European Economics Insights

12 July 2010

Stress testing Spain

Executive summary:

Spain entered the economic crisis having enjoyed a decade of robust growth in nominal demand. The ratio of public debt to output was low, but a period of extremely rapid growth in domestic credit gave rise to a large private sector debt burden. Activity slumped and the fiscal deficit shot up, as in most advanced economies during the crisis. But Spain is something of an outlier in that it will have to manage the process of fiscal consolidation against a backdrop of one of the most severe deceleration in nominal GDP growth in the world.

That task has not been helped by mounting concerns around the health of the Spanish banking system. Funding conditions in the Spanish banking sector have deteriorated over the past months, forcing banks to increasingly rely on short term ECB funding. This equilibrium is unstable. If there is an underlying solvency problem it must be addressed: liquidity support can only be a short-term stop-gap.

The stress tests offer an opportunity to restore market confidence in Spain, which in turn will allow the banks to support economic recovery. In anticipation of the upcoming publication of the stress tests, we conduct our own on a bank by bank basis, covering more than 70% of total banking sector assets. Under our central case scenario, which would leave the banks holding core tier 1 capital ratios in excess of 6% post-stress, a total capital injection of the order of Eur50bn (over and above already committed injections) would be required. However, we are concerned that a much lower number of Eur20bn maximum will be identified as the required amount of capital injection. We do not see that amount to be sufficient to restore international investors' confidence in the medium term solvency of the domestic banking sector. Under our central case scenario, part or the entire Eur50bn would have to be funded abroad, but we think this is a price worth paying. This would be a game changing event.

In addition to our bank by bank stress test, we also conduct a top down simulation of a "maximum" stress on the sovereign involving a 30% haircut on sovereign bonds as opposed to 5% in our central case. Our analysis suggests that a sovereign credit event of that magnitude would lead to huge financial losses – around Eur400bn for Spain and Eur1.3tr for the rest of the euro area, equivalent to 40% and 15% of Spanish and euro area GDP respectively. On top of these financial shocks the real output losses following the default based on historical precedents would be of 10ppts for Spain and of 1ppts for the rest of the euro area. The risks of such outcome materialising must be avoided at all costs making the case for a comprehensive policy intervention overwhelming. A credible stress test is one part of that package. But the Spanish government may need to draw on support if it comes under attack in the bond market. The solution has to be a no-additional-strings attached backstop facility.

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Outline and summary

Short term cyclical headwinds only partly offset by surge in exports…….p6

On top of the expected short term boost to confidence due to Spain's football cup victory, the only positive short term development is the pick up in external demand. Indeed, Spanish exports have recovered more than expected and more so than suggested by the loss in price competitiveness. In Q2 2010, Spain was already exporting the same volume of goods than pre crisis and at a rate of growth higher than that of Germany. This rebound in external demand should offset partially the drag on the economy coming from the expected negative impact from the rise in the cost of capital stemming from the sovereign and banking stress. However, this is unlikely to prevent the economy from double dipping. We see these odds at 60:40.

Mid-term nominal growth to be divided by 3…….p8

The Spanish economy grew at a nominal annual rate of more than 7% between 1997 and 2007, much higher than the 4% average experienced by the euro area. Half of the Spanish growth outperformance relative to the euro area over that period can be explained by nominal factors (above average inflation) and the other half by an above average real growth. The drivers behind both the nominal and real over-performance – ranging from strong domestic inflation, migration and an investment boom in construction - have been severely hampered. We forecast Spanish nominal growth to fall dramatically to around 2% over the next 6 years. Real GDP growth is forecast to be as little as 1.5% down from 3.8% in the 1997-2007 period. The down move is a combination of slower potential and cyclical growth.

Labour market to see rise in structural unemployment…….p10

The labour market adjustment in Spain has been atypical with a much greater deterioration than suggested by the contraction in the economy: the increase in unemployment has been 3 times larger than suggested by the trajectory of the economy. It has now accounted for more than 60% of the total increase in euro area unemployment. This is largely the result of the structure of the Spanish labour market which saw a formidable increase in short term contracts in the past decade. As a result the vast majority of the increase in the number of unemployed stems from the end of short term contracts. Permanent jobs have been largely spared by the recession. Looking ahead, the labour market reforms will lower the cost of hiring and firing which could result in a temporary additional increase in unemployment through the firing of permanent jobs.

Risks of sovereign debt heading above 100%.....p13

Our macro scenario of sluggish growth is more pessimistic than official forecasts. Fiscal consolidation will thus need to be more aggressive than currently envisaged to reach the medium term fiscal targets laid out in the stability programme. This in turn will increase the chance of the economy falling into a debt deflation trap.

On the sovereign debt front, Spain entered the recession with a very low debt to GDP ratio of below 40%. However, we anticipate this ratio to be between 80% and 120% by 2017. This is based on the assumption of an improvement in the structural primary balance of at least 1% of GDP per year. This does not imply that Spain is on the course of default but it suggests that the debt servicing burden will more than double from pre crisis levels. The combination of higher funding costs and weaker nominal growth will likely keep foreign investors doubtful about the ability of the sovereign to stabilise its debt.

Private debt burden poses biggest macro risk ……..p18

The biggest debt burden Spain faces is not in the sovereign sector but in the private sector. We estimate that corporate and household debt account for 230% of GDP excluding financial institutions debt instruments. The majority of that debt is exposed to the residential and commercial real estate market either through the household, construction or real estate sector.

Banking sector stress test……..……p19

We estimate that the Spanish banking sector needs additional capital of between €50bn (central case stress with 5% sovereign debt haircut) and €90bn (with 30% sovereign debt haircut) to rebuild confidence in its solvency. This means recapitalising the banking sector to worst case "what if" asset quality stresses, as we see negative sentiment receding only if weak financial institutions are overcapitalised and de-risked. These recapitalised institutions would then have the option to repay capital should the out-turn be more benign. We, however, expect the BoS/CEBS to publish much lower capital shortfalls for its weak banks, as suggested by loss assumptions agreed with the Caja Madrid SIP in its recent FROB recapitalisation. If the total banking sector recapitalisation is <€20bn as we expect, then we believe the Spanish banking sector will continue to be weak with falling profitability trends, as wholesale funding costs remain high and credit supply is reduced.

We therefore see a need for a European backstop facility to deliver a pre funded support package specifically to recapitalise the Spanish banking system. Indeed, it is unlikely that the Spanish sovereign would be able to raise the additional Eur50bn we believe are needed for the banking sector.

Sovereign stress test……p29

On top of our bank by bank stress test we simulate the impact that a severe sovereign stress would have for domestic institutions as well as for euro area ones. This is not our baseline scenario as we anticipate a policy response in support of Spain. Rather it is an exercise aimed at uncovering the domestic and international financial contagion channels. The simulation assumes a 30% haircut on Spanish sovereign debt paper. The results show a financial cost of up to Eur400bn for Spain and of up to Eur1.3tr for the rest of the euro area. This would be equivalent to 40% of GDP for Spain and of 15% for the euro area. On top of these financial shocks, the real output losses following the default based on historical precedents would be of 10ppts for Spain and of 1ppts for the rest of the euro area. The sheer size of the cost of such an event makes the case of a powerful policy response even clearer.

Policy conclusions……..p34

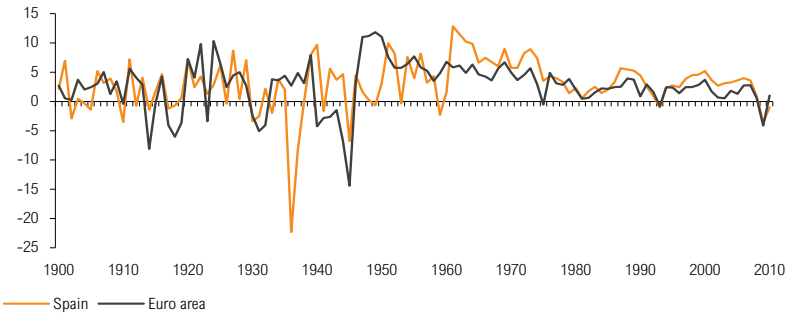
A healthy banking system is a pre-requisite for rebuilding Spain's economy, in order to allocate capital correctly and provide credit. A powerful and coherent policy response is thus warranted given the current lack of confidence of international investors and the large amount of Spanish debt securities held outside of the country. A forceful policy response should include (i) a recapitalisation of the Spanish banking sector (ii) the ECB purchasing public and private sector securities and (iii) the use of the recently created European Stabilisation Fund to support the sovereign.

Appendix: The domestic and international transmission channels of sovereign stress ……..p35

Deconstructing past Spanish outperformance

Spanish GDP growth has been following economic trends in Europe over the past 100 years. The chart below shows annual GDP growth since 1900 of the euro area GDP against Spain. Aside from the Spanish civil war in 1936, economic fluctuations in Spain have largely followed those in the rest of Europe. The correlation between the Spanish business cycle and the rest of the euro area has increased over time from 0.30 since post WWII, to 0.77 since 1970 and 0.81 since 1990. This increased co movement in business cycles reflect the greater economic integration in Europe with the lowering of trade barriers over that time period.

Chart 1: Long time series of Spanish and euro area GDP growth
% change, annual growth rates



Source: RBS

Between 1970 and 2010, Spanish real GDP growth has averaged 3.3% a full percentage point higher than the euro area. This one percentage point outperformance has also been a feature of the Spanish over performance relative to the euro area since EMU started, with Spanish GDP growth averaging 2.7% between 1998 and 2010 versus an EMU average of 1.5%.

Deconstructing the Spanish outperformance

Table 1 quantifies the key drivers of the Spanish outperformance relative to the euro area in the 10 year running up to the crisis.

Half of the 3.1 percentage point annual average outperformance of Spain relative to the euro area can be explained by inflation. Indeed, the Spanish deflator has grown by 1.5 points above that of the euro area over that period. Looking at the deflators by sectors, half of it was due to a higher consumption deflator and the other half due to the investment deflator (most likely on the back of strong price appreciation in the construction sector).

The other half of the 3.1ppt Spanish outperformance can be explained by real growth. Here again the over performance was split between consumption and investment growth. Half of the over performance in investment stemmed from the construction sector.

Adjusting for population growth, however, the real growth differential is halved. Indeed, population growth in Spain between 1997 and 2007 was 1.3% per year, around twice more than the euro area annual average population increase of 0.6%.

Table 1: Euro area and Spanish nominal growth decomposition 1997 -2007

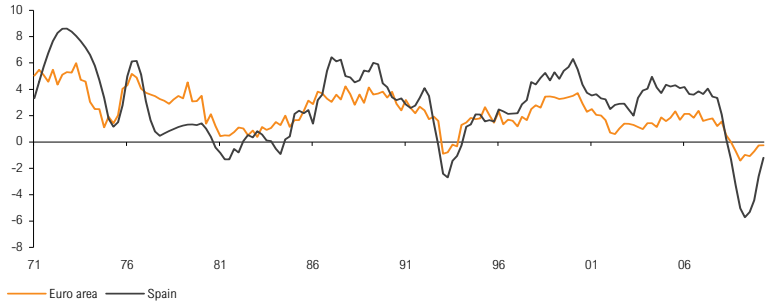
	Euro area	Spain	Spanish outperformance
Nominal GDP growth (a +b)	**4.1%**	**7.2%**	**3.1 ppts**
GDP Deflator (a = I + ii + iii + iv)	**1.7%**	**3.3%**	**1.5 ppts**
Contributions to deflator			
Consumer spending deflator (i)	1.0 ppts	1.6 ppts	0.6 ppts
General government spending deflator (ii)	0.4 ppts	0.5 ppts	0.1 ppts
Investment deflator (iii)	0.4 ppts	1.1 ppts	0.7 ppts
Net trade deflator (iv)	-0.1 ppts	0.0 ppts	0.1 ppts
Real GDP growth (b = v + vi + vii + viii)	**2.3%**	**3.8%**	**1.6 ppts**
Contributions to real growth in ppts			
Consumer spending (v)	1.2 ppts	2.3 ppts	1.2 ppts
General government spending (vi)	0.4 ppts	0.8 ppts	0.4 ppts
Investment (vii)	0.7 ppts	1.7 ppts	1.0 ppts
Of which construction	*0.2 ppts*	*0.8 ppts*	*0.6 ppts*
Net trade (viii)	0.1 ppts	-1.1 ppts	-1.2 ppts
Real GDP growth per capita	**1.7%**	**2.5%**	**0.8 ppts**
Memo: population growth (15 years old and over)	**0.6%**	**1.3%**	**0.7 ppts**

Source: RBS

Consumption trends

Part of the Spanish outperformance can be explained by consumption patterns with Spanish real consumption averaging 2.7% since the 1970's versus a 2.3% average at the euro area level. Since 2000, that gap has widened to almost a full percentage point with Spanish consumption growth averaging 2.2% versus 1.3% for the euro area (chart 2).

Chart 2: Long time series of Spanish and euro area real consumption growth
Annual rate of change



Source: RBS

The difference in nominal terms in even more striking, with nominal consumption in Spain up 6% per year on average since 1990 versus 4% in the euro area. This has resulted in the share of Spanish nominal consumption in the euro area rising from 8.6% of euro area nominal GDP in 1995 to 11.5% this year. However, the share of nominal consumption in Spanish GDP actually declined over that time period from 62% to 57% this year.

This somewhat surprising trend can be explained by real estate investment growth which outstripped the performance of the consumer.

Gross fixed capital formation:

Capital formation in Spain grew very rapidly between 1997 and 2007, at an average nominal rate of 10% per year twice the euro area pace. The share of GFCF (Gross fixed capital formation) in Spanish GDP moved up from 21.5% in 1996 to a peak of 30.7% in 2007, the third highest share in the euro area (after Estonia and Latvia) and well above the euro area average of 21%. This share of gross fixed capital formation is forecast to decline back to its 1996 level this year as a result of the slump in the construction sector.

A significant part of the rapid increase in total investment in Spain was the result of a surge in residential investment which grew at a 14% annual average rate between 1996 and 2007, almost 4 times the pace of the euro area average. Non residential construction investment also grew rapidly at an 8% annual average rate compared to 4% on average in the euro area. Total real construction spending growth (residential and non residential) accounted for half of the over performance of total investment growth.

In all, half of the Spanish growth outperformance relative to the euro area in the 10 years running up to the crisis can be explained by nominal factors (above average inflation) and the other half by an above average real growth. Population growth differentials explained a quarter of the total nominal growth difference or half the real growth difference. The medium term outlook for Spanish growth is thus tied to its (i) inflation (ii) population and (iii) real output per capita outlook. These three variables are discussed below after a discussion of short term economic developments.

