

Bubbles, Cycles and Insurers' ERM – What Just Happened?

by Paul Kneuer

Interest rates rose from 2004 through 2007, so adjustable mortgage rates increased and many borrowers fell behind. After home prices topped out in 2006, speculators and some buyers who had overstretched found it impossible to refinance. This caused mortgage insurance claims.

Collateralized debt obligations (CDOs) rapidly lost value. Under mark-to-market accounting, many insurers must immediately reflect the lower values. Some CDOs were backed by guaranty insurers, who took large losses as prices fell. Others were backed by credit default swaps.

CDO pools had not been recorded on the balance sheets of the sponsoring banks, as they thought the credit risk had been passed to others. However, the banks often retained liquidity commitments, and when these were drawn down, they were required to consolidate the CDOs onto their balance sheets. This increased their assets and reported leverage, and further stressed their capital levels. Higher leverage contributed to a fatal bank run at Bear Stearns on March 17. FNMA (Fannie Mae) and FHLMC (Freddie Mac) were chartered by Congress to deepen the market in residential mortgages. They also acted as hedge funds with large positions in CDOs, which wiped out their capital bases. They were put under federal conservatorship on September 7. Many insurers held significant positions and took large capital losses.

By the third quarter, credit problems were seen as affecting all major banks and many insurers, especially ones who sold annuities with guaranteed benefits. No institution trusted another's balance sheet, and so bank investments became increasingly expensive. This made it impossible to survive other bank runs and caused the failure or forced sales of Lehman Brothers (September 15), Washington Mutual (September 26), Fortis (September 28), Wachovia (September 29) and many others. These failures cost commercial paper investors large losses, and dried up that market and the money market funds, which invested heavily in it. Insurers have large exposure to Lehman and Fannie Mae in

particular, but also to other failed firms. Falling stock and bond prices also caused insurers unrealized capital losses.

At the same time, Lehman's and others' failures and falling prices for CDOs caused losses on credit default swaps. The losses and collateral calls impaired AIG's capital, leaving them little time or flexibility to raise more, and requiring federal help.

The write-downs at U.S. public companies are now approximately \$1 trillion. In context:

- \$1 trillion is the worldwide annual P&C insurance premium, or the reinsurance industry's total assets.
- \$1 trillion averages to about a month's income per U.S. worker. This is equivalent to each of us delaying retirement by a month or two.
- The 1990 S&L crisis cost over \$150 billion and represented 3 percent of GDP. In today's \$14 trillion economy, \$1 trillion is relatively bigger, at about 7 percent. A \$600 billion problem in mortgages alone would be comparable to the S&L's and is about 4 percent. 1990 followed the 1987 crash, Latin debt problems of the '80s and two oil shocks. We are better prepared now than we were then.

What Have We Learned?

Insurers may want to study others' missteps. A common observation is that institutions are moving toward a "supermarket" approach. Bear Stearns, Lehman and Merrill Lynch didn't have both commercial and investment banking, while Citigroup did and survived; Bank of America was the rescuer of Merrill; and Goldman Sachs and Morgan Stanley reorganized as commercial banks. The common observation may be wrong.

Diversification is a strength in times of stress, but another lesson is that commercial banks and insurers are more tightly regulated than investment banks. The insurers who had direct losses (AIG, Swiss Re and XL) sustained them in operations they saw as diversifications. Their core

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businesses kept strength and value. While successful diversification reduces risk by reducing correlation, it is hard to know what areas are correlated when. In times of great stress, new correlations appear. Diversification brings in new operational and execution risks. Vertical integration isn't diversification.

The banks that failed tended to have higher leverage ratios, and thus, less flexibility. While banks have higher leverage than insurers (as high as 30- or 40-to-1, measured as assets to equity), leverage still matters for P&C insurers. AIG was over 13-to-1 in January; 5-to-1 is a more typical ratio. Insurