals a significant and positive relationship between sovereign CDS premia and the country effects we estimated in the previous section. Of a 100 basis point increase in sovereign spreads, about 60 basis points are passed on to private firms on average, noting that causality may not always work in only one direction.

Where do we go from here?

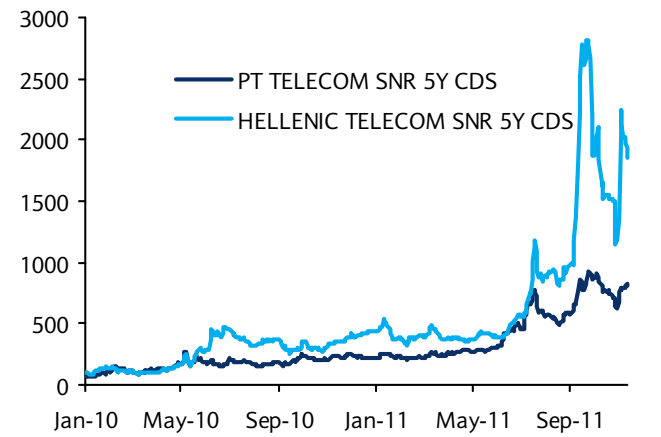
The re-emergence of perceived credit default risk for euro area sovereigns is a legacy of the global financial crisis and ensuing sovereign debt crisis in the euro area. It reflects the decision of European policymakers to move away from the assumption that government debt of the euro area member states is risk free. This assumption was first undermined by the design of the new European Stability Mechanism (ESM), and debt markets reacted sharply when policymakers announced debt restructuring with private sector involvement (PSI) as a key pillar of the ESM in October 2010. This was clearly inconsistent with regulatory rules for banks that attach a zero risk weight to euro area government debt and initial assurances that no euro area debt restructuring would occur before 2013. Over the past year, these inconsistencies have been mostly removed. Especially, the recent EU Summit on 23-26 October made clear that significant hair cuts on Greek debt held by private investors would come soon. Moreover, banks were told to value

Figure 5: Selected euro area telecom CDS spreads (bp) (1)



Source: Datastream

Figure 6: Selected euro area telecom CDS spreads (bp) (2)



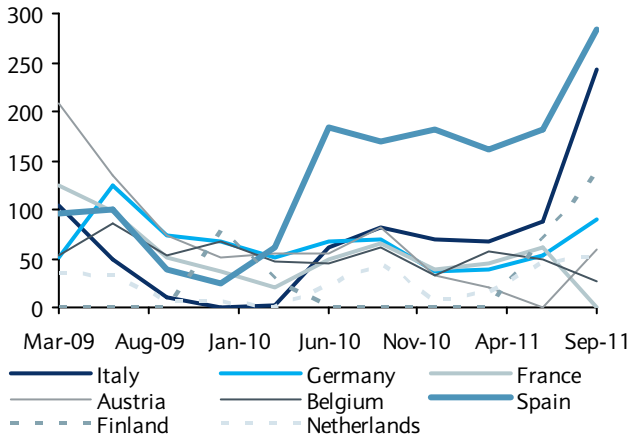
Source: Datastream

government debt at market prices in their books, forcing many to realize losses and further reduce exposure to peripheral public debt. We continue to view these decisions as part of a consistent strategy towards addressing the crisis (see *Eurozone summit and EU summit update: A positive surprise, at last!*, 27 October 2011). Policymakers chose this strategy because they did not have sufficient support from their electorates to jointly guarantee sovereign liabilities due to the likelihood of moral hazard (insufficient national reform efforts in fiscally weaker member states) and eventually large fiscal transfers. But the current strategy is risky and clearly adds to temporary EGB selling pressure while sovereign spreads search for a new equilibrium. At what levels markets will ultimately find this equilibrium is difficult to predict. There is a clear risk that spreads may at times overshoot levels implied by a country's fundamentals with dire consequences. Moreover, even sustained spreads of 200-400bp, a rather modest level in view of current spreads, should trigger significant adjustments in the euro area economy. This is especially the case if sovereign credit costs continue to be passed on to private firms' debt funding costs. As shown in this chapter, this has been the case over the past few years, not only for banks but also for other non-financial firms, including telecoms, utilities and others.