Spanish economic outlook

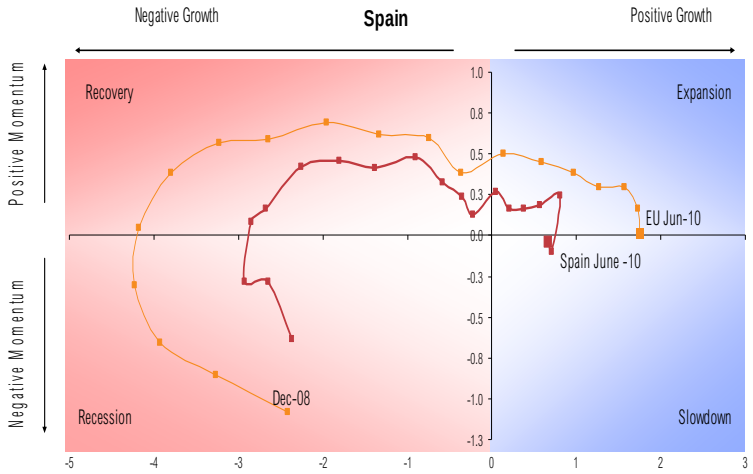
Short term outlook

Chart 3 is the RBS business cycle screener, a proprietary tool developed by RBS European Economics which aims at positioning each economy relative to its business cycle position. Each dot is a monthly observation and is made up of two indicators, a growth rate and a measure of momentum. The x axis represents a proxy of the growth rate of the economy and the Y axis the momentum.

The chart is divided in 4 economic cycle phases and each country is expected to follow a clockwise rotation as it goes through various business cycle phases. For the last edition and information about the methodology of our Screener please refer to "Business Cycle Screener | Europe at inflection point - Double dip Alert".

The RBS business cycle screener shows that up until April 2010 the Spanish economy was following the European economic recovery. However, since May the economy experienced a loss of momentum which could be the first sign that the economy is experiencing a double dip.

Chart 3: RBS Business Cycle Screener: Spanish and European cycles



Source: RBS

The recovery in Spain has been led by a very sharp rebound in exports despite the widely reported loss of competitiveness that the economy experienced in the last 20 years. This counter intuitive development is due to the fact that Spain benefits from a very large stock of FDI in the manufacturing sector (Germany, France, the UK and the US are the 4 largest foreign investors). A pick up in foreign trade in Germany thus benefits Spain through intra firm or inter firm trade. The impact of the loss of competitiveness of the Spanish economy is a more medium term phenomenon with the country likely to see less inward FDI and potentially some outward FDI from companies that decide to relocate to more attractive countries. Chart 4 below on the left shows the *level* of unit labour costs in the manufacturing sector in Spain in 1975 and in 2007 compared to the euro area average and that of Germany. The deterioration in Spanish ULC is staggering with ULC in the manufacturing sector now close to those in Germany. However, despite this loss of competitiveness, Spanish exports still managed recovering very strongly (chart 5).

This pick up in exports should offset temporarily the negative impact of the sovereign and banking stress. However, they are unlikely to be sufficient to prevent the economy from dipping back into recession: we see the odds of a double dip in Spain of 60:40.

Chart 4: Unit labour costs in the manufacturing sector
Levels

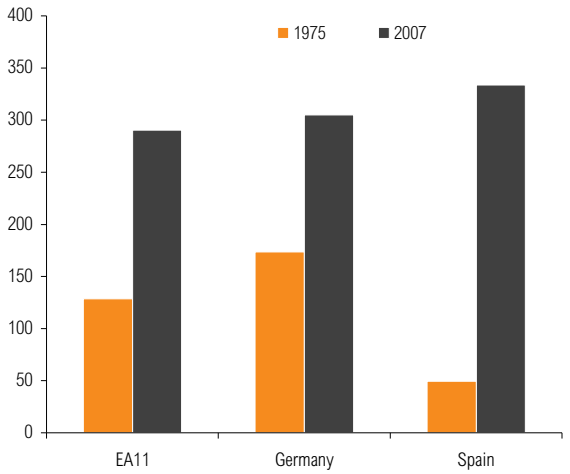
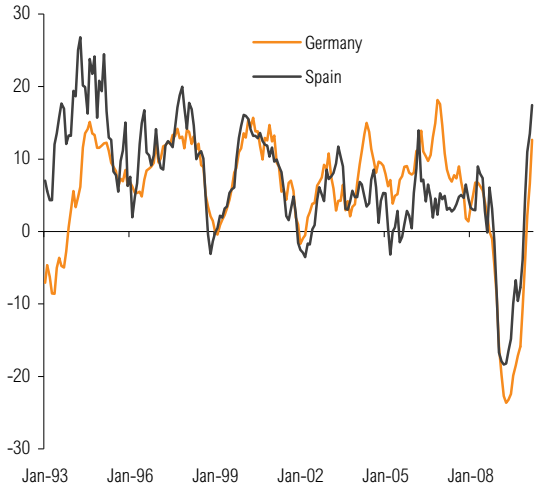


Chart 5: Exports growth: Spain and Germany
% 3m y/y



Medium term economic outlook

As discussed above the medium outlook for nominal growth in Spain is tied to three drivers: (i) inflation, (ii) population growth and (iii) productivity.

Outlook for inflation:

As seen in the previous section, half of the Spanish outperformance over the euro area has been explained by above average inflation. That excess inflation was split between higher consumer price inflation and higher inflation in investment goods.

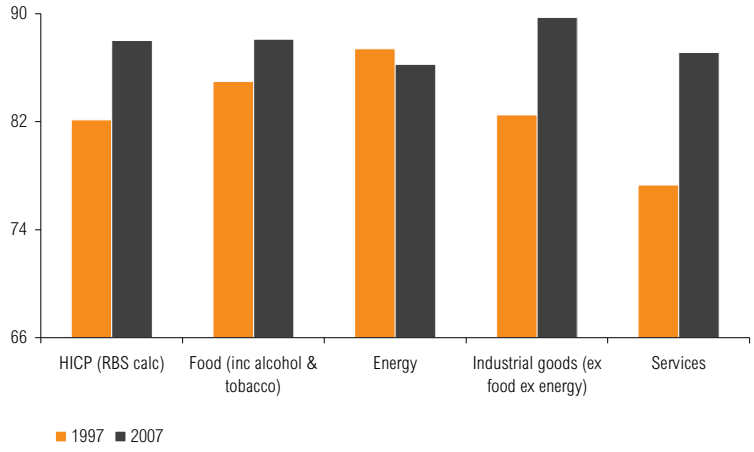
Table 2: Decomposition of the Spanish GDP deflator: Past and future

	1997-2007	2011-2015
GDP Deflator (a = I + ii + iii + iv)	**3.3%**	**0.8**
Growth rates		
Consumer spending deflator (i)	2.7 **%**	1.1 **%**
General government spending deflator (ii)	2.7 **%**	1.1 **%**
Investment deflator (iii)	4.0 **%**	0.0 **%**
Net trade deflator (iv)	0.4 **%**	0.0 **%**
Contributions		
Consumer spending deflator (i)	1.6 ppts	0.6 ppts
General government spending deflator (ii)	0.5 ppts	0.2 ppts
Investment deflator (iii)	1.1 ppts	0.0 ppts
Net trade deflator (iv)	0.0 ppts	0.0 ppts
Memo items: *growth rates*		
Compensation of employees	6.9 **%**	2.5 **%**
Compensation per employee	2.9 **%**	1.5 **%**
Unit labour cost growth	3.1 **%**	0.0 **%**

Source: RBS

Between 1997 and 2007, Spanish prices in level terms converged towards the euro area average. By 2007, they stood 12% below the euro area average, 6 percentage point higher than in 1997 (chart 6).

Chart 6: Spanish price levels compared to euro area levels
Euro area = 100



Source: RBS

This nominal price convergence was however largely the result of "bad" inflation rather than the result of a healthy convergence process based on a productivity catch up. In fact, output per hours worked grew at half the euro area pace over that period.

Looking ahead, the severe weakness in the labour market will exercise deflationary pressures on wage growth over the coming years. However, the downward move in compensation per employee is likely to be somewhat limited by the current indexation mechanism which applies to the vast majority of private sector permanent contracts. As long as the indexation system remains in place, compensation per employee is likely to continue growing positively (with the exception of the public sector where wage cuts have been agreed upon) as headline inflation is not expected to decline. The most recent reading for negotiated wages (June 2010) was 1.3% y/y for the third consecutive month, the lowest since at least the beginning of the 1980's.

Our forecast is for unit labour costs to remain flat over the next 6 years down from an average growth of 3.1% between 1997 and 2007. In that context, we expect the PCE deflator to grow only modestly around 1%, a third of the pace seen in 1997-2007.

Outlook for real output

The biggest drag to real output growth in the medium term comes from the expected drop in migration. Migration accounted for the bulk of population growth in the past 10 years and has come to a halt in the past year as economic prospects are no longer attractive. This trend is likely to remain with population expected to be barely changed by 2015. This will shave 1.3 percentage points off real growth compared to the 10 year period preceding the crisis.

The two other drags on medium term growth will be the rise in structural unemployment and a decline in the rate of increase in the participation rate.

Table 3: Spain real output growth: past and future

	1997-2007		2011-2015
	Spain	Euro area	Spain
Output per capita (i+ii+iii+iv)	2.4 %	1.6 %	1.4 %
Contributions to GDP per capita			
Output per hours worked (i)	0.6ppts	1.3 ppts	1.0 ppts
Hours worked per worker (ii)	-0.5 ppts	-0.4 ppts	-0.5 ppts
(1 – unemployment rate) (iii)	1 ppts	0.3 ppts	0.5 ppts
Participation rate (iv)	1.3 ppts	0.4 ppts	0.4 ppts
Memo items:			
Population growth	1.3 %	0.6 %	0.0 %
Employment growth	3.7 %	1.4 %	0.9 %
Real GDP growth	3.8 %	2.3 %	1.4 %
GDP deflator	3.8 %	1.7 %	0.8 %
Nominal GDP growth	**7.2 %**	**4.1 %**	**2.2 %**

Source: RBS

In all, real growth is expected to fall to around 1.5% from 3.8% in 1997-2007. Nominal growth is forecast to fall even more to 2.2% from 7.2%.

Labour market developments and outlook

In the past three years, the number of unemployed in Spain has risen by a staggering 2.8 millions, which is 64% of the total increase in unemployment in the euro area, for an economy whose GDP share to the region is only 12%.

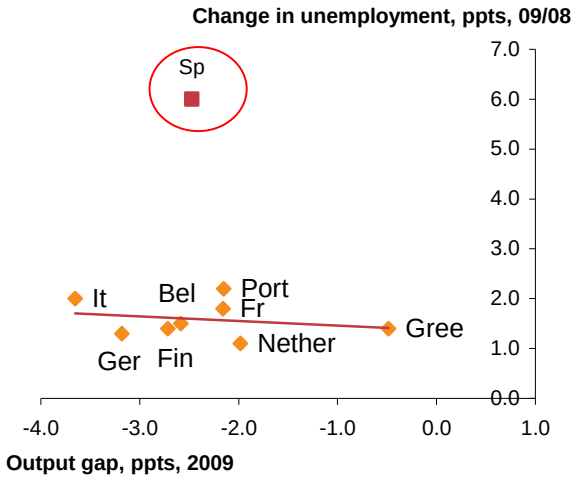
The deterioration in the Spanish labour market has been atypical and far more acute than suggested by the size of the contraction in output or the build up in slack. Indeed, both chart 6 and 7 show that neither the level of growth nor the level of the output gap explains much about the Spanish labour market situation: the unemployment rate should be much lower than it currently is.

Chart 7 displays the short term relationship between GDP and unemployment for a number of euro area countries. This is a graphical representation of the so called Okun's Law. Okun's Law stipulates that there exists a simple statistical relationship between economic growth and the unemployment rate. More specifically, the Okun's gap model estimation (in the economics literature) suggests that over time, the unemployment rate in the euro area rises by around 1/2 the size of the output gap in the economy. However, there are wide country differences with the coefficient estimates varying between a low of 0.1 in Italy and a high of 0.6 in Spain (see for example: BIS Working Papers, No 111, *Output trends and Okun's law*, 2002).

Chart 7 shows that while on average the Okun's coefficient is around 0.6 for the euro area and thus not too far from where you would expect it to be, wide country differences remain. In particular, Spain stands out with an increase in the unemployment rate 4 times larger than implied by the Okun's law coefficient.

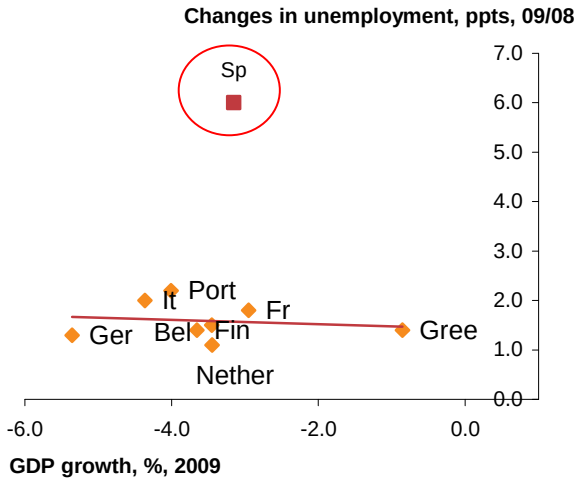
Chart 8 shows that these results are very similar when looking at GDP growth (instead of the output gap) and changes in the unemployment rate with Spain again the clear outlier.

Chart 7: Okun's law: slack and unemployment
Percentage points



Source: RBS

Chart 8: Growth and unemployment
Percentage points and %



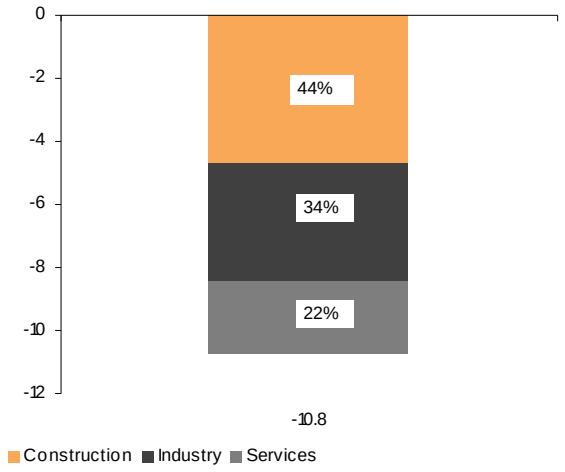
Source: RBS

These very surprising results could suggest that the structure of the Spanish labour market has become much more flexible than in other euro area countries or that the crisis might have pushed corporates to fire en masse, starting what might have been the long awaited and necessary adjustment to rebuild competitiveness.

However, the evidence suggests otherwise with the bulk of job losses coming from the industrial and construction sectors which typically have a larger share of short term contracts rather than permanent contracts.

