Retesting the Stress Tests

Since publishing the IPD Solvency II Review in April – at which point several European markets had yet to deliver 2010 results – IPD have been able to update several of the key analyses as well as address some of the questions that have subsequently been raised in discussions of the report.

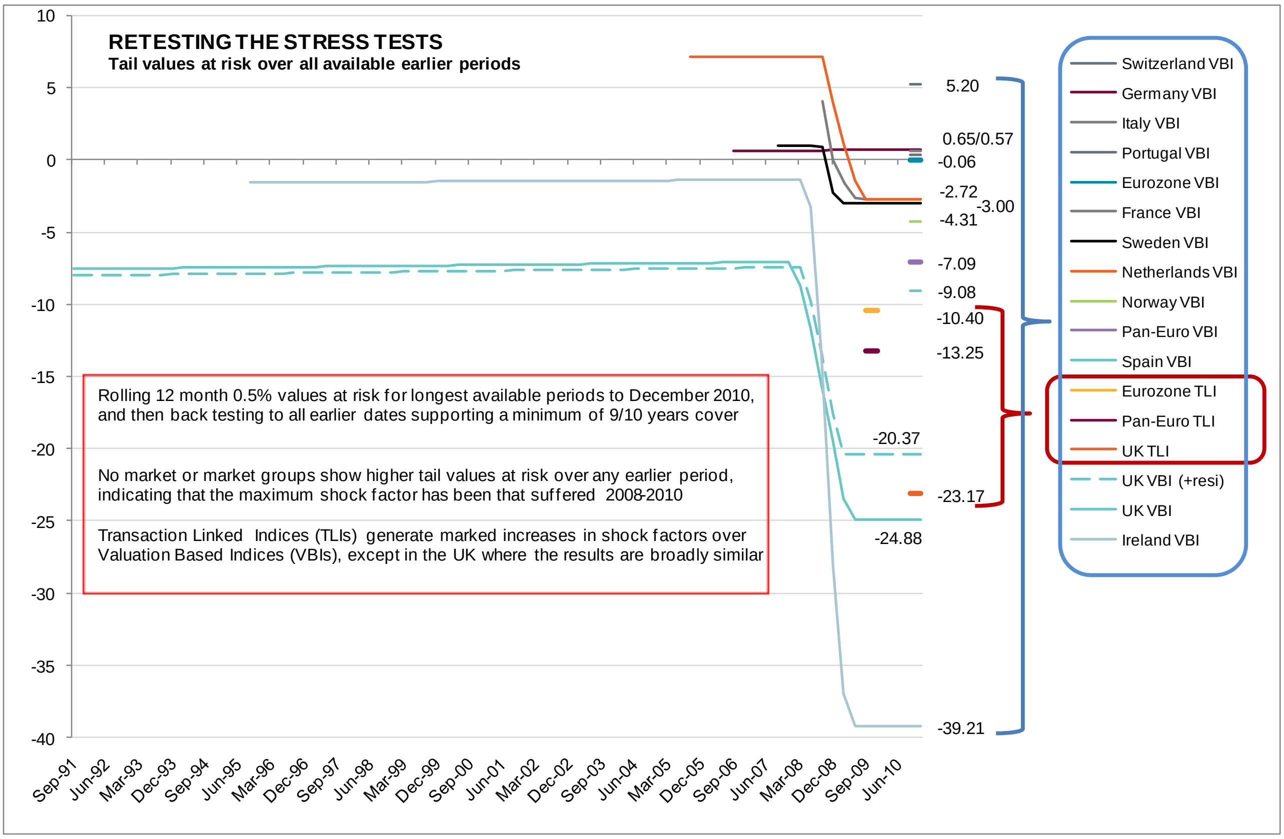
It will probably be most helpful if we cover these updates in the context of three of the main issues that have been raised with us over the past three months. These relate to:

a) the results of "stress testing" the shock factors themselves over longer periods than the 10 year timeframe predominantly adopted in the original report;

b) further detail on the integration of residential investment returns into the UK series at weights typical of European market exposure to this sector;

c) an extended search for evidence of required shock factors for commercial property in excess of 25% and residential property in excess of 20%, over much longer periods.

The graph below shows the full range of IPD based 0.5% tail values at risk (VARs), based upon rolling 12 month returns over the longest periods available, now mostly through to December 2010. For analyses using Transaction Linked Indices (TLIs), it has not yet been possible to update the Euro-zone and Pan-European results beyond December 2009, and longer than 9/10 year periods are not available for any market using the data demanding transaction linked methods.