First and foremost, to restore the perception of euro area government bonds as a risk-free asset, strict fiscal consolidation and targeted, conditional external support is needed for countries with high public debt and funding costs. However, significant differences in the cost of private capital across countries reflecting sovereign concerns should complicate monetary policy and may trigger a relocation of capital intensive activities to low risk/ debt-cost destinations. Large banks and other firms that rely on external debt financing may undergo a similar process of consolidation across Europe that national airlines experienced over the past decade, although for different reasons. However, member states may resist such developments, which could trigger protectionism and fragmentation of markets with highly adverse economic consequences.

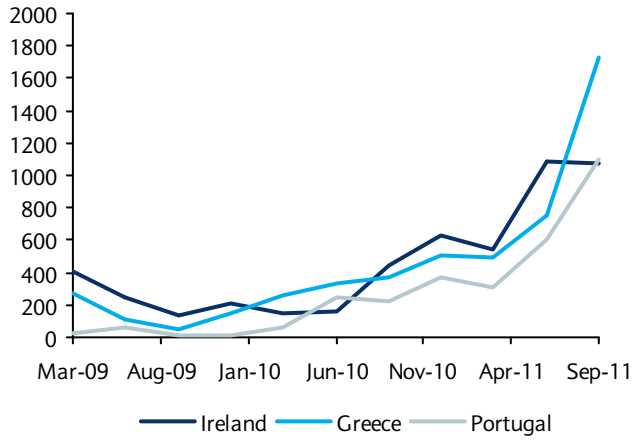
To avoid such setbacks in economic and financial integration of Europe's economy, the links between sovereigns and firms located in their jurisdiction will need to be loosened, which will require more fiscal and political integration. How this could be achieved in practice is speculative but further European integration along the following lines should help to break the financial links between firms and their national sovereigns and eliminate possible channels through which costs associated with sovereign default risk could affect private funding costs:

Figure 7: Estimated euro area country effects (bp) (1)



Source: Barclays Capital

Figure 8: Estimated euro area country effects (bp) (2)



Source: Barclays Capital

- European, instead of national, support schemes for bank restructuring or resolution should decouple banks from their sovereigns and significantly reduce differences in banks' debt costs across Europe. Moreover, they could internalize the negative external effects of ailing banks on the entire euro area financial sector and facilitate resolution of cross-border institutions and cross-border M&As.
- Harmonizing regulation and taxation towards the introduction of a common corporate tax for large firms. This would eliminate the threat of large effective corporate tax increases in a country where the sovereign is under financial pressures, or even may default on its debt obligations.
- A strong role for European competition and supervisory authorities should accompany restructuring and any cross-border consolidation of banks and other firms that may occur to safeguard competition and financial stability.

CREDIT STRATEGY

The relationship between bank deleveraging, credit conditions, and corporate default rates

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- **We have typically seen a strong relationship between bank loan growth, credit conditions, and corporate default rates.**
- **In particular we can develop a reasonable prediction for credit conditions based on GDP growth and expected loan growth, and use this prediction for credit conditions to drive our forecast for corporate default rates.**
- **Based on a two-factor model including credit conditions and current high yield index prices, we expect a 4-6% European speculative grade corporate default rate in 2012.**