At the sectoral level, almost 80% of job losses occurred in either the construction (44%) or the industrial sector (34%). While it is little surprising that the construction and manufacturing sectors were hit hardest, given the nature of the economic crisis, the size of the adjustment has been enormous with employment down 30% in construction since the beginning of 2008 and down close to 20% in the manufacturing sector (with employment down about 12% in the car industry).

Chart 9: Contributions to decline in employment- Spain
By key sectors, since 2008. Ppts and %



Source: RBS

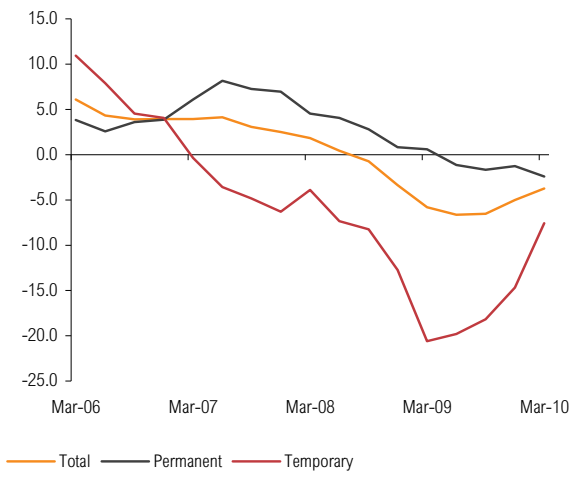
Chart 10: Duration of temporary contracts by sectors
Spain, %

Source: RBS

The oversized adjustment in the manufacturing and construction sectors can be explained by the fact that these sectors rely predominantly on short term contracts rather than permanent ones. These temporary contracts also have a shorter duration than in other sectors. For example, 75 percent of contracts in the construction sector have a duration of no more than 6 months (Chart 10).

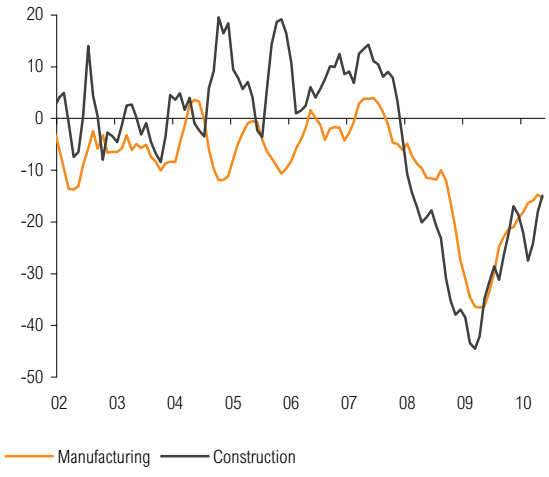
As can be seen on chart 11, most of the decline in employment is due to a collapse in temporary contracts, while employment with permanent contracts has hardly fallen (Chart 11).

Chart 11: Close to 100% of decline in employment due to temp contracts - Spain
%, y/y



Source: RBS

Chart 12: Hiring intentions - Spain
Balances



Source: RBS

Most of job losses in the construction sector are likely to be permanent. Meanwhile, the manufacturing sector might benefit from an export led cyclical recovery and thus see an increase in short term contracts. Permanent jobs will come under pressure due to the upcoming labour market reform which should lower the cost of firing of these types of contracts. In all, employment growth is expected to fall very sharply from 3.7% per year on average between 1997 and 2007 to 0.9% from 2011 to 2015.

In conclusion, over the 2011-2015 period, nominal GDP growth falls to 2.2% from 7.2% in the 1997-2007 period. Real growth falls from 3.8% to 1.4%. Employment growth is expected to fall sharply from 3.7% on average between 1997 and 2007 to 0.9% between 2011 and 2015. These projections are around half the official projections from the Spanish and European authorities underscoring the fiscal challenges ahead.

Spanish public finance situation and outlook

The impact of the recession on Spanish public finances was particularly severe with automatic stabilisers as well as stimulus measures (the latter amounting to 2¼% of GDP) helping swell the deficit from 4.1% of GDP in 2008 to 11.2% of GDP last year. The Spanish Stability Programme Update initially targeted fiscal consolidation of 1.4% of GDP in 2010 and 2.3% in 2011. However, in response to intensifying financial market contagion from the Greek sovereign debt crisis, the Spanish government announced additional austerity measures in mid-May worth €15bn/1.5pp of GDP over the next two years. As a result the deficit is now projected to narrow from 11.2% of GDP in 2009 to 9.3% of GDP this year and 6.0% of GDP in 2011 (vs 9.8% and 7.5% initially submitted). Therefore, fiscal consolidation is now projected to be 1.9% of GDP this year and 3.3% of GDP next year. The deficit is expected to continue narrowing in subsequent years to 5.3% of GDP in 2012 and 3.0% of GDP in 2013.

Table 4: Spanish fiscal targets according to Spanish authorities
(% of GDP)

	2008	2009	2010 F	2011 F	2012 F	2013 F
General government balance	-4.1	-11.2	-9.3	-6.0	-5.3	-3.0
Implied fiscal consolidation		***-7.1***	***1.9***	***3.3***	***0.7***	***2.3***
Debt	39.7	53.2	65.9	71.9	74.3	74.1

Source: RBS, Spanish Stability Programme Update

Additional austerity measures included a 5% reduction in public sector wages in 2010 and freeze next year, a 15% cut in government wages, a pension hike suspension, a Eur 6bn/0.5% of GDP cut in public investment, Eur 1.2bn/0.1% of GDP in savings by regional and local governments, a Eur 600mn cut in foreign aid, a scrapping of the Eur 2.5k "baby cheque" and savings in pharmaceutical costs in the public health system.

In addition to structural measures to strengthen the financial sector (eg. the Fund for Orderly Bank Restructuring – FROB) other structural reforms included in the Spanish Stability Programme include the Strategy for a Sustainable Economy which is intended to achieve sustained, balanced growth in order to assure economic recovery and assist budgetary consolidation. The Strategy consists of (1) the Sustainable Economy Bill; (2) Labour Market measures; and (3) Social Security system measures.

The key aim of (1) is to (i) modernise and simplify government activities and increase general government discipline; (ii) improve company competitiveness by reducing red-tape, promoting sectors such as R&D, innovation and training and improving support for their integration into the overall value chain; (iii) commit to environmental sustainability; (iv) make the tax system more progressive. (See below for a more detailed overview) and reduce the real estate industry's importance in the economy.

Regarding the labour market (2), the Government hopes an overhaul of labour market rules will reduce labour costs and improve flexibility, with measures aimed to favour job creation and adapt labour relations to companies' situations while protecting workers' rights. The Spanish Stability Programme stated proposals will include measures to (i) reform collective bargaining; (ii) training and youth employment improvements; (iii) improved labour intermediation and control of sick leave; (iv) progress female integration in the labour market; (v) improve job stability by reducing existing labour market segmentation.

Labour market reforms were ratified by Parliament on 22 June, though the bill has been submitted to wider Parliamentary debate and can still be amended. A key aim is to extend the use of permanent contracts and make it easier for companies to put in place alternative permanent "job-boosting contracts". These allow severance packages of 33 days of salary per year worked compared to most standard contracts guaranteeing 45 days. The government will also make it easier for companies in financial difficulty to offer smaller severance payments of 20 days per year worked and finance 8 days of severance costs via a special government fund. Measures to allow companies to cut working hours for a year by up to 70% to alleviate pressure to fire workers will be extended.

As noted earlier, some sectors rely predominantly on short term contracts, rather than permanent contracts. The reforms aim to reduce the number of temporary workers (who in some cases can be given just 15 days notice with no compensation) and include measures to cap the length of construction/service sector temporary contracts, avoid successive temporary contracts and facilitate the conversion of temporary contracts into permanent contracts (with the 33 days severance provision).

Other measures aim to reduce youth unemployment via enhanced tax incentives for hiring/training young workers. The reforms currently contain no comprehensive plans to address wage indexation in Spain, although companies with uncertain financial outlooks will be permitted to overlook collective wage agreements. Initial plans to change rules on severance pay so that each worker has an employer-contributed fund which can be transferred during a job change (known as the "Austrian model"), in order to allow greater job mobility, have been delayed.

As part of (3), the Spanish government have highlighted the need to ensure social sustainability and strengthen the Social Security system. Proposed reform involves gradually increasing the statutory age of retirement to 67 and "consistent modification of other parameters of the system" in order to significantly reduce projected expenditure associated with an ageing population. Proposals referred by the Government to the Toledo Pact and Social Partners involve the following: (i) strengthening the linkage between contribution and benefit; (ii) greater transparency of contributions; (iii) completing the integration of various social security regimes; (iv) a sufficient and more efficient policy of family assistance; (v) a more flexible relationship between supplementary voluntary pension schemes and the public social security system; (vi) steady increase in the retirement age to 67 and the possibility of linking other parameters of the current system to this extension of the working life (eg. minimum retirement age, minimum years' contribution required to qualify for a pension, and period for calculating the pension)

Box: Overview of key aims of the Sustainable Economy Bill

A: Sustainable Economy draft Bill: measures to improve the economic environment

(i) reform of structure and rules concern regulatory bodies for network industries and National Competition Commission to enhance coordination, independence and accountability
(ii) improve supervision of the financial market
(iii) public accounts: special group created to evaluate the efficiency and effectiveness of public spending; all levels of government will share liability for any excessive deficit penalties
(iv) rules on public procurement improved; cap on subcontracting raised from 30% to 50% to encourage SMEs to bid for public contracts; public-private partnership (*Sociedades de Economía Mixta*) regulation to be revised and Central Government guarantees to be allowed

B: Sustainable Economy draft Bill: measures to promote competitiveness

(i) Reduce administrative burdens: amendment to the Limited Liability Companies Act to reduce the time period and costs of creating companies
(ii) Reduce the private sector's liquidity needs: period for paying debts to SMEs and self-employed workers will be capped at 60 days; public administrations payment to be cut to 30 from 60 days from 2013.
(iii) Red tape to be reduced by providing cheaper alternatives for publishing corporate decisions and expediting processes in the property register.
(iv) Information Society: more spectrum made available for new mobile broadband services, minimum speeds to be defined, general fee on telecoms operators will be reduced
(v) Science and innovation: commercial exploitation of patents to be improved, University/public research facilities to be to be encouraged to create innovative companies to exploit R&D
(vi) Internationalisation of business encouraged by extending export credit insurance, mechanism to be established for evaluating and overseeing system of financial support
(vii) Promote professional training, improving supply, more flexible training programmes, strengthening cooperation with private companies. Reduce early school leaving, allow mobility between secondary and vocational education, and vocational education and university.

C: Sustainable Economy draft Bill: measures to preserve the environment

(i) Lay foundations for future energy policy to guarantee supply security, economic efficiency and compliance. Objectives for energy saving and efficiency (by, *inter alia*, promoting R&D and innovation, creation of energy services companies) and for renewable energy share
(ii) Reduce greenhouse gas emissions
(iii) Transport: goal to favour competition, efficiency and environmental protection
(iv) Residential sector to be encouraged to reduce greenhouse gas emissions, noise and waste, and reduce energy and water consumption. Emphasis to be placed on renovation and refurbishment of homes and tourist facilities.

D: Sustainable Economy draft Bill: tax measures

1) Real estate industry and rentals:

a. Improved tax treatment for refurbishment work on homes to improve energy efficiency and save water (eg. new 10% personal income tax credit for those projects (up to a multi-year maximum of Eur 10k per home); application of the reduced VAT rate
b. Amendment of the tax credit for home purchase (eg. current tax deduction to be maintained for incomes < Eur 17,707.2; tax reduction reduced on a straight line basis up to Eur 24,107.2; tax reduction above that figure eliminated effective 1 Jan 2011. Puchases before 31 Dec 2010 will be grandfathered.
c. Home rental to obtain same tax treatment as home purchase. Review of tax treatment for building rental: percentage of rental income that is tax-free to be raised from 50% to 60%; cap on tenant's age for 100% exemption to be reduced from 35 to 30.

2) R&D and innovation

a. Improved company tax incentives: tax deduction for innovation activities increased from 8% to 12%.

3) Environmental protection

a. Employer subsidies for public transport season tickets exempted from personal income tax up to Eur 1.5k per year
b. Environmental deduction under company tax, due to be phased out in 2011, to be maintained and expanded. Percentage of the deduction raised from 4% to 8%

4) Improvements to make the tax system more progressive

a. Taxation of income obtained over a period of several years: absolute cap of Eur 600k for applying the 40% deduction for income obtained over a period of more than two years.
b. Tax treatment for income from the exercise of stock options granted to employees is maintained, but the Eur 600k limit will also apply

.

Short term public finance developments

The monthly budgetary execution data to date (Jan-May) indicate that the central government deficit is registering some year-on-year improvement, thanks to much stronger revenues (Jan-May total revenues up 15.6% y/y) partially offsetting rising expenditures. The Central government deficit was €18.9bn (-1.8% of GDP) in Jan-May, 5% narrower in levels terms compared to Jan-May last year (-1.9% of GDP).

The monthly data show notable improvement from indirect tax revenues (+33.8% y/y in Jan-May), boosted by VAT revenues (+44.5% y/y in Jan-May, even ahead of the VAT increases on 1 July: standard rate +2pp to 18%; reduced rate +1pp to 8%). However, the Finance Ministry highlight this partly reflects lower VAT refunds this year as some were already paid last year, though VAT receipts are reported to have made an "incipient" improvement. On the other hand, total expenditures in Jan-May were up 9.1% y/y at Eur 70.572bn, reinforcing the importance of measures to restrain spending, such as on the wages side and measures included within the Strategy for a Sustainable Economy.

For an up to date update of fiscal developments in the euro area periphery, please see our Monthly public finance tracker.

In all, the fiscal data available to date suggests that Spain is on track to meet its 9.3% deficit to GDP ratio this year. However, the RBS Spanish Business Cycle Screener highlights the challenges ahead from a rising probability of double-dip and we expect current expenditures to remain under pressure from the weak labour market (May unemployment: 19.9%) as well as higher interest payments due to the sovereign debt crisis.

Medium term debt scenarios:

We now consider 3 medium term scenarios for Spanish sovereign debt: a baseline, an optimistic strong fiscal consolidation scenario and a pessimistic double dip and deflation scenario.

Scenario 1: Baseline

We use our growth and inflation assumptions which we calculated in the growth outlook section and assume a return to balance of the structural primary balance in 2015 from 8.2% in 2009. This would be equivalent to a little more than a one percentage point of structural improvement in the primary balance between now and 2015, largely consistent with past fiscal consolidation episodes. Under this scenario, the debt to GDP ratio rises from 54% in 2009 to close to 100% in 2017.

