

Current Issues in General Insurance Conference 2008

“Implications of Sub-Prime for Non-Life insurance”

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The lessons arising for the banking and finance industry from the events of the sub-prime crisis and wider resulting credit crunch can be used to give analogous lessons for non-life insurers, especially as we enter into what could be a very challenging period: a soft and softening insurance pricing market combined with the worst possible economic conditions of stagflation (with high inflation in fuel and food prices combined with slow economic growth due to a slump in asset pricing).

These lessons can be divided into two main areas:

- Traditional wisdom which experienced insurance industry practitioners have already learnt to their cost through past soft markets, but which many non-life actuaries (particularly those entering their first soft market) would do well to absorb
- Potential implications for insurers and actuaries as we enter the “brave new worlds” of ICAS, Solvency II, Enterprise Risk Management. In many ways we are following in the pioneering risk management footsteps of the banking industry and it would be useful to attempt to learn from their mistakes.

Some of the lessons of sub-prime are taken from an influential March 2008 paper “Observations on Risk Management Practices during the Recent Market Turbulence” produced for the Financial Stability Forum of the Bank for International Settlements by the Senior Supervisors Group (consisting of the French Banking Commission, German Federal Financial Supervisory Authority, Swiss Federal Banking Commission, UK Financial Services Authority (FSA) and US: Board of Governors of the Federal Reserve System; Federal Reserve Bank of New York; Office of the Comptroller of the Currency & Securities and Exchange Commission (SEC)).

Comments from this paper are shown in “” and marked [SSG].

Non-life applications are **shown in bold**.

Finally some of the issues in the sub-prime crisis raise questions about the direction of insurance solvency and accounting regimes.

Traditional soft-market wisdom

- The development of financial instruments such as mortgage backed securities, credit default swaps and collateralised debt obligations as well as combinations and derivatives of these led to basic credit risk being packaged in a complex series of risks.

This in turn leads to the possibility that rather than achieving the initial aim of financial innovation – to spread risk and transfer it to those best able to manage it, that instead risk is concentrated on those least able to understand it.

The analogy with the London Market Excess of Loss (LMX) Spiral is clear and has been drawn by a number of commentators.

- In the securitisation of sub-prime there was a fundamental misalignment of interest between the three main parties involved: borrower; originating bank; investor in mortgage backed security (which are analogous to the insured, agent and insurer).

The provision of 100% loans lead to moral hazard as in times of economic difficulty alongside falling property prices the borrower had an incentive to simply return the keys (so called “jingle-mail”) while the lender having securitised 100% of their exposure had no reason to modify their lending policies to prevent this happening.

It is key for non-life insurers, especially in a soft market, to ensure their own interests are aligned both with insureds (e.g. via self-insured retentions both horizontally and vertically and by seeking to mitigate any risk of moral hazard) and with agents (e.g. via profit commissions rather than volume-adjusted commissions).

The behaviour of investors in allowing other banks to underwrite loans on their behalf would be seen by insurers as “giving the pen away”.

- “Firms that experienced material unexpected losses in relevant business lines typically appeared to have been under pressure over the short term either to expand business aggressively or to defend a market leadership position”. [SSG]

In a soft insurance market, rapid expansion, moving into new lines of business or following (or evening leading) a market down so as to avoid losing market share are the riskiest of all behaviours.

- “Firms also noted that mortgage underwriting standards had deteriorated. An increasing portion of mortgages was being underwritten without verifying the borrower's source of income for repayment ('stated income' loans); in addition mortgages were often underwritten based upon initial "teaser" rates rather than a rate consistent with bearing the obligation to maturity. Undeclared and undocumented second liens also served to increase borrower's payments relative to their income and decreased borrower's equity positions in the home.” [SSG]

The importance of monitoring terms and condition weakening in a soft market is high.

- “Some firms found that they could not syndicate their holdings of leveraged loans because of reduced investor appetite for those assets and they could not cancel their commitments to fund these loans” [SSG].

A key risk for many companies was liquidity risk, particularly a mismatch between using short term assets to fund longer term liabilities which gave them difficulties when the credit crunch withdrew the sources of short term funding.

One potential analogous risk for insurers in a soft market, particularly in a reinsurance squeeze (which occurs when, as is typical, the reinsurance market hardens before the direct market) is buying losses occurring reinsurance while writing multi-year risks.

- “Firms cited the usefulness of revisiting simple notional limits to highlight potential concentrations of risk. These measures are devoid of assumptions and give management a simpler perspective on the potential scale of the risks” [SSG].

In a market now dominated by use of catastrophe models and management of exposure via 1 in 100 year or 1 in 250 year Probable Maximum Loss (PML); non-life insurers should not lose sight of also being aware of their Maximum Foreseeable Loss (MFL) or even better their total aggregate exposures. In addition such assessments should be carried out on a gross basis not just a net basis (see below).

- “In a period of quickly shifting market developments, the timely provision of accurate information to senior management was critical to a firm’s ability to respond rapidly” [SSG].