Summary

- In thinking about the relationship between bank deleveraging, corporate credit conditions, and corporate default rates, we believe it is instructive to examine the history in the US, where we have the most analagous corporate credit markets and a relatively long run, robust data series from the US Federal Reserve.
- We find that trends in C&I lending standards are a strong leading indicator for actual C&I loan growth in the US, with an approximate four-quarter lag (correlation -81% since 1990, -86% since 2000) (Figure 2).
- Unsurprisingly, we also find a strong leading relationship between net tightening of lending standards and speculative grade default rates (correlation of 89% between lending standards and default rates, lagged four quarters) (Figure 3).
- In addition, as we think about the impact of bank deleveraging in Europe, it is key to consider the determinants of credit conditions. Credit conditions have empirically been well described by the typical business cycle. In addition, given our view that loan growth will be impaired by bank deleveraging, we expect the need to reduce balance sheets to pressure credit conditions. We capture this potential impact from a model perspective by explaining credit conditions using loan growth trends in the forward period.
- We expand these models to Europe and the key implications appear to hold despite the shorter time series available. In particular, we see a reasonably strong leading relationship between credit conditions and corporate default rates (>80% correlation between the two since 2007).
- We also note that there has been a strong relationship between non-financial corporate lending and lending standards, with an approximate four-quarter lag. Notably, over the past quarter or so, loan growth has lagged the level that would be expected based on credit conditions.
- As discussed by our economics and bank research teams, we expect slightly positive GDP growth and likely 5-10% declines in loans outstanding. These would equate to net tightening of lending standards of ~40-50.
- We combine our expectations for tightening in lending standards plus the price of the high yield index to develop a model for forecasting corporate default rates. Based on this combined model, including both credit conditions and historical prices, we arrive at an expected European speculative grade default range of 4-6% for full year 2012.

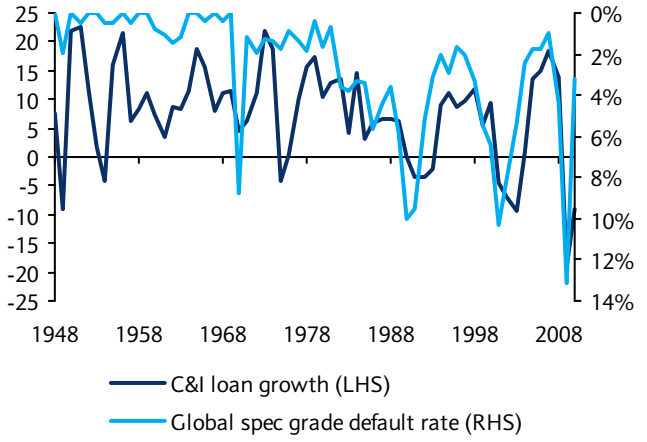
Loan growth, credit conditions, and default rates – evidence from the US experience

In thinking about the relationship between bank deleveraging, corporate credit conditions, and corporate default rates, we believe it is instructive to examine the history in the US, where we have the most analagous corporate credit markets and a relatively long run, robust data series from the US Federal Reserve. In Figure 1 we plot the relationship between C&I loan growth across the US banking system and Moody's global speculative grade issuer-weighted default rate. As highlighted in the chart, while the relationship between the two was reasonably loose during the low-default, expansionary period of the 1950s and 1960s and was inconsistent during the 1970s, the relationship became more robust beginning in the 1980s. We note this period coincides with the emergence of the high yield bond asset class and the growth of the leveraged finance market. Prior to this period the speculative grade market was dominated by fallen angels and idiosyncratically challenged businesses. However, after this period a larger, more diversified speculative grade market began to emerge. We thus believe the comparison between the two variables makes much more sense post 1980 than pre. The correlation between the two has been -70% since 1980, indicating a reasonably strong relationship at first glance. Notably, however, loan growth and default rates are coincident indicators, which are relatively less helpful in forecasting.

One of the most commonly utilised leading indicators of credit conditions is the US Fed Senior Loan Officer Survey. The survey has been done in one form or another since the 1960s, with a particularly robust data set available since the late 1980s/early 1990s. In particular, when focusing on the corporate market, we would focus on the net percentage of banks reporting tightening of lending standards for commercial and industrial (C&I) loans to large/middle market firms. We find that trends in C&I lending standards are a strong leading indicator for actual C&I loan growth in the US, with an approximate four-quarter lag (Figure 2). We find that in the US the correlation between the two has been very strong at -81% since 1990 and -86% since 2000.