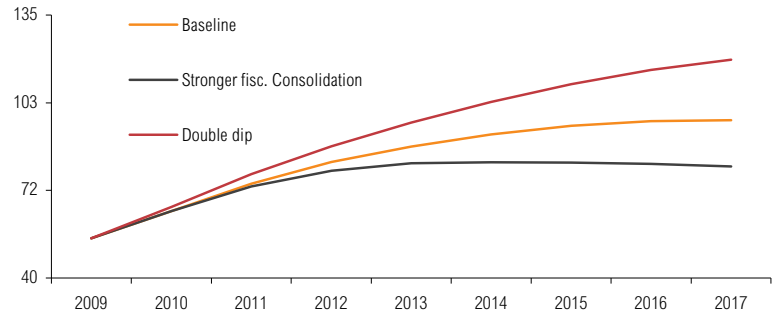
Scenario 2: Stronger fiscal consolidation

Our second scenario implies a more aggressive fiscal consolidation. The structural primary balance improves by about 2ppts more than expected over the next 5 years, but growth and inflation are the same as in baseline. Under this scenario, the debt to GDP ratio rises from 54% in 2009 to close to 80% in 2015, when it stabilises. Crucially under this scenario, we do not envisage any additional negative impact on growth due to the tighter fiscal stance. This might result in an overly optimistic growth trajectory.

Scenario 3: Double dip and deflation

Our third scenario involves a nastier macro outcome: double dip and deflation. All other assumptions are unchanged. Under this scenario, the debt to GDP ratio rises steeply to close to 120% in 2017.

Chart 13: Debt trajectory according to different scenarios
% of GDP



Source: RBS

In all scenarios, the interest rate assumption is assumed to be 1 percentage point higher than in the previous 10 years as the SMP programme and the SPV should prevent any major sustained pick up in funding costs. None of the scenarios assume any additional transfer of debt from the private sector to the sovereign.

Table 5: Spain – Medium term sovereign debt trajectories under various scenarios
% of GDP

	Baseline				Additional consolidation				Double dip			
	09	10	17	10-17	09	10	17	10-17	09	10	17	10-17
Real GDP	-3.6	-1.0	2.2	1.3	-3.6	-1.0	2.2	1.3	**-3.6**	**-5.0**	**2.2**	**0.2**
Potential GDP	0.8	1.0	1.2	1.2	0.8	1.0	1.2	1.2	0.8	1.0	1.2	1.2
Output gap	-3.6	-5.5	-2.8	-5.5	-3.6	-5.5	-2.8	-5.5	-3.6	-9.4	-10.8	-12.0
GDP deflator	0.1	0.5	0.8	0.8	0.1	0.5	0.8	0.8	**0.1**	**0.5**	**0.8**	**0.2**
Effective interest rate	3.3	4.3	4.3	4.3	3.3	4.3	4.3	4.3	3.3	4.3	4.3	4.3
Interest payments % of GDP	1.8	2.8	4.2	3.7	1.8	2.8	3.5	3.3	1.8	2.8	5.1	4.2
Primary balance	-9.4	-7.2	0.9	-3.7	-9.4	-7.2	1.9	-1.7	-9.4	-8.7	-2.3	-6.3
Structural primary balance	-7.9	-5.0	2.0	-1.5	**-7.9**	**-5.0**	**3.0**	**0.5**	-7.9	-5.0	2.0	-1.5
Total balance	-11.2	-10.0	-3.3	-7.4	-11.2	-10.0	-1.6	-5.1	-11.2	-11.6	-7.5	-10.5
Debt to GDP	**54**	**64**	**97**	**86**	**54**	**64**	**80**	**78**	**54**	**66**	**119**	**97**

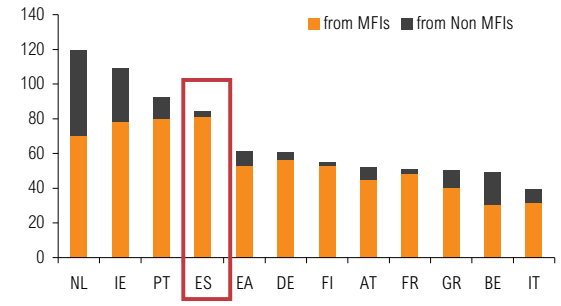
Source: RBS Global Banking & Markets

In conclusion, the medium term debt trajectories for the Spanish economy suggests that the sovereign debt will continue rising under most scenarios up until 2017 when it is expected to be between 80% and 120% up from 40% in 2008. These scenarios do not include any additional balance sheet commitment from the sovereign to the private sector.

Spanish private debt developments

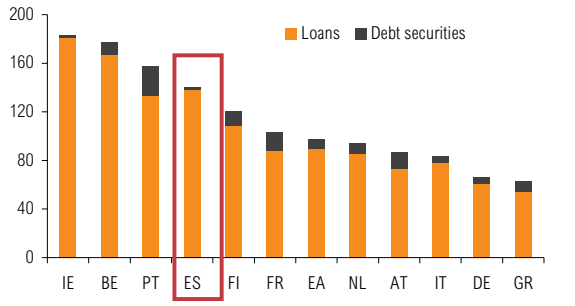
The market is preoccupied with the trajectory of sovereign debt, and with good reason. But it is also important to keep in mind the evolution of private-sector debt, with stock imbalances in the economy remaining a key determinant of the macro-outlook.

Chart 14: Household debt
% of GDP



Source: RBS

Chart 15: Non financial corporate debt
% of GDP



Source: RBS

Total non financial private debt in Spain is around 220% of GDP. This is made up of around 84% of household debt (Chart 14, mostly mortgages) with the rest accounting for non financial corporate debt (chart 15). This makes Spain the fourth most privately indebted country of the euro area after Ireland, Portugal and Belgium.

The temptation is to assume that public and private-sector debt will follow a similar path. After all, they share the same denominator. However, there are good reasons to believe that the two ratios might not be highly or even positively correlated over the coming years.

The evolution of private-sector debt stocks will reflect two factors. First, the financial balance which captures the contribution of macro flows – the difference between savings and investment – and pins down the difference between the net acquisition of financial assets and liabilities. Second, the contribution of balance sheet factors: that is, the net acquisition of liabilities to fund the net acquisition of assets. This second factor encompasses debt-financed purchases of assets and the reverse (exhausting deposits to pay down debt), as well as debt defaults. Both of these factors can drive a wedge between the paths of the public and private debt stock

Table 5: Sectoral financial balances
% of GDP

	2002	2003	2004	2005	2006	2007	2008	2009
Total economy (current account)	-2.7	-2.9	-4.8	-6.5	-8.4	-9.6	-9.1	-4.7
Public sector	-0.5	-0.2	-0.4	1	2	1.9	-4.1	-11.2
Financial institutions	1.2	1	0.6	0.9	0.7	2.1	2	1.6
Households	0.8	0.1	-0.6	-1.3	-1.7	-1.9	0.2	5.6
Non fin. Corporations	-4.1	-3.9	-4.5	-7.1	-9.5	-11.6	-7.2	-0.7

Source: RBS

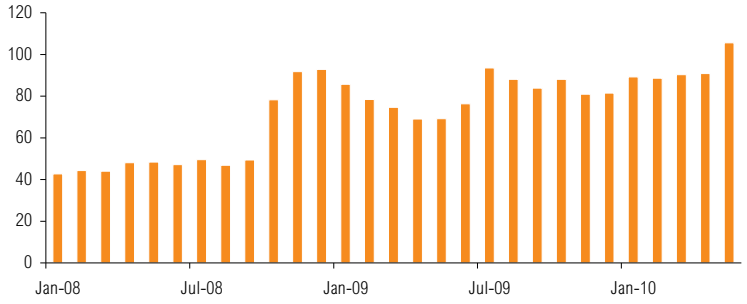
Table 5 shows that a significant amount of rebalancing in sectoral financial accounts took place between 2007 and 2009 with the net borrowing position of the corporate sector moving from a close to 12% deficit in 07 to almost balanced in 09.

We expect a small decline in private debt to GDP over the coming years as a result of supply (tougher credit conditions) and demand side (deleveraging of the corporate and household sector) factors. However, given that almost the total stock of private debt is in the form of bank loans (as opposed to traded debt securities), the key risk to the economy is via the banking sector exposure to a deteriorating loan book. This transmission channel is covered in details in the following section through the lenses of the banking sector's balance sheet.

Stressing the Spanish banking sector

The Spanish banking sector has recently increased its reliance on ECB funding. In May 2010, the Spanish banking sector was using the ECB twice as much as it did pre crisis. The funding stress affecting Spanish banks makes some of them reliant on ECB funding. Absent the ECB lending facility, it is unclear how the banking sector would have found alternative sources of funding.

Chart 16: Spanish banks use of the ECB liquidity provision
Eur, bn



Source: RBS

With over €3trn of assets and €1.8 trn of loans, supported by €1.4trn of deposits, €1 trn of wholesale funding (including interbank) and €188bn of equity at FY09, it is too big for Europe not to be tackled from a policy standpoint. The Spanish banking system faces the perfect storm of banking balance sheet deleverage, a wholesale funding crisis, ongoing credit quality concerns centred around a weak real estate market and steadily rising non performing loans.

The perceived solvency problem in the Spanish banking system has translated into a major wholesale liquidity funding crisis, which is at risk of escalating into further banking failures. Customer deposits have been trickling out of Spain since December 2008 from €1.43trn to €1.38trn at end April 2010. Given how far negative sentiment has gone, we believe this creates a requirement to over capitalise or de-risk weak banks to restore confidence which means putting in more capital than losses will ever be. Put differently, as has happened in the UK and US over the last two years, this means recapitalising the banking system relative to worst case "what if" asset quality stress test rather than likely outcome scenario.

The banks and cajas are forced to raise capital and over time, if over time these entities do not need the extra capital, then it can be returned. We believe that the capital shortfall of the sector totals €50bn based on a central case 'bottom up' stress test using the US Federal Reserve stress test assumptions from 2009.

This is over and above the €14bn so far injected by the Bank of Spain ("BoS") via the deposit guarantee funds in Spain ("DGF") and the Fund of Orderly Bank Restructuring ("FROB"). This is set against maintaining a core tier 1 equity ratio ("CT1") of 6% and 2% credit loss reserves ("CLR") post stress in FY11F. However, extrapolating from the expected loss assumptions agreed by the FROB when recapitalising the Caja Madrid SIP, we are concerned that a much lower number of < €20bn is the identified stress test shortfall when BoS publishes its named bank stress tests due in the next few weeks. We do not see an additional €20bn being sufficient to restore international investor confidence in the solvency of the domestic banking sector.

We see a 3 part game plan for restoring confidence in the banking system: 1) stabilise liquidity; in reality, this means the ECB providing unlimited funding, irrespective of whether 3 or 12 month term; 2) the ECB beginning significant secondary market purchases of both public & private sector debt in order to restore prices back towards more realistic NPV levels; and 3) transparent stress tests of banks' balance sheets for each of corporate, household & critically sovereign exposures followed up by credible amounts of capital being injected to support weak institutions.

Banking stress tests

Loan book stress tests run by the US Federal Reserve in 2009 were proven to be effective in calming investor fears. What is different this time is that structural sovereign debt positions held by banks have created a further category of assets that could undermine the solvency of banks' balance sheets. Investors are now focusing on the imminent publication of solvency stress tests on a named basis for all Spanish banks and cajas by the BoS to restore confidence. We believe this can only be achieved if the stress tests are credible, covering a material "what if" scenario. In our minds, this means all market sensitive balance sheet categories including sovereign debt positions should be stressed, with details of supporting assumptions. We see investor scepticism of solvency being centred around the value of real estate (and land assets acquired by banks and cajas which totals €60bn) where €1 trn of loans have property collateral. Secondly, the stress tests must identify both winners and losers to be deemed as believable. Lastly, actionable financial solutions and plans must be at hand to solve the identified weak players' balance sheets in short order.

Our methodology is based on 3 stress test scenarios of expected losses by asset exposure, which are written off against pre impairment profit for FY10F and FY11F, net of CLR in place and recent capital raised (e.g. recent injections by the FROB which we assume are loss absorbing). Put differently, we allow individual banks to net off these stress write offs against two years of pre impairment profits, a portion of provisions already in place and any FROB investment to date. We have not included one off earnings that banks could generate (e.g. from asset sales or liability management transactions). We then calculate the impact on the CT1 focused on FY11F to ascertain equity surplus or shortfall against a target CT1. Despite loan losses reducing loan books, we assume that risk weighted assets remain stable, reflecting higher expected loss assumptions feeding through into banks' underlying capital models. Lastly, we assume that in any stress, the ECB and other national central banks in Europe would offer blanket liquidity support to avoid the knock on effect of total bank system failure. We use a "bottom up" approach analysing a total of 11 major listed domestic banks and large Cajas representing 71% of sector loans, along with a broader test on the more opaque Caja rump representing a further 22% of loans.

The 3 distinct stress scenarios we apply are:

1. Likely stress test that the BoS will publish resulting in c. 7% of at risk asset exposures being written off. This is based largely on the Caja Madrid SIP expected loss assumptions agreed with the FROB when calculating the total amount of FROB investment required, which totalled a 6% write off. We have included a 3% sovereign debt hair cut on Spanish government securities

2. Our central case stress test results in c.11% of at risk exposures being written off. This is what we see as a credible stress based on a double dip in Spain's economy, a further 30% fall in house prices (peak to trough of c.50%), along with sustained high unemployment. Many of the cumulative loss assumptions are based off the US Federal Reserve Supervisory Capital Assessment Program "more adverse" exercise conducted in 2009. The sovereign stress haircut is assumed at a 5%.

3. Maximum stress case, broadly based on our central case stress, includes a 30% Spanish government securities haircut (an implied sovereign default scenario). The outcome is a 14% weighted average write off of asset exposures.

The expected loss assumptions by asset exposure and stress scenario are shown in the table below.

Table 6 : Stress test expected loss assumptions by exposure

As % of asset exposure	1. Likely published stress	2. Central case stress	3. Maximum stress case	C.Madrid SIP Expected Loss
Sovereign	3%	5%	30%	0%
Interbank	0%	0%	5%	0%
Public sector	3%	5%	10%	0%
Corporate + SME	5%	10%	10%	7%
Corporate Real Estate	15%	20%	20%	8%
Prime mortgage	2%	3%	4%	1%
Other mortgage	5%	6%	13%	0%
Consumer credit	8%	10%	12%	8%
Other loans	8%	10%	10%	0%
Acquired land	30%	50%	50%	30%
Weighted average EL	**7%**	**11%**	**14%**	**6%**

Source: Company data, US Federal Reserve, RBS estimates

We acknowledge a weakness in our methodology where we have not specifically adjusted for the underlying credit quality in each bank. As such, we may be over penalising institutions with high quality loan books, and potentially under penalising others. We are endeavouring to highlight the sensitivity of the sector and its major financial institutions to differing levels of "what if" scenarios to highlight the approximate quantification of capital needed to ease solvency fears.