This limitation is also true of several of the Valuation Based Index (VBIs) series – the Swiss, Italian, Portuguese, Norwegian and Spanish markets cannot be tracked back before the beginning of the last decade. However the UK, Irish and to more modest extents German, French, Swedish and Dutch markets offered the possibility of analysing a significant number of no less than 10 year periods predating the 2008-2010 collapse and partial recovery. These VARs are indicated by each of the curves on the graph, with each point on each curve denoting the .5% tail VAR to that date.

Rolling Back the Stress Tests

This limited number of longer period analyses shows a broad spectrum of maximum shock factors, but all share one common theme. In no case is there an earlier period, stretching back in the UK and Irish cases to fully include the market falls of the early 90s, which implies a greater shock factor than that derived from the tail VARs of the 2008 through 2010 period.

More extensive and less frequent data, but just for the UK, confirms this finding back through the oil price crisis of the mid-70s. Once again a maximum shock factor of less than 21% would have covered at least the worst calendar year record, with 16% covering the scale of the 1974 fall.

Unfortunately (as noted above), it is not possible to stretch the TLI scores back over earlier periods. However the 9/10 year spot results from research to date indicate a consistent tendency for transaction linking to increase the recorded volatility over and above that measured from the equivalent valuation based series. This is the case in all but the most liquid market – the UK – where the transaction linked and valuation based series, whilst delivering modestly different volatilities, still produced almost identical extreme VARs. More work is required, but a reasonable working hypothesis would be that the much higher levels of both liquidity and transparency over very many years in the UK have brought the two series closely into line.

Adding Residential Returns to the UK Series

The original report included a section showing the impact of adding UK residential investment returns to the main commercial index, but at average European weights - in the 10 to 15% range. The argument for so doing was that if the highly volatile UK market was to be used as the Solvency benchmark for the whole of Europe, then the diversification benefits of holding residential assets to a typical European extent (10%+ rather than the 1% consistently recorded in the UK) should be explored.

Updating this analysis to December 2010 and rolling it back over earlier periods shows that, whilst the diversification benefits have not been demonstrated in stable market conditions, the semi-independence of the macroeconomic drivers of the housing as compared with the commercial property markets, would have had a significant damage limitation impact in the toughest post-2007 period, taking the 0.5% tail VAR from -25% down to -20%. This is denoted by the dashed blue line on the above chart.

Above 25% Shock Factors over Longer Periods?

The chart also demonstrates, at the extreme right hand edge, the range of IPD measured 0.5% tail VARs for whatever mix of property types were held in national European markets as at December 2010. The results are all based on quarterly analyses over a minimum of

9/10 years. Though sector results are not shown, the results described in the original report – which showed that across Europe residential investment consistently diversified some of the risk of commercial property investment, but only by small margins – still holds true.

For the predominantly commercial markets, only that of Ireland has ever demonstrated a tail VAR in excess of 25%. However this market represents less than 1% of the estimated total value of the mature investment markets in Europe, and a group of markets (Switzerland, Germany, Italy and Portugal) whose total value represents around one third of this estimated European total each displayed no evidence of negative tail risk over the past 9/10 years.

The question has been raised – for both residential and commercial markets – of what might be learned from analyses over radically longer periods. Unfortunately no significantly longer price/return data series of any sort could be identified across mainland Europe.

The only "three generation" property price series found to date have each been created by splicing from different research sources. The two identified to date are a 120 year house price index and a commercial property return series back to 1921. Unfortunately the first is not relevant to this debate since it is restricted to the USA (compiled by Shiller (2005, 2009)). For the record, when extended to December 2010, this series exhibits a 0.5% tail VAR of -17.5%.

More relevantly, the 90 year commercial property series for the UK investment market (created by Scott (1996) and extended to December 2010 using consistent IPD numbers), produces a 0.5% tail VAR of only -19.6%. The sub 20% result occurs because of the necessity of fixing exclusively to calendar years in order to match the Scott pre-1970 data.

Conclusions

No doubt many more questions will arise as the debate over Solvency II progresses towards implementation. IPD is still working upon the important transactions linked analyses, to compliment the industry standard valuation based indices and benchmarks, and more risk analytics will flow from this work over the coming months.

To date, however, the updating which we have been able to do, coupled with the extra searches for alternative data series, has served only to re-confirm the conclusions of the original report – namely that the proposal to apply a 25% capital adequacy requirement for real estate investments could prudently be reduced to no higher than 15%, if driven off the fullest possible and most up-to-date pan-European performance record.

References

Peter Scott 'The Property Masters', E & FN Spon, 1996

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