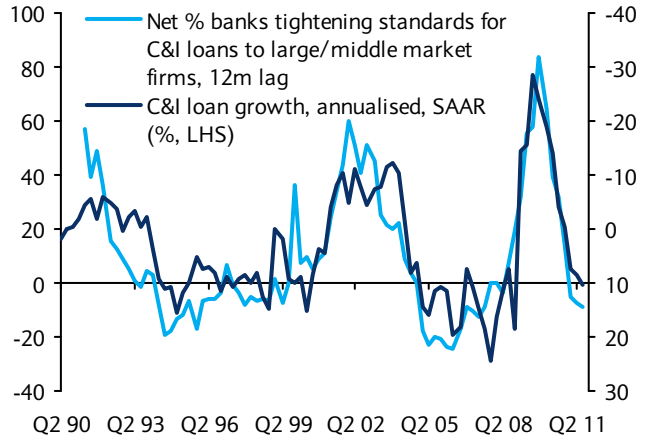
Unsurprisingly, we also find a strong leading relationship between net tightening of lending standards and speculative grade default rates (Figure 3). As highlighted in the chart, we find a correlation of 89% between net tightening of C&I lending standards and trailing default rates with an approximate four-quarter lag.

Figure 1: US C&I loan growth vs global speculative grade default rate (%)



Source: US Federal Reserve, Moody's

Figure 2: C&I loan growth vs US lending standards, four-quarter lag (%)



Source: US Federal Reserve

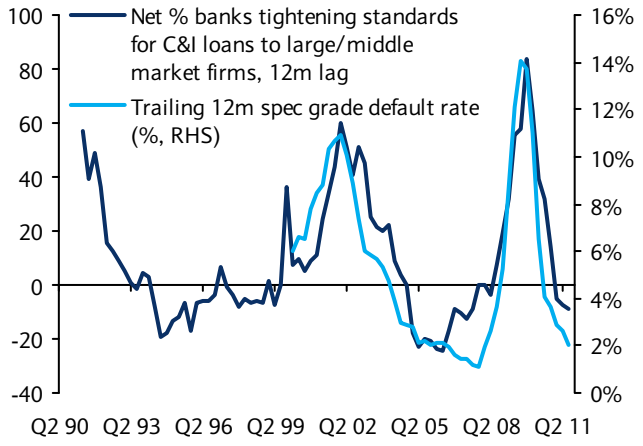
While the relationships appear fairly robust across market conditions and across time, it is worth highlighting the coincident relationship of loan growth and default rates versus the leading relationship of credit conditions with both variables. Both intuitively and empirically in the historical data, the trends in both loan growth and default rates appear to be manifestations of the broader trends in credit conditions.

Thus, one key question is what are the best determinants of credit conditions across time? We believe the general business cycle is typically a key determinant of credit conditions. Intuitively, this does make sense, as weaker growth tends to stress capital spending, bank capital levels, loss rates, and general asset price trends, all of which would put some combination of downward pressure on both supply and demand for loans. Presumably, in advance of this trend appearing in the data, lending standards would begin to tighten. This does come through empirically when we graph lending standards against real GDP growth (Figure 4).

In addition, as we think about bank deleveraging in Europe, it is key to consider whether the relationship between bank lending and credit conditions can/does work in reverse, ie, can/should we expect the need to reduce balance sheets to pressure credit conditions? Intuitively, we would expect the need to delever to exacerbate the typical cyclical trend in credit conditions.

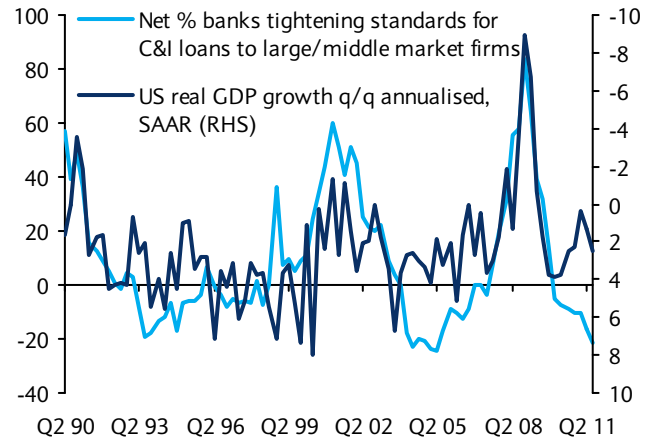
One way to capture this potential impact from a model perspective is to explain credit conditions by using loan growth trends in the forward period. When we expand the model to explain trends in credit conditions to include not only real GDP growth, but also include loan growth trends in the forward period, the model does a materially better job of describing trends in credit conditions (Figure 5).