The overall outcome of these stress scenarios is extremely sensitive to the post stress target CT1 and CLR, as shown in the table below. We also include the impact if a 6% Tier 1 hurdle is targeted. Our view is that credible stress tests need real target hurdles, hence we focus on CT1 at 6% and CLR maintained at 2% post stress post stress for FY11F. This is especially pertinent given the lack of transparency of collateral values supporting loan books and the weak profitability outlook as pre impairment profit is challenged by balance sheet deleverage and higher structural funding costs. We believe that the capital shortfall of the sector totals €52bn based on scenario 2, excluding banks who need no new capital. In the 3rd scenario, where there is a material sovereign

default situation, a €89bn impact would equate to approximately 50% of the banking sector's capital.

Table 7 : Stress test scenarios against FY11F

(€bn)	1. Likely published stress	2. Central case stress	3. Maximum stress case
Low hurdles: CT1 target 4%, CLR 1%	-0.9	-23.0	-54.7
High hurdles: CT1 target 6%, CLR 2%	-19.9	-51.7	-89.1
Low hurdles: Tier 1 target 6%, CLR 2%	-1.6	-27.9	-61.4

Source: Company data, Bank of Spain, CECA, RBS estimates

As a worked example, the table below illustrates our approach on stress testing using the Santander group (based on hard hurdles of CT1 at 6% and CLR at 2% FY11F). We have stressed Santander's domestic Spanish loan portfolios and Spanish sovereign debt holdings against group earnings and capital. The result is that Santander holds a core tier 1 ratio of 8.9% FY11F and therefore has a capital excess of €18bn against a target 6% core tier 1 ratio.

Table 8 : Stress test methodology example – Santander under Scenario 2: central case (FY11F CT1 target 6% and CLR 2%)

	Pre stress test			Post stress test		
€bn	**FY10F***	**FY11F**	**FY12F**	**FY10F***	**FY11F**	**FY12F**
Pre impairment profit	17.1	26.8	29.5	17.1	26.8	29.5
BAU provisions**	-8.1	-11.7	-10.7	-8.1	-10.4	-10.7
Sovereign debt impairment				-1.9	0.0	0.0
Loan book impairment				-12.9	-12.9	0.0
Existing CLR utilised				4.5	0.0	0.0
FROB / DGF investment				0	0	0
PBT	9.1	15.1	18.8	-1.2	3.5	19.9
TCE	49.5	54.8	61.8	46.0	47.3	54.8
Core tier 1	54.8	61.0	68.9	53.8	55.1	62.6
RWA***	587	619	660	587	619	660
CT1 ratio (%)	**9.3**	**9.8**	**10.4**	9.2	8.9	9.4
TCEPS	5.7	6.2	6.8	5.3	5.3	6.0
Equity surplus /(shortfall)	**19.5**	**23.8**	**29.3**	18.6	18.0	23.0

BAU = business as usual, CLR = credit loss reserves, TCE = tangible common equity, RWA = risk weighted assets, CT1 = core tier 1, TCEPS = tangible common equity per share

* Assumes 9 mths contribution for FY10F as stress test start point is 1Q10

** BAU provisions for SAN pre stress; post stress, SAN group excluding Spain in FY10F+FY11F

*** Assumes BAU RWAs (e.g. risk increases net off smaller loan book exposures)

Source: Company data, RBS forecasts

Using this methodology on a name by name basis, the equity surplus or shortfall calculated is shown in the table below. Santander and BBVA, supported by considerable overseas earnings are both able to ride even the maximum stress without the requirement of new equity. It is true that under scenario 3, their respective tangible common equity per shares fall markedly from FY11F pre-stress levels of 6.2 and 7.4 to post-stress levels of 4.7 and 4.2 respectively. But we do not see a need for either bank to issue new shares. The weakest financial entities are Caja Madrid SIP and Caixa Catalunya (pre merger with Caja Manresa and Caja Tarragona). Under scenarios 2 and 3, equity shortfalls become apparent across all domestic only institutions, driven by increasing sovereign securities haircuts and more aggressive expected loss assumptions particularly with respect to corporate real estate book and acquired land assets.

If properly recapitalised, the Spanish banking system would be in a position to extend new credit selectively, rather than focus only on deleveraging. A stable banking system, with the ability to allocate capital efficiently and on a levered basis, would be in a position to support economic growth even under

government austerity measures. As such, we conclude that the Spanish banking system requires €52bn of new capital to be injected, either through direct equity injections or asset protection support in the near future. This would add 27% more capital to the sector.

Table 9 : Individual bank: Equity surplus / (shortfall) – FY11F CT1 6%, CLR 2%

€bn	1. Likely published stress	2. Central case stress	3. Maximum stress case	Loans	% Sector loans
Santander	21.7	18.0	9.0	232	13%
BBVA	6.9	2.4	-3.3	204	12%
C. Madrid SIP*	-5.9	-12.7	-17.7	212	12%
La Caixa	1.6	-3.3	-7.5	172	10%
Popular	-1.7	-5.2	-10.5	98	6%
C. Mediterraneo SIP*	3.1	-2.7	-3.5	77	4%
Banesto	-0.1	0.3	-1.2	77	4%
Sabadell	-0.5	-2.3	-4.2	65	4%
C. Catalunya*	-2.1	-5.2	-8.0	50	3%
Bankinter	-0.3	-1.0	-2.0	40	2%
Pastor	0.2	-0.5	-1.1	21	1%
Rest of Caja sector*	-9.3	-18.8	-29.9	389	22%
Total (equity shortfalls only)	**-19.9**	**-51.7**	**-89.1**	**1,638**	**93%**

Note 1: High hurdle target ratios: CT1 target FY11F of 6%, CLR 2%
Note 2: Pre impairment profit forecasts for all listed banks ex Santander and BBVA based on bloomberg consensus. Caja forecasts assumed at 2009 levels.
Note 3: Risk weighted assets assumed to remain constant throughout stress (loan write off benefits offset by higher EL calculations in capital models going forward)
* FROB /DGF investments included: C.Madrid SIP €4.5bn; C.Mediterraneo €1.5bn; C.Catalunya €1.25bn; Rest of Caja sector €6.8bn

Source: Company data, Bank of Spain, CECA, RBS estimates

However, we expect to see scenario 1 as the most likely BoS approach in order to avoid further stress on Spain's sovereign debt position, with a likely focus on a Tier 1 ratio of 6%. Unfortunately, we think the market will continue to be highly sceptical of the Spanish banking system if less than €20bn of capital is estimated as the post stress equity shortfall. In such an event, we would expect the domestic liquidity stress conditions to continue. This would result in banks continuing to reduce credit through cutting corporate / SME and retail unsecured lending, which would negatively impact the real economy.

Table 10 : Scenario 2 - Central case stress test by institution

€bn	Pre stress FY11F core tier 1	FY10F + FY11F pre impairment profit	Sovereign securities impact	Loan book impact (FY10F + FY11F)	Provisions used (>2% CLR)	FROB / DGF support	Post stress FY11F core tier 1	Equity surplus / (shortfall) vs CT1 at 6%
Santander	9.8	43.9	-1.9	-25.8	4.5	0.0	8.9	18.0
BBVA	8.7	21.6	-0.9	-19.1	2.3	0.0	6.7	2.4
C. Madrid SIP*	5.3	5.5	-0.9	-25.6	1.4	4.5	-0.4	-12.7
La Caixa	9.5	7.2	-0.8	-17.4	0.3	0.0	3.9	-3.3
Popular	8.6	4.1	-1.3	-11.6	0.9	0.0	0.4	-5.2
C. Mediterraneo SIP*	6.8	4.5	-0.2	-11.5	1.4	5.3	6.3	0.3
Banesto	8.8	3.2	-0.4	-8.0	0.1	0.0	2.7	-2.3
Sabadell	8.7	1.7	-0.1	-7.5	0.6	0.0	1.4	-2.7
C. Catalunya*	5.5	1.2	-0.3	-7.2	0.3	1.3	-4.2	-5.2
Bankinter	7.2	0.9	-0.2	-2.5	0.1	0.0	2.7	-1.0
Pastor	8.6	0.7	-0.2	-2.2	0.4	0.0	3.5	-0.5
Rest of Caja sector*	6.4	8.0	-1.3	-40.0	4.0	3.0	1.0	-18.8
Total of shortfall only		**102.6**	**-8.4**	**-178.2**	**16.2**	**14.0**		**-51.7**

Source: Company data, Bank of Spain, CECA, RBS estimates

Funding the equity shortfall

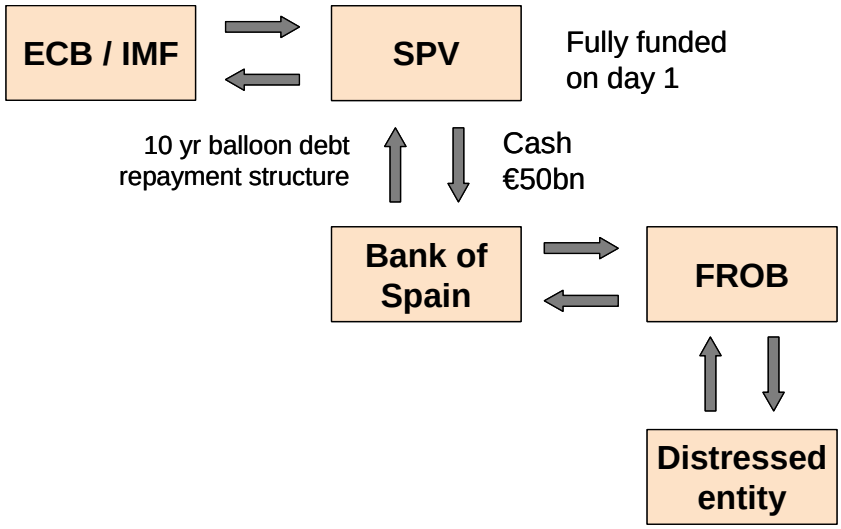
The BoS set up FROB to drive the Caja restructuring process and has successfully approved 45 cajas entities to be reduced to 21 over the next few months. The BoS has the tools and legal means to act proactively as it did when it intervened on Caja Castilla-La Mancha ("CCM"). It not only injected preference shares but also provided €2.5bn of additional asset guarantees.

We expect the BoS to request EU approval to re-open and continue to use FROB capability, to either inject capital or take a more proactive role through acquisition of bad assets or asset protection guarantees. The latter would to our understanding require a change of FROB's status. This would permit a double sided balance sheet attack on weak banks with sufficient pre-funded fire power to contain balance sheet risks from both a maximum loss perspective as well as a capital solvency perspective. This is how China managed its banking sector NPL problems in 2002/3 and Ireland's National Asset Management Agency has recently started buying loans from Irish banks.

The Bank of Spain currently has the DGF and FROB to execute support for the banking sector. The three DGFs in Spain (for banks, savings banks and credit cooperatives respectively) currently have available assets of approximately €5bn, net of the aid already provided or committed to Caja Castilla-La Mancha. We see the remainder as a necessary cushion to support sector deposits of €1.4 trn. The FROB itself has agreed to invest €11bn of its current €12bn available to date.

Whilst a certain amount of capital could be raised privately (e.g. through asset sales or in the case of Banesto, Santander would likely support its 89% equity stake), this is difficult to see in circumstances where listed banks are trading at below 1x price to tangible common equity, or for the Cajas where law changes are still required to attract private investors. The latter will simply be a matter of time before the law is passed which will allow private investors to own as much as 50% of the cajas, however it is difficult to see who would choose to invest sizeable amounts in the Spanish domestic banking sector at this time. Therefore, in our minds, the issue centres around whether the Kingdom of Spain is strong enough to deliver our estimated €50bn banking sector rescue package without adding fears to its own solvency position. This sets the stage for external support on a pre-funded basis to avoid bond market financing fears.

Figure 1: Potential European support to fund Spanish banking sector solution



Source: RBS

From an equity perspective, we continue to favour the large Spanish banks (Santander and BBVA) but until a fixed and credible solution is in place, domestic funding concerns will continue to drive market volatility. When it does, assuming a pre-funded solution for banking sector recapitalisation in Spain and potentially the rest of Europe and if Santander and BBVA escape unscathed from the required extra capital requirements for the Spanish banking system, this should act as a powerful catalyst for re-rating towards our price to tangible common equity multiples of 2.3x and 1.8x respectively and our target prices of €13 and €11.5 respectively.

From a credit perspective, CDS spreads of Santander and BBVA have significantly widened in recent months as both entities' CDS spreads were dragged out by heightened Spanish sovereign risk. The current spread credit levels of the two largest banks ignore the underlying strong fundamentals and high degree of diversification outside of Spain that both banks possess, in our eyes. We expect both entities to come out of the pending stress tests favourably and will end up in the top bracket of European banks. This would support our long-term overweight recommendation for Santander and BBVA.

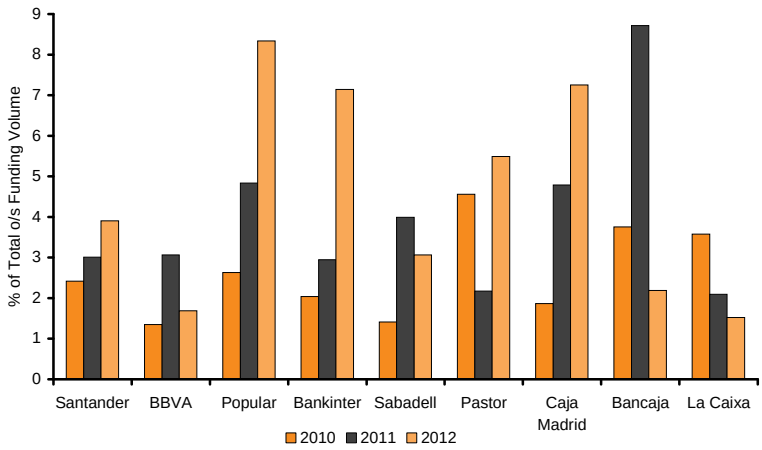
Regarding the 2nd tier banks and Spanish cajas we remain far more cautious and worry in particular about upcoming redemptions volumes as well as their loan book quality. Analysing the funding breakdown of a selection of the larger Spanish cajas shows that many of them have disproportionately high redemptions in 2011 and 2012 reflecting the 3-year maturity restriction of government guaranteed debt and the limited ability to place longer-dated debt with investors. In particular the redemption volumes of a number of the smaller cajas will peak over the next couple of years, against a backdrop of the ongoing deposits war in Spain where big players such as Santander have been gaining market share. Hence we fully expect reliance on ECB funding from cajas to continue for the foreseeable future.