One of the issues in past soft markets was the time it took before companies realised the difficulties they were in, particularly on long tailed business where a number of years business may have been written at ever decreasing rates before an earlier year started to deteriorate. In the forthcoming soft market actuaries will have a key role to play in providing quick management information in areas such as: actual versus expected claims experience; claims frequency and severity trends; rate monitoring; new business volumes and relative rate adequacy.

- “An issue for a number of firms is whether compensation and other incentives have been sufficiently well designed to achieve an appropriate balance between risk appetite and risk controls, between short-run and longer-run performance and between individual or local business unit goals and firm-wide objectives” [SSG].

This can be a challenge also for non-life insurers where many lines are: either catastrophe exposed, so that distinguishing good underwriting performance and risk management from luck can be difficult; or long-tailed, so that true performance is not known for a number of years before ultimate results are known.

The appropriate use of well designed internal reinsurance can prevent conflicts between local business goals and corporate aims such as the over purchase of low security external reinsurance to protect individual accounts.

Future Risk management issues

- “Some firms relied too passively on external views of credit risk from rating agencies and pricing services to determine values of their exposures” [SSG].

In their “Financial Risk Outlook 2006” the FSA commented “in the aftermath of Hurricanes Katrina, Rita and Wilma in Autumn 2005, it became apparent that some firms may rely too much on the output of their catastrophe models without proper consideration of the inputs”.

The 2006 GIRO Catastrophe Modelling Working Party paper was prepared explicitly to enable actuaries to deal with some of these concerns and assist them in seeing catastrophe models as a developing tool and not, in themselves, the answer.

- “Because these and other innovative products had been created during the prior period of more benign market conditions, banks and security firms had not observed how such products would behave during a significant market downturn” [SSG].

This has two implications for non-life insurers. The clearest analogy is: How reliable are ICAS models for new lines of business, especially ones an insurer has only written only in a hard market? More generally, most insurers now base their planned loss ratios off prior years’ reserved loss ratios over say the last five years, adjusted for a constant claims inflation and for rating changes – but given the last five years have seen very benign claims conditions across many classes and that the next 2-3 years may see (as described above) very adverse economic conditions, are insurers factoring this into their loss picks?

- “Managers at better performing firms ... balanced the use of quantitative rigour with qualitative analysis”. “Firms that experienced more significant problems ... tended to apply a ‘mechanical’ risk management approach, accepting the estimates of their primary risk systems without challenges based on other tools and expert judgement”. “[The] dependence on historical data makes it unlikely that a VAR-based measure could ever capture severe market shocks that exceed recent or historical experience, highlighting the importance of supplementing VaR with other measures”. [SSG].

Many non-life insurers’ capital assessments could be seen as the use of two black-box models – an ICA model which is in turn heavily dependent on the output of catastrophe models. Actuaries need to subject ICA models to challenge by other disciplines in the company (such as underwriters), carry out scenario tests and consider the possibility of Black Swans.

- “Among the risks that were missed or misestimated was ... correlation risk”. “Firms that avoided significant losses have additional risk measures that reflect differences in assumed levels of correlations between market variables in benign versus stressed market conditions” [SSG]

Many companies were caught out by correlations between supposedly low correlation areas and asset types e.g. at the most basic level the rating of many sub-prime tranches assumed a degree of geographic diversification in US house prices as well as by the extent which a general financial market contagion spread across classes.

In building ICA models actuaries need to consider carefully correlations between supposedly uncorrelated classes and between assets and liabilities as well as the extent to which financial contagion can affect liabilities (for example lines such as E&O and D&O as well as leading to an increase in fraudulent claims).

Actuaries need to stress test their correlation assumptions and to consider the possibility of needing to use copulas to describe the possibility of correlations between classes (as well as with assets) being much higher in the tail of the claims distribution.

- “Firms cited difficulties that arose from their dependency on net measures of risk or measures of risk that rely on certain assumptions about correlation, market liquidity and other factors that may not be true in a given event”. “The available credit index instruments introduced significant basis risk. This basis risk - that is, the risk inherent in the imperfect correlation between the underlying cash position and the hedge instrument weakened the effectiveness of the hedging strategy.” [SSG]

Banks assumed that their hedging strategies would work perfectly and concentrated on net rather than gross exposures when assessing their trading position.

Insurers need to be careful of considering basis risk on reinsurance when assessing their exposures particularly in the tail and including the risk of reinsurers themselves being in financial difficulty in the extreme events and therefore unable or unwilling to pay.

Questions for Future Accounting/Solvency Regime Issues

- The requirement to “mark to market” caused market players to take action which only in turn exacerbated the crisis. What are the implications for the market-based approach to both assets and liabilities that insurance accounting is taking under IFRS?
- Does the sub-prime crisis raise questions over the idea of allowing banks (and under Solvency II) insurers to set their capital based on their own internal models rather than a more prescriptive approach?
- A number of commentators and regulators are considering the extent to which capital and solvency regimes can be adjusted to be countercyclical rather than pro-cyclical for example having to raise more capital when loan growth rises. Can Solvency II be similarly adapted to help dampen the insurance cycle (in contrast to capital measures based on premiums which simply deepened it by reducing capital requirements in a soft market)?

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