Figure 3: Global speculative grade default rate vs US lending standards, four-quarter lag (%)



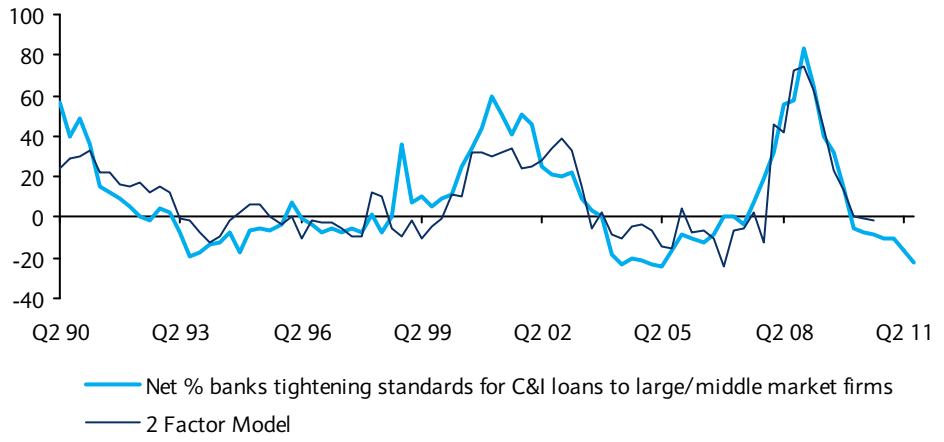
Source: US Federal Reserve, Moody's

Figure 4: US real GDP growth vs US lending standards (%)



Source: US Federal Reserve

Figure 5: Two-factor (GDP & forward loan growth) model for US credit conditions



Source: US Federal Reserve, Bloomberg

Corporate credit conditions in Europe and balance sheet deleveraging

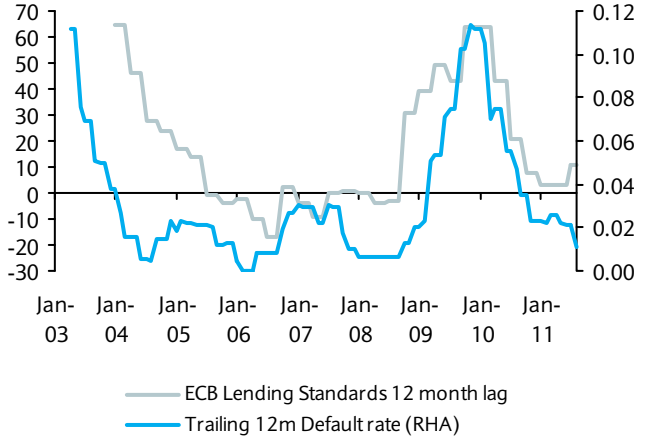
While the available history for credit conditions in Europe is materially shorter than that available for the US, similar models to the above hold well for the shorter history.

In particular, we see a reasonably strong leading relationship between credit conditions and corporate default rates (Figure 6). While we have a relatively limited history, particularly since the beginning of 2007 the relationship between credit conditions and default rates in Europe has been particularly strong (>80% correlation between the two).

We also note that there has been a strong relationship between non-financial corporate lending and lending standards, with an approximate four-quarter lag (Figure 7). Notably, over the past quarter or so, loan growth has lagged the level that would be expected based on credit conditions.