Table 11 : Notional bond maturities, Eur millions

	2010	2011	2012
Santander	20,756	25,816	33,498
BBVA	6,763	15,367	8,489
Popular	2,500	4,586	7,914
Bankinter	1,000	1,445	3,499
Sabadell	1,035	2,914	2,238
Banesto	469	3,172	3,854
Pastor	1,000	476	1,204
Caja Madrid	2,653	6,814	10,327
Bancaja	3,774	8,758	2,200
La Caixa	8,518	4,992	3,631

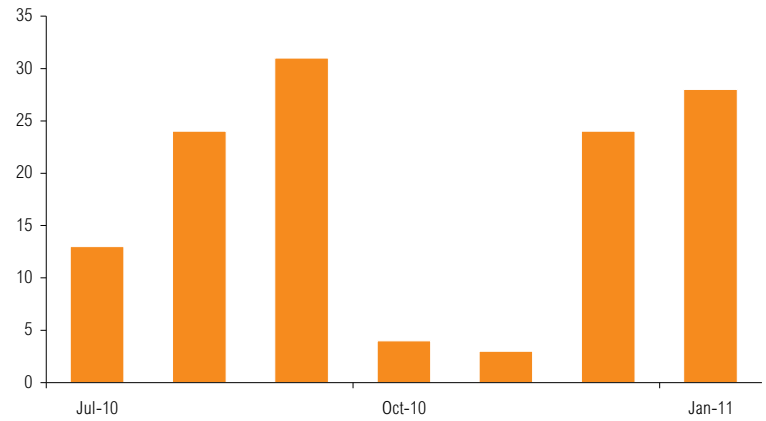
Source: Bloomberg, Dealogic

Chart 17 : Notional bond maturities as % of total funded assets



Source: Bloomberg, Dealogic

Chart 18: Commercial paper maturing over next months Eur, bn

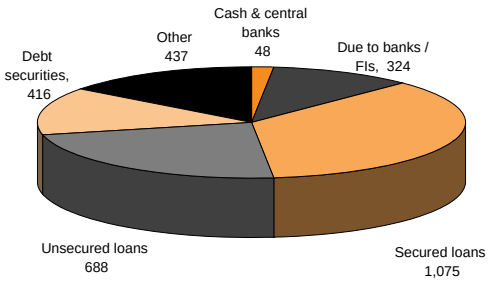


Source: RBS

The Spanish banking sector basics

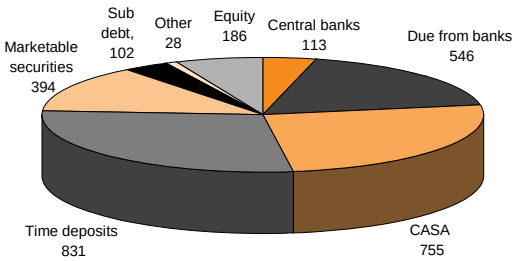
As shown in the pie charts below, the consolidated balance sheet of the Spanish banking system relies on wholesale funding to cover the funding gap between loans and deposits. In addition, a substantial portion of short term funding is raised from other banks. In total, wholesale funding represents c.€1 trn of funding which is now difficult to renew without ECB support.

Chart 19 : Assets mix (FY09 €3trn)



Source: Bank of Spain

Chart 20 : Liabilities mix (FY09)



Source: Bank of Spain

The much publicised Caja restructuring has been completed according to the BoS as of the end of June 2010 with EUR11bn to be injected by the FROB out of the EUR12bn available and a further EUR3.7bn of funding provided by the DGF. The Bank of Spain has forced consolidation in order to create more efficient and better managed financial institutions. However, integration cost synergies are likely to take 2 years to be achieved which is not soon offset sector profitability headwinds today. On 29 June 2010, the Bank of Spain gave approval to the last 4 cajas integrations using SIPs (Sistema Institucional de Proteccion) involving a total of 17 cajas.

The total number of cajas will fall from 45 to 21. This in itself is a victory for the Bank of Spain, however, we see this as only the first stage of a journey in which eventually Cajas need not only to work through complex mergers, but also to change corporate governance and increase funding sources to include equity shareholders. For example, Cajas currently cannot issue equity with voting rights, as they are in effect charitable foundations. Law changes are going to be passed by the government imminently, but even then, Cajas will need further governance chances to reduce the influence of regional politicians. The SIP legal structure for merging, or cold mergers, creates a separate joint subsidiary owned by the cajas. In the case of the largest Caja restructuring agreed so far, which includes Caja Madrid, Bancaja and a further 5 smaller cajas, the SIP entity created will be a banking entity with organisational control of risk management, pricing, strategy, funding and corporate governance. It will also consolidate financial and regulatory reporting.

Profitability headwinds

There are a number of worrying structural profitability headwinds facing the domestic Spanish banking sector that will reduce sector pre impairment profitability and therefore earnings over the coming 12 to 18 months:

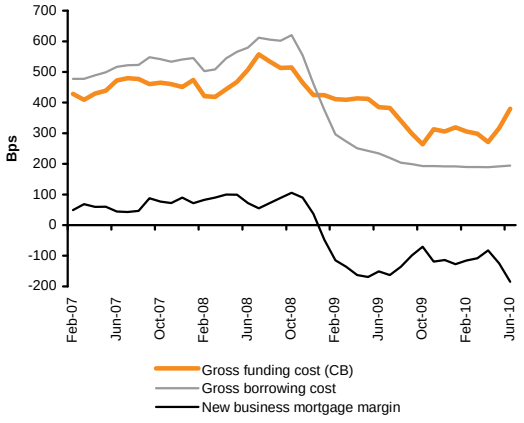
Higher term wholesale funding costs in line with the Sovereign, which now drive new business mortgage margins negative. As the lead product into the retail customer, mortgages are currently being priced aggressively by certain players at between 35bp to 70bps over EURIBOR 12 month equating to a gross yield of c.2% (including cross sold products such as home insurance). Covered bond pricing for domestic only Spanish banks based on c.250bps over a 5 year German government benchmark indicates a marginal funding gross cost of c.4.5%. Therefore, in order to cover the credit and liquidity costs of marginal new mortgage loans in Spain, pricing should be around EURIBOR 12 month of 1.3% plus around 4% margin. There are now management comments from certain domestic banks that mortgage pricing now needs to widen to reflect credit and liquidity risks correctly. Taking this a step further, higher structural mortgage borrowing costs will directly reduce customer cashflow and this could provide the catalyst for a further round of asset price falls. However, given that 99% of mortgages in Spain are trackers with an average duration of over 10 years, it will take a considerable period of time for this product to reprice.

The 1 year time deposit war in Spain which started in late 1Q10 has now been exacerbated by the closure of the wholesale funding markets. This has created a pool of "hot", price sensitive deposit money chasing yields. Officially Santander has stopped its 4% deposit 1 year offer (which required customers to own a number of other Santander products), but it is clear that select customers continue to be targeted by all banks with attractive rates as they endeavour to protect funding bases.

If the market funding stress continues, banks and cajas will take action to reduce assets, however, we identify to 2 key risks with this tactic. If available for sale portfolios are sold off, a risk to P&L develops as these typically act as hedges to protect net interest margins and would show banks are sacrificing pre impairment profit to save the balance sheet. Secondly, given the long contractual duration of mortgages and property sector loans, the easiest loans to reduce are to corporates & SMEs as well as individuals. This could lead to significant contraction to the real economy, just when austerity budgets are starting to bite.

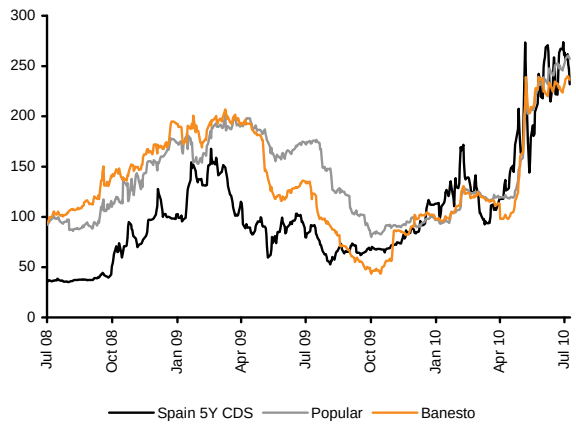
Lastly, the new proposed BoS provisioning rules which will accelerate loan loss recognition resulting, according to BoS analysis, in an average 10% reduction in profitability to the sector in 2010, and further write downs in 2011 linked to acquired property assets.

Chart 21 : Marginal new business mortgage pricing



Source: RBS

Chart 22 : Covered bond funding spreads



Source: RBS

On an overall basis, we see a risk of pre impairment profitability for the sector falling by 10% to 15% in FY10F with a further 10% reduction to profit before tax from the new provisioning rules. This would reduce the FY09 sector RoA from 0.5% to 0.4% for FY10F, and RoTCE from 9% to 7%. This is a difficult backdrop against which to face down the bond market.

Stress testing the sovereign

Quantifying the stress test of the Spanish sovereign

This section sets out the potential ramifications of a severe stress undergone by the Spanish sovereign to the rest of the euro area. This is purely a theoretical exercise and does not reflect a view that Spain as a sovereign will default. In fact our baseline scenario is that Spain will not default. It is however our view that Spain will receive external help.

We begin by setting out the data on the stock positions on which our estimates are based, highlighting the split between domestic and overseas exposures to developments in the Spanish economy, before turning to discuss our assumptions and calculations.

The numbers: domestic and overseas exposures

Spanish institutions have issued close to €1.5 trillion of debt securities. Hard data suggest that a little under half of Spanish government bonds are held overseas; internal analysis suggests that a similar proportion of Spanish private-sector debt securities are held by non-residents. Survey data (from the Coordinated Portfolio Investment Survey or CPIS) suggest that almost exactly three quarters of the Spanish debt securities held overseas are owned by other euro area residents. Table 12 summarises the domestic and European exposures to Spanish debt securities. Note that the analysis below ignores the exposure of Financial institutions located outside the euro area.

Table 12: Spanish debt securities: domestic and rest of euro area (€bn.)

	Domestic	Rest of euro area
Government	290	200
Private	248	184

Source: RBS

The other key direct international exposure to the Spanish economy is via the equity stake that non-residents hold in Spanish institutions. As of 09 July, the market capitalisation of the IBEX 35 index amounted to €350 billion. We estimate that approximately half of the index is owned by non-residents, and of those shares held overseas, CPIS data suggest that around 43% are owned by other euro area residents.

A disproportionate share of the overseas exposure to the Spanish economy sits on the balance sheets of the European banking system (Table 13). French and German banks in particular have large exposures, through a combination of direct holdings Spanish securities in their portfolios, lending money to Spanish banks, or originating loans to Spanish households and companies. **These exposures are non-trivial from a financial stability perspective: they account for a third of banking sector capital in Germany and France.**

Spanish banks have very large domestic loan portfolios of there own: around €957bn and €906bn of corporate and household loans respectively. We assume that the €193bn of loans made by European banks to the non-bank private sector are divided between corporates and households in the same proportion.

Table 13: Banking exposures to Spain, total claims, end 2009

	France	Germany	Rest of € area	UK	US	Japan
Total Claims	**169.8**	**138.5**	**189.3**	**96.0**	**124.0**	**21.5**
o/w Public sector	32.9	22.4	15.3	6.3	3.0	9.2
o/w Banks	45.3	74.5	70.0	14.7	16.3	2.9
o/w Non-bank private sector	66.3	41.7	85.4	54.3	20.5	7.4
o/w Other (incl. derivatives, credit lines)	25.3	0	18.7	20.8	84.3	2.0
Memo: Capital and reserves	461	368	824		958	

Source: BIS

The key derivative exposure to the Spanish economy on the banking sector's balance sheet is the credit protection that has been sold on the Spanish sovereign and the big Spanish banks. According to the Depositary Trust and Clearing Corporation, around $100bn. has been written on the government, and the best part of another $100bn. on the two biggest Spanish banks (Table 14).

Table 14: CDS written on Spanish sovereign and Spanish banks

	Gross ($ bn.)	Net ($bn.)	# Contracts
Kingdom of Spain	100.8	13.5	4,274
Big banks			
Banco Santander	45.0	2.7	5,352
BBVA	36.0	2.3	4,335
Typical medium-sized banks			
Caja de Ahorros de Valencia, Castellón y Alicante	2.3	.4	309
La Caixa	1.8	.6	227

Source: DTCC

Clearly some of those contracts will have been written by banks hedging a short position in the underlying. But many of these contracts may reflect naked positions. If, as some suspect, it is European banks on the wrong side of this bet, then this is a further fragility that could be exposed by a Spanish default. We assume that of the €44bn. of derivative exposures to the Spanish economy, half are written on the Kingdom of Spain, and are triggered by the default.

Finally, Table 15 reports comparable balance sheet positions for the rest of the euro area. Note that the proportion of these assets held 'overseas' is much smaller than was the case with Spain because most of the non-resident holdings lie in another part of the currency area.

Table 15: 'Domestic' exposure to euro area securities

	Outstanding stock
Government debt securities	4,129
Private-sector debt securities	4,314
Equities	1,735
Domestic loans to households and corporates	7,766

Source: RBS

Assumptions: domestic losses and overseas contagion

We make the following four assumptions about the domestic fall-out from sovereign default:

- Investors in sovereign bonds take a 30% haircut; and as a result
- Private-sector debt securities fall in value by a similar amount, reflecting a perceived increase in the quantity of risk involved holding these assets and the compensation (price of risk) that investors demand to bear that risk;
- Spanish equity prices fall by 30%, taking stock prices below their early-09 low;
- Write-off rates on corporate and household loans rise to 14 and 7% respectively (consistent with the super stress discussed earlier).

These developments will impact on the rest of the euro area by virtue of the cross-border holdings of securities outlined above. But there is also likely to be contagion onto asset prices in the rest of the euro area. We assume that:

- Sovereign bonds in the rest of the euro area fall in value by 5%;
- Private-sector debt securities fall by 15%;
- Equity prices fall by 5%;
- Write-off rates on corporate and household loans rise to 4 and ½% respectively.

In practice, these contagion effects are likely to be unevenly distributed across the currency area. Bunds are likely to act as a safe haven in the crisis, whereas the bond market is likely to price in default in the rest of the periphery and by a similar token, the write down on private-sector securities is likely to be considerably higher in percentage terms in the periphery.

Although this note focuses on the consequences of a Spanish sovereign default for the euro area economy, it is clear that the effects will be felt further afield through the channels discussed above: a significant share of euro area securities is held outside the euro area, and there is likely to be some contagion onto global asset prices.

Calculations

Given the exposures and assumptions set out above, we can estimate the impact of a Spanish sovereign default on wealth. That is, our estimates describe balance sheet impacts – the revaluation of the assets on the private sector's balance sheet.

Table 16 sets out the losses involved in the first leg of the calculation – that is, losses incurred on Spanish exposures. Spanish residents shoulder a greater share of these costs than their European counterparts (note, what the table does not show is the c.€150bn. of losses imposed on residents outside the euro area).

The second leg of the calculation involves calculating the losses incurred in the rest of the euro area that arise from the contagion in asset prices and loan defaults (via weaker activity) – these are described in Table 17. Even given the relatively mild assumptions on contagion, the losses incurred on 'domestic' exposures still dominate those incurred on Spanish exposures (reflecting the respective size of the two exposures). Adding these two figures gives **a grand total of close to €2 trillion for the rest of the euro area as a result of a Spanish default.**

Table 16: Losses incurred on Spanish exposures
(Actual and market to market combined)

	Domestic	Rest of euro area
Debt securities	161	115
Equity	53	23
Loan exposures	197	48
CDS contracts		22
Headline Total	**411**	**208**

Source: RBS

Table 17: Losses incurred on euro area exposures

	Rest of euro zone
Debt securities	854
Equity	87
Loan exposures	169
Headline Total	**1110**

Source: RBS

Finally, there is the question of the impact of sovereign default on output. Here we rely on a recent Bank of England survey of the output loss that tends to follow these events (Table 18). The numbers are highly uncertain but we settle on the Bank's median estimate for the cumulative output loss (that is between actual and potential output) for crises that also involve a banking crisis, which seems most relevant to our circumstance. That is, **we assume a cumulative output loss of 10.8% over an eight year period in Spain.**

Events in Spain and the contagion through financial markets are likely to depress activity in the rest of the euro area. As a simple, rule of thumb we assume that the output loss in the rest of the **euro area are a tenth of those incurred in Spain: that is a median loss of around 1%.**

Table 18: Cumulative output losses *per annum, by type of crisis*

	Median duration	Median loss pa	Mean loss pa
Default only	3	-5.2	-1
Default + currency crisis	5	6.5	10.3
Default + banking crisis	8	**10.8**	13.2
Triple crisis	10	22.1	21.7
All crises	8	6.9	15.1

Source: BOE FS Paper 1

Table 19 summarises the details of the estimated actual and market to market losses that would occur should Spanish sovereign paper lose 50% of their value.

Table 19: Simulation Results

		Spain		Rest of euro area	
	Change	Exposure	Loss (€ bn)	Exposure	Loss (€ bn)
Sovereign Bonds					
Spain	-30.0%	290	-87	200	-60
Rest of € area	-5.0%			4129	-206
Private securities					
Spain	-30.0%	248	-74	184	-55
Rest of € area	-15.0%			4314	-647
Equities					
Spain	-30.0%	175	-53	75	-23
Rest of € area	-5.0%			1735	-87
CDS exposure				44	-22
Loan write offs in Spain					
Households	-14.0%	957	-134	340	-48
Corporates	-7.0%	906	-63	5	0
Loan write offs in € area					
Households	-4.0%			3729	-149
Corporates	-0.5%			4037	-20
Total estimated loss					
Spanish exposures			-411		-207
€ exposures					-1110
Total			-411		-1317
o/w Actual loss			-284		-299
o/w MTM loss			-127		-1018
Output loss					
BoE estimate, per year for 8 years			-10.8		-1

Source: RBS

Policy conclusions

The immediate policy challenge is to deliver a stress test and recapitalisation programme that satisfies the market. Clearly, the more demanding the stress test is, the larger the capital injection that will be required – and that cash will have to be available when the results of the stress test are announced.

How that stress test is funded will likely depend on the severity of the test. A relatively mild stress, which involves a relatively small capital injection, could probably be managed domestically. A more severe test would have in our view to be partially or entirely funded overseas. There is already a structure in place – the European Financial Stability Facility (EFSF) – which could be used to deliver the funds. The EFSF enjoys government guarantees which will allow it to raise funds cheaply in the market. It was put in place to support sovereigns that were under stress in the bond market, and it is not immediately obvious that its' mandate can be adjusted overnight. But given the alternative – ratifying a new structure – the EFSF still looks like the best show in town.

We believe that the authorities must implement a demanding stress test. Our own analysis suggests a figure of around Eur50bn for the total capital injection. This is a price worth paying to win back the confidence of the market. Once the banks are recapitalised, they are better placed to regain access to funding markets on their own feet, and therefore to support their existing asset portfolios and the new lending that is required to put the economy back on the road to recovery.

A comprehensive stress test is not a panacea. The underlying state of the sovereign balance sheet remains a concern in some quarters. There is a risk that the Spanish government will run into trouble funding itself in debt markets. What happens at this stage is critical. If Spain is forced to pay sky-high interest rates then its debt dynamics will take a further turn for the worse. Likewise, if Spain is forced to impose an excessively aggressive consolidation regime as a condition of accessing funds that could drive the economy further into recession, exacerbating the debt problem. This cannot be the solution. The answer has to be a no-additional-strings attached facility. We outlined how just such a scheme might work in a recent note: A Flexible Credit Line for Spain.

There is an argument that the sovereign balance sheet ceases to be a problem once the banks balance sheets are cleaned up. The banks can buy all the bonds the government issues, or so the story goes. We do not think this is a sensible strategy. If the market remains concerned about the state of the public finances then it is unlikely to retain confidence in a recapitalised banking system that is engaged in debt-financed purchases of government bonds. We would expect the market to call time on this project very quickly, leaving Spain back at square one, with all market goodwill destroyed in the process.

So our plan to solve Spain's debt overhang has two key legs: a comprehensive stress test and the introduction of a flexible credit line for the sovereign.

Appendix: Deconstructing the transmission channels of sovereign stress

First round impact of default

The immediate effect of a sovereign default is obviously a hit on the net worth of the creditors of the sovereign, or those who have written credit protection on it. Clearly, the lower proportion of government bonds and credit protection that has been written by domestic agents and institutions, the smaller the first round hit on domestic activity.

The consequences of this hit on creditors' net worth will hinge on the health of their balance sheets.

In the good case scenario, government bonds were all owned and credit protection was written by high net worth individuals or well capitalised institutions. Under these circumstances, the direct effect of default will be relatively contained. In fact, one could make the case that the implicit transfer of (future) resources from creditor to debtor might actually stimulate demand – the government is more likely to spend the resources it would otherwise have committed to debt servicing that the recipients of that money.

In the bad case scenario, the creditors of the government are low net worth individuals or leveraged institutions in which case the first round effect of default can be more severe. In these circumstances the so-called 'credit transmission channels' (discussed in more detail below) can kick in, amplifying the initial impact of the shock. In some cases, net worth will be completely wiped out, potentially triggering a catastrophic cascade of defaults.

These two scenarios seem quite abstract, but one can crudely characterise them as describing the situation at the turn of the millennium when trillions of dollars was wiped off the value of stocks without the global economy suffering a severe recession, and the situation in 2007/08 when the collapse in the value of structured credit products plunged the global economy into a sudden and severe slump. When the dot com bubble burst the losses fell upon balance sheets capable of bearing them; when the credit bubble burst they did not.

• Sunspots and confidence

A sovereign default is likely to have an immediate impact on domestic demand, through the standard 'confidence' effects. The fact that their government has defaulted on its' debts is likely to give most households and companies pause for thought: the deterioration in the outlook is likely to favour saving rather than spending. A sudden escalation in the uncertainty about the outlook is likely to further depress investments in expensive goods. Demand could slow quite dramatically on impact.

These 'upon impact' confidence effects are quite distinct from the demand-side transmission channels typically found in modern macro-models where forward-looking agents react today to an anticipated deterioration in medium-term fundamentals (I spend less today because I have revised down my expectation of the presented discounted value of my earnings in response to the default). Confidence effects are more akin to sunspot phenomena. That is, even in the unlikely circumstance that sovereign defaults don't really matter (they have no impact on fundamentals), they would still impact on demand, because people believe that they will have an impact on demand, and act accordingly.

Credit channels

Many of the transmission channels of a sovereign default are amplified through credit channels. This section of the note outlines the source of these credit channels and their macroeconomic implications in some detail.

• The supply of credit

The terms on which households and companies can get access to credit, whether from banks or capital markets, will depend in large part on their credit worthiness and the information asymmetry between potential creditor and debtor. When the creditor is at a significant informational disadvantage to the debtor around the prospects of success or failure of the 'project' the debtor is borrowing money to fund, then he or she will prefer the debtor to have sufficient 'skin in the game' – net worth of their own that they will lose in the event of default, which will encourage the debtor to act in the creditor's interests.

As net worth declines, creditors will therefore charge households and companies more (a higher external finance premium) to borrow funds to compensate them for the increased risk of default. But at some point it is no longer rational for the creditor to charge a higher price for access to credit – they are likely to only have bad risks (the desperate and the reckless) willing to borrow money at these rates. It makes more sense just to ration credit.

These credit channels can also influence and ultimately engulf financial institutions. As the crisis illustrated relatively small losses (at least as a proportion of total balance sheet size) can seriously impair and potentially wipe out highly leveraged institutions. As the threat to solvency mounted, banks found that their funding costs rose and then they began to get shut out of term funding markets. This adverse shift in the supply of funds to banks will pass across the balance sheet, influencing the terms on which even financially sound households and companies can borrow.

• Demand effects

A sharp contraction in credit conditions will depress demand. Most investments in expensive durable assets, whether by households (cars, white goods and houses) or companies (machines), will be funded at least in part by credit. If credit is more expensive and less available, spending on big ticket items will suffer.

Households also rely on credit to allow them to maintain their spending plans in the face of transitory shocks to income. Tighter credit conditions will discourage this consumption smoothing element of demand.

Holding the stance of monetary policy fixed, debtors will be making larger interest payments on their outstanding debts given a contraction in credit conditions. Creditors are receiving more money of course, but it is likely that debtors will have a higher marginal propensity to consume than creditors, so this transfer of resources will tend to depress demand.

Finally a contraction in credit conditions can also depress demand by generating an increase in precautionary savings. If households and companies are uncertain about the terms on which they will get access to credit in the future – or even worse, if they know that they will not get access to credit in the future – then they are likely to increase savings today. This serves two purposes: self insurance (reducing reliance on credit) and balance sheet repair (improving the terms on which they can access credit if they need it).

• Supply effects

The channels discussed above can explain a transitory fall in demand. Credit crunches can have a more severe and lasting impact on activity if they influence the supply side of the economy. The level and growth of potential supply could be affected through a number of channels: the pace of capital accumulation could slow if companies who fail scrap capital and if tighter credit conditions slow investment spending; any sustained increase in unemployment might lead to an increase in the equilibrium unemployment rate (loss of soft skills and search intensity); and productivity growth could slow if entrepreneurs and small companies which drive a lot of the growth in technical progress are starved of credit.

Contagion of funding costs

Perhaps the critical transmission channel in the event of default is the extent of contagion in domestic financial markets: put simply whether domestic financial and non-financial corporates – and in particular banks – will also be shut out of financial markets. In the short run it seems inconceivable that market participants will assess the risks involved in lending and investing funds in private-sector agents in isolation of the outlook for the sovereign – not least because their fates are so tightly intertwined. The question is not whether, but how large and long-lived will the contagion in financial markets be?

One might think that the central bank could intermediate funds from strong banks (if they exist) to weak banks in these circumstances; but there is no agent in the domestic economy that will be willing or able to intermediate funds within the real economy. In this section, we differentiate between the prospects for different agents in the economy.

• Banks

A sector that is likely to come under particular pressure in the event of a sovereign default in the current environment is the banking system. Many if not most banks rely heavily on the implicit or explicit guarantee provided to them by their sovereign to gain access to funding markets. And many if not most of those banks have to raise very large sums of money in wholesale funding markets on a regular basis. In the event of a default banks would probably find that the terms on which they can access funds in wholesale markets shift materially against them both because that implicit government support has been stripped away, and because the deterioration in demand would generate an increase in credit risk on their book (which as discussed earlier necessitates an increase in the external finance premium that banks have to pay, and potentially an increase in quantity rationing).

Banks are likely to move pretty rapidly to deleverage their balance sheets following a sovereign default, in anticipation of, or in response to, the intense pressures that they are likely to face in funding markets post-default. However, coordinated deleveraging across the domestic banking system could prove self-defeating: all the banks achieve is a fire-sale that depresses asset values and inflated credit losses.

In any case, banks may experience a forced expansion of their balance sheets in the aftermath of a default. Corporates are likely to call on any undrawn credit facilities. And if the default comes out of the blue then banks may face additional difficulties through warehousing risk – loans that would have been distributed off balance sheet, become stuck once markets freeze up following the default.

Of course not every bank is a net borrower in wholesale funding (by definition). One might think that those banks which have a strong retail deposit base would not suffer from a spike in funding costs (whether it matters if most of the banks suffer a wholesale run is a moot point). But this relies upon the retail deposits being sticky. A mass run on the domestic banking system is not out of the question: whether households and companies try (in vain) to get their hands on hard cash, or deposit their funds in foreign banks is unclear.

• Other financial corporations (OFCs)

The non-bank financial corporate sector covers a diverse range of institutions delivering a range of functions. None would escape the fall-out from a sovereign default entirely, but the implications would vary substantially across the sector. This sub-section focuses on two key consequences of sovereign default in distinct segments of the other financial corporations (OFC) sector.

Government bonds serve a crucial role in enabling the ample supply of credit within the financial system. The use of AAA assets in sale and repurchase agreements enabled financial institutions to leverage up, because the haircuts on these assets were essentially zero. As the crisis revealed, when those haircuts shot up (as AAA structured credit turned out not be AAA after all), the system was forced to deleverage very quickly, which exacerbated the downward pressure on asset prices. Where domestic government bonds serve an important role as collateral in repo finance, a default could have hugely damaging consequences. It is a very different way to arrive at the problem, but there are some similarities here to the warnings that Alan Greenspan made during the Clinton administration years of the potential implications for financial markets of the government paying back too much debt. Devaluing the key source of collateral within repo markets will put huge pressure on institutions reliant on leverage to shrink their balance sheets by selling assets.

For two of the largest sets of institutional investors – pension funds and life assurance companies - government bonds are niche securities. They are about as close as you can get to a risk-free long-term asset that has a similar payoff profile to the long-term liabilities these institutions hold. It is therefore to be expected that domestic pension funds and life assurance companies would hold large stocks of domestic government bonds. So a default on government bonds presents these institutions with a problem. In the first place, they have a potential solvency problem which sooner or later will require an injection of fresh funds – which illustrates how the default is a hidden tax on domestic citizens. More importantly, these institutional investors have to decide which assets to invest in once they plug that gap. It is possible, if not probable, that absent any legislative imperative these institutional investors will look for overseas government bonds and try to manage the currency risk.

A similar point applies to prudential regulation of liquidity. Post crisis, banks will be expected to operate with significantly higher liquidity buffers than they had in the boom years. And in practice this will involve banks holding stocks of government bonds which they can use to raise funds in an emergency if an existing source of funds dries up. In the event of default, banks would have to revisit their liquidity management policies and again absent any legislative imperative in all likelihood would look overseas for government bonds.

• Non-financial corporates: cost of capital through the roof

A reasonable working assumption would be that a sovereign default would lead to a re-run of the events of 2008 for non-financial corporates. Real economy companies would be virtually shut out of capital markets, unable to issue

securities at anything other than bargain basement prices. That collapse in the value of financial claims on corporates – bonds and equities – would also generate mark to market losses for financial corporations holding these securities on their balance sheet.