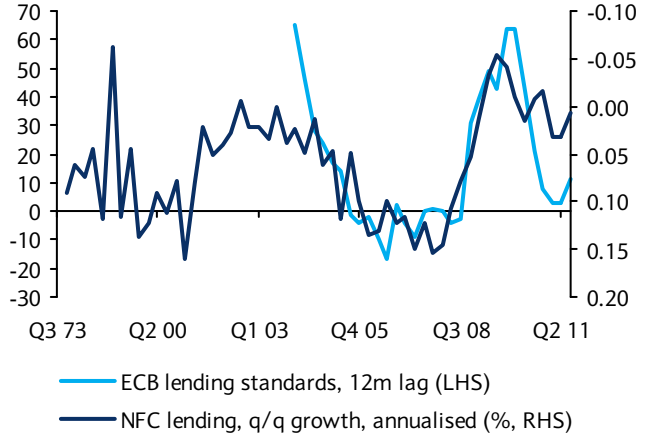
Lastly, when we combine a similar model of GDP growth and forward lending to describe lending standards as the one described above for the US, we develop a similarly strong model in Europe (Figure 8). As discussed by our economics and bank research teams, we expect slightly positive GDP growth and likely 5-10% declines in loans outstanding. These

Figure 6: European speculative grade default rate vs ECB lending standards, four-quarter lag (%)



Source: ECB, Moody's

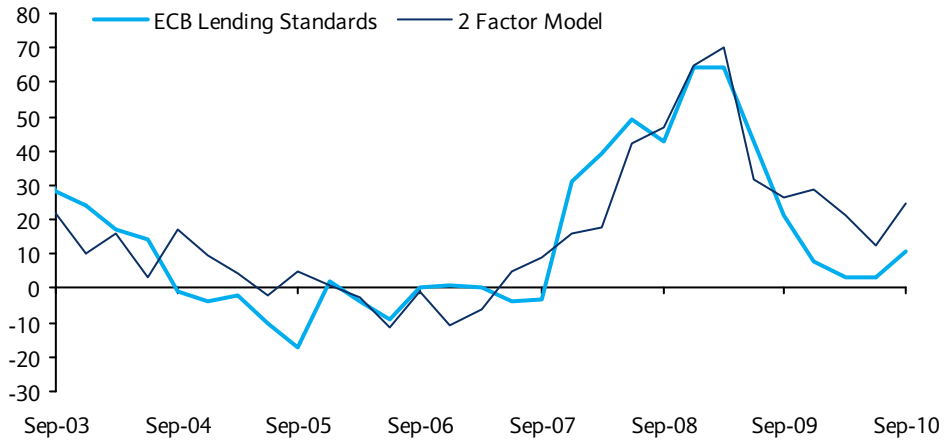
Figure 7: Non-financial corporate lending vs ECB lending standards (%)



Source: ECB

would equate to net tightening of lending standards of ~40-50. Notably, if loan growth was 0%, the weaker growth would imply net tightening in the ~30 range versus the 40-50 in the expected balance sheet deleveraging scenario.

Figure 8: ECB lending standards, four-quarter lag vs two-factor model (%)



Source: ECB, Bloomberg

European speculative grade default rate forecast

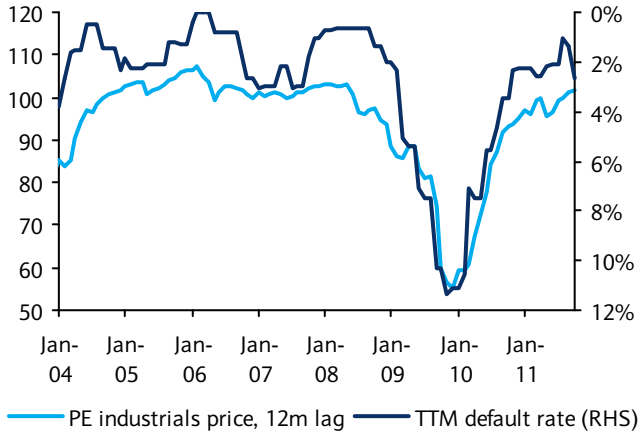
We pull the above analysis together to drive a speculative grade default forecast for 2012. Similar to analysis recently performed by our US colleagues in *Focus: Default setting,* 28 October 2011, we examined a variety of factors to identify those that are strong predictors of forward default rates. As highlighted above, credit conditions are one such factor. In addition, the current price of the PE HY index is also a strong predictor of forward default rates, with a correlation of over 90% (Figure 9). We thus arrive at a forecast for forward speculative grade default rates in three different ways:

1. **Credit conditions based single-factor model:** Based on a simple regression of credit conditions both based on where they currently stand as of the most recent month (16% of banks net tightening) and as we expect them to evolve over the next few months (40-50% of banks net tightening), we expect default rates between 3-6%.

2. **Historical price based single-factor model:** Based on a simple regression of index prices versus default rates we arrive at expected default rates of approximately 4%.

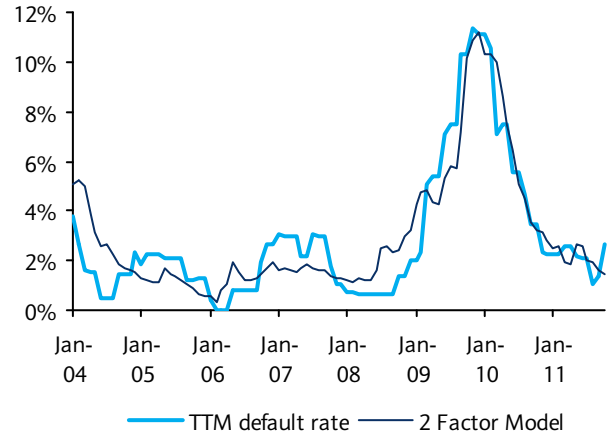
3. **Combined two-factor model:** We finally combine the two models above into a two-factor model (Figure 10). Based on this combined model including both credit conditions and historical prices we arrive at an expected default range of 4-6%.

Figure 9: PE HY Industrials Price 12m lag vs trailing 12-month default rate (%)



Source: ECB, Barclays Capital

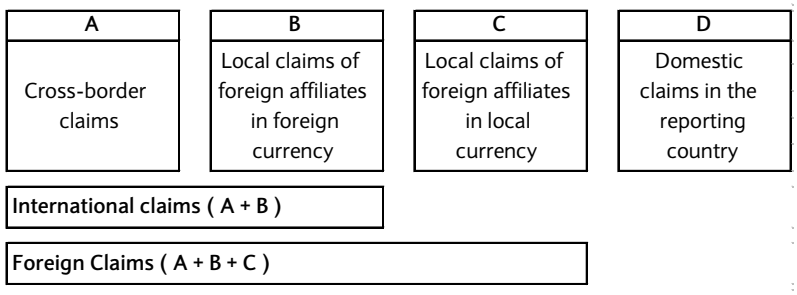
Figure 10: 2 Factor model vs trailing 12-month default rate (%)



Source: ECB, Bloomberg, Barclays Capital

APPENDIX 1: UNDERSTANDING THE BIS CLAIMS TABLES – TOP-DOWN ANALYSIS

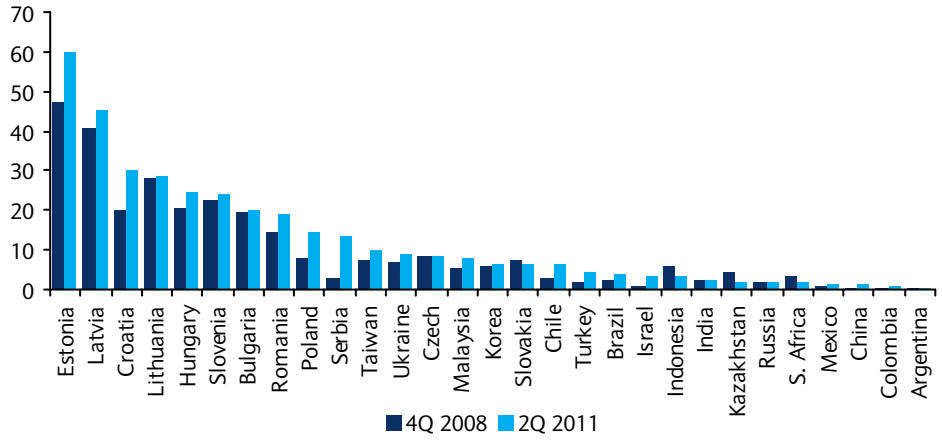
Figure 1: Measuring the International and foreign claims – types of claims