A complete disruption in the flow of bank and non-bank credit to companies will bring investment spending to a grinding halt. There is an additional and more pressing concern for corporates – funding their existing balance sheet, and in particular their working capital. The lack of synchronicity between income and expenditure is a fact of life for companies: credit is typically used to plug the gap. If those facilities are shut down, or become prohibitively expensive, it rapidly becomes difficult for companies to function. Some companies may sell stocks to survive. Others may be forced out of business.

Some might argue that large non-financial corporates, especially those with international operations, might be relatively immune from the stress in domestic funding markets. This claim does not sit very comfortably with the oft-repeated credit crunch claim that post-Lehmans even the most respectable blue chip company could not fund itself in financial markets. Moreover, if there are companies out there with bullet-proof balance sheets earnings bumper profits, they are going to look a pretty attractive source of revenue for a sovereign short of options. These 'super-corporates' are at risk of windfall taxes, or in the limit nationalisation: it is far from obvious that they will be immune from these problems.

• Households

Households do not have to roll a significant chunk of their balance sheets on a regular basis in the same way that companies do. They borrow money from banks via loan agreements where the terms are often fixed over an interval, and are therefore partially shielded from the stress in financial markets.

The biggest commitment most households face is servicing their mortgage, where the interest rate is fixed – either in absolute terms, or as a spread over official interest rates (which are likely to fall) rather than rates in wholesale markets – over a two to five year period.

However, there is a constant flow each period of mortgagors whose deal expires and who are looking to remortgage. And there are first-time buyers in the property market looking to borrow large sums of money to fund their initial purchase. A sharp tightening in credit conditions will pinch here – with households being offered huge spreads over official interest rates for much lower LTVs and LTIs than were previously on offer, if they can get a deal at all. Property prices will fall, simultaneously wiping out equity in the household sector and increasing the potential for large losses on banks' balance sheets.

The implications for default rates on mortgage debt will depend on three key factors: the macroeconomic outlook, which will determine mortgagors' ability to pay their debts; the outlook for property prices, i.e., what mortgagors think their house will be worth in the future, even if it is not worth so much today; and the legislative environment. The outlook for the macroeconomy and property prices is going to be pretty grim in the event of a sovereign default: many mortgagors may be struggling to service debts on an asset that is likely to be worth less the amount of debt secured upon it. In the United States, where mortgage lending is non-recourse in many states, once the individual posts the keys back to the lender then negative equity is the banks' problem. In contrast, UK mortgages are recourse loans: the lender can pursue the mortgagor for any monies it cannot recover from the sale of the property, which helps to explain why

mortgage arrears and defaults have remained relatively contained in the United Kingdom in the current crisis, but have surged in the United States. Differences in the legal basis on which loans are made can therefore have a meaningful impact on the dynamics of arrears in a financial crisis.

Of course, households also hold significant amounts of unsecured debt, in a number of different forms: credit card, store care, personal loans and so on. The potential for the lender to reset the price of the loan in the event of a change in events varies – for example, the rates on personal loans tend to be fixed in advance, whilst credit card rates can change in response to a perceived change in the risk that the debtor will default. What is certainty true is that the quoted rates on all new business will respond to a sovereign default – those needing credit to keep their heads above water (those for example who have lost their jobs) are unlikely to receive it.

• It is the state of the balance sheet that kills you….

The key message that emerges from this discussion of domestic contagion is that the vulnerability of the domestic economy stems from its' balance sheet position. The more geared private-sector balance sheets are, the more exposed they are. The greater the direct and indirect reliance on wholesale financial markets in which foreign investors are active, the more vulnerable the system is.

Clearly, the higher the frequency with which domestic agents have to come to financial markets to fund their balance sheets, the faster the stress propagates through the real economy. Sooner or later, debts will be rolled over, but it would be far more preferable if domestic agents did not have to raise funds in financial markets in the immediate aftermath of the sovereign default, when credit spreads are likely to be at their peak. The maturity of debt – or more precisely the lack thereof – is therefore a key indicator of the vulnerability of an agent, sector and economy to a sovereign default.

It is not just the maturity of debt that matters. The maturity mismatch that an agent, sector or economy runs is also key. If economic agents hold liquid assets on their balance sheets which they can sell to service or retire debts then they can manage the worst of the fall-out; but if there is a coordinated sale of the same asset classes, that could trigger a fire-sale, and the defensive action proves self defeating. If an agent, a sector or an economy is running a large maturity mismatch then there is much bigger problem in the event of a liquidity crisis.

• Where is the circuit breaker?

In the crisis of 2008/09 sovereigns were able to intervene to break the destabilising feedback loop between asset prices, credit flows and activity. Governments intervened in financial markets: guaranteeing bank debt and recapitalising balance sheets; and they were able to borrow large sums of money to support domestic demand.

In a post default world there will not be a single domestic balance sheet capable of repeating that trick to break the downward spiral. There are plenty of high net worth individuals and institutions who might have the funds at the disposal but they lack the means, and in all probability the incentives, to coordinate a private-sector rescue plan. An economy in depression may be forced to go cold turkey: surviving a deep depression without the monetary and fiscal stabilisers in play.

In normal times the stock of nominal wealth in the economy would also act as a stabilising force in the event of deflation: the real purchasing power of wealth

increases to the point at which high net worth individuals will bring forward consumption and drive the recovery in demand. But in a world of collapsing asset prices the so-called Pigou effect will not come to the rescue.

As we shall go on to discuss, a country which has maintained control of its currency might be able to escape this trap through a currency crisis. Rising import prices push inflation back into positive territory and increased competitiveness supports export-led growth. Those within a currency union must rely on an adjustment in sticky consumer prices (rather than a flexible nominal exchange rate) to deliver the necessary real exchange rate adjustment.

In the worst case scenario the initial default by the government triggers a liquidity crisis throughout much if not all of the domestic economy, a run on the banks and a complete collapse in credit supply and asset prices. Activity tumbles and a debt deflation takes hold. The end game is a mass debt workout.

The response of policymakers

A key player in a sovereign default crisis is the government itself. The way that the government manages the fall out will have a key role in determining the transition path out of the crisis.

• Short run funding pressures for the sovereign

Governments perennially rely on financial markets to finance any shortfall between income and expenditure. Once it defaults, the government has a problem: this avenue may be closed to them.

A government that defaults on its' debts will have been running large deficits at some point in the recent past. Whether the primary budget is in deficit or surplus at the moment of default is less clear cut. It could be that the government has managed to achieve a primary surplus but has decided it is unwilling or unable to run the primary surpluses necessary to service and ultimately pay down its' debts.

Even if the government was in surplus at the moment of default, it is likely that the collapse in demand that would probably follow a default would push the public finances into deficit. So one way or another, the government has a problem: it has to borrow money but institutional investors won't lend them money at any price.

If the government cannot raise significant sums of money in financial markets then it has two choices. Put simply it has to drive its primary budget into surplus, so tax receipts must rise or expenditure must fall and quickly and by a lot. One assumes that a government which has reached the point where it believed default was preferable to running large primary surpluses would have already exhausted most of the low hanging fruit of fiscal consolidation: cuts in transfer payments and so on. At this point the government may consider some less benign strategies – wholesale windfall taxes, nationalisation, inflation taxes and the like. These might seem attractive in the short run, but they would likely be hugely damaging for investment and long-run growth prospects. What is clear is that the economy might have to survive a recession without the standard fiscal stabilisers in play.

A final question worth posing here is whether a government that had defaulted would be completely shut out of financial markets. It is a reasonable to assume that international investors could and would look elsewhere for securities in which to invest. But it is conceivable that domestic investors might still purchase

domestic government bonds: they might still be perceived as less risky than domestic equities or domestic corporate bonds in the event of contagion.

• Long run credibility: a constraint on expediency?

The key objective of the sovereign is to regain access to financial markets. In order to achieve this, the government may need or want to put in place new institutional arrangements which constrain future discretion over fiscal policy. But it is also likely that some of the actions discussed above which the government might perceive as a viable means of raising revenue could impair that process of rebuilding confidence. Concerns around long-run credibility issues could therefore act as a brake on short-run expediency.

• Independent monetary policy to the rescue?

A sovereign default ranks quite high on the list of potential shocks that can destabilise an economy. If an economy has retained its currency then one should expect the central bank to throw everything it has at mitigating the impact of the default. However, there is an open question about how much the central bank can do. Whether monetary policy could completely offset the impact of the default on yields, particularly given the lower bound on nominal interest rates is a moot point. In practice, the central bank is likely to be engaged in a fire-fighting operation to prevent debt deflation as credit dries up and demand collapses.

For those who chose to retain it, the nominal exchange rate can act as a safety valve. We would expect the probability of a currency crisis to move in lockstep with the perceived risk of sovereign default, from possibility to reality. Investors are likely to run for the exit door and drive the currency down in the process. But at some point, the exchange rate will fall far enough that foreign investors may be willing to purchase domestic assets and take the risks involved, because they expect to be compensated by an (enormous) appreciation of the currency. Essentially this as sovereign default induced UIP jump down to reach the glide path which compensates the investor for the risk-adjusted return differential with other currencies. How far the currency has to jump down to reach that glide path is a moot point.

Moreover, a large depreciation is perhaps the one sure-fire way to avoid deflation setting in. Import prices keep inflation in positive territory and the economy may be able to benefit from export-led growth. There is no free lunch: consumers take a massive hit on real disposable income, leading to yet more financial distress in the economy.

Of course, if existing private-sector debts are denominated in foreign currency then the blessing of a flexible nominal exchange rate becomes a curse. The 'jump revaluation' almost certainly triggers a cascade of defaults in the private sector, with the sovereign unable to provide a backstop guarantee.

The response of financial markets

In the immediate aftermath of a default we would expect the sovereign and nearly all domestic agents to be shut out of international capital markets. One factor which will shape the final (cumulative) cost of the default is the length of time it takes before the sovereign is able to borrow again in the market, and at what price. This section focuses on three key sets of investors in financial markets.

• Domestic investors: captive market or capital flight?

In a world in which the government has defaulted on its debt obligations and the economy is sliding into a severe recession one might expect precautionary savings to increase. In a world where the economy is shut off from foreign funds, the relative price of consumption today and tomorrow – the real interest rate – is going to hinge on how much desired savings increases, and where those savings go.

With domestic financial institutions in serious peril there is a question about where domestic investors will park their funds. It is possible that some banks might be seen as so bullet proof that they take on a safe haven status, and that bank is able to attract and retain deposits (and then parks them at the central bank for safe keeping). However, it is more likely that domestic agents will send their money abroad – to keep it safe from a capricious sovereign and the elevated risk of default in the domestic economy. The question then is whether the government attempts to impose capital controls to stem the tide.

• Foreign banks

A key consideration is the behaviour of foreign banks. Foreign banks will not necessarily suffer the same spike in funding costs as domestic banks (although they may: it depends on the state of their sovereign's balance sheet and their exposure to the domestic downturn – see later). As a result, they may be well positioned to step into the void left by domestic banks and earn healthy net interest margin by lending at rates below what the domestic banks can afford given their higher funding costs.

Just because foreign banks can lend to domestic agents it does not mean that they will. These banks will appreciate the implicit increase in credit risk in the domestic economy given the collapse in demand and asset prices (which necessitates higher retail lending rates) and they will be conscious in particular of the probability of a cascade of mass defaults. In a crisis environment, the upside of an additional slug of net interest margin may not be sufficient to compensate them for the risk of mass default. Foreign banks may opt for the exit door rather than risk precious capital by stepping up lending in a foreign market.

• Foreign investors

Beyond the global banking system there is a diverse range of potential investors in securities issued by public and private sector institutions with different objectives and information sets. Generically speaking, these investors are likely to be driven by both local and global factors.

Two local factors will prove key in determining the speed with which the sovereign is able to regain the trust of the bond markets: economics and politics. If the macroeconomic outlook starts to improve – which encompasses the state of private-sector balance sheets as well as conventional measures like demand and asset prices – then that will reduce the expectation that the sovereign will default on any new issuance in the near future. And if the government puts in place credible institutional structures which constrain the room to manoeuvre of future governments fiscal policy that command widespread political support that will help to reduce expectations of default over longer horizons.

The supply of investors willing to purchase the bonds of a government that has recently defaulted will depend on global as well as local factors. In an environment in which risk appetite is low, and in particular sovereign risk remains paramount in investors' minds, it will be difficult for a country with a bad track record to win the market's trust. But everything is relative: if the country is demonstrably in better shape than its peers then it may be able to win support.

Exporting domestic trouble and strife

A sovereign default can lead to problems overseas for three key reasons: exposure to default; loss of export markets; and contagion of panic.

Some government bonds will be held overseas, so some of the first-round effect of default will be felt overseas too. The global economy will also be partially exposed to any of the private-sector defaults that follow the sovereign default. Those credit events will wipe out net worth overseas, and if they land on the wrong balance sheet, they may be amplified through the credit channels. The exposure of the interconnected global banking system to the sovereign will be critical (see below).

A sovereign default will lead to a collapse in domestic demand and, where possible, a sharp depreciation in the currency. As a result, demand for overseas output is likely to collapse. Conversely, domestic output may become a lot cheaper in global markets (if exporters don't price to market). So a sovereign default will beggar its neighbours through the net trade channel.

The final, and most important, contagion channel works through financial markets via three channels.

First, those sovereigns whose public finances look similar to the government that defaulted are likely to come under intense pressure now that fears of default have been validated. Default is likely to be priced into yields. The terms on which the sovereign defaulted - the size of the haircut – will be critical in determining exactly how bad the contagion is through this channel. Where countries have maintained flexible exchange rate regimes, it can act as a (partial) release valve on some of the pressure. Of course, some countries will be perceived as safe havens in the storm: a select few may enjoy a dramatic fall in yields.

Second, there is likely to a broad based fall in the price of risky assets. Risk appetite is likely to fall, and for those countries with weak sovereigns, there is likely to be a further lurch down in asset prices, reflecting an increase in the perceived quantity of risk. Again, events in the source country are likely to dictate terms here: if sovereign default triggers a deep recession and a surge in private-sector defaults, it is likely that the market would price in similar woes abroad.

Third, foreign banks will inevitably take a hit on capital as a result of the sovereign default. That is likely to trigger some form of contraction in credit conditions as those foreign banks attempt to repair their balance sheets. Market fears around the extent of potential losses on the balance sheet of the global banking system in the event of a cascade of sovereign defaults are likely to intensify that pressure to rein in lending because banks' funding costs are likely to creep, and in some cases leap, up in wholesale markets – again with particular banks in particular countries likely to be particularly affected. To top it all off, banks in the source country are also likely to pull back on their global operations. That contraction in credit conditions is then likely to feed through into the domestic economy.