Source: BIS, Barclays Capital

- We generated a proxy to measure how big the share of parent BIS banks lending to their subsidiaries is. This proxy applies the difference of characteristics between BIS locational statistics (which do not net out positions between offices of the same banks) and BIS consolidated statistics (which do).
- The Austrian Central Bank has tested the same methodology in the paper *"The Refinancing Structure of Banks in Selected CESEE Countries"*, which discusses this approach in more detail.

Figure 2: Proxy for parent BIS bank's lending to subsidiaries in % of GDP

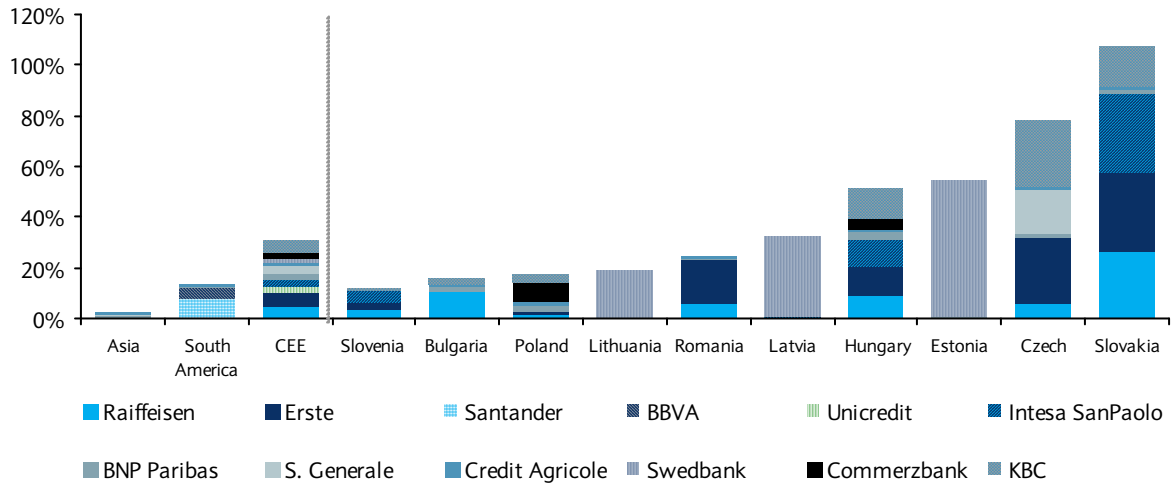


Source:: BIS, Barclays Capital

APPENDIX 2: USING EBA STRESS TEST DATA – BOTTOM-UP ANALYSIS

- The latest stress test undertaken in July this year by the European Banking Authority (EBA) covered a wider number of banks across the euro area (90 participants). The data available in its report disclosed the breakdown of institution's credit risk exposures by regulatory portfolios and geographies.
- We selected key euro banks based on the criteria created by our European Banks Equity Research team, which tries to capture those EU banks with a higher probability of requiring funding in 2012 due to a shortfall in capital and in case of a bank funding markets freeze event (please see *"Things that make you go ERRR... European banks after the EU summit"*).
- Next, we cleaned and tabulated the EBA stress test data using the banks selected according to the capital shortfall and funding needs criteria of our Equity Research team, thereby deriving an approach to analyse the size of the *corporate, retail and total credit* exposure of these banks to the economy (as percentage of GDP) of key countries in the EEMEA region and for the Asian and South America regions as an aggregate.

Figure 1: Total credit exposure of selected Euro banks to EM countries (in %GDP)



Source: EBA, Barclays Capital

Analyst Certification(s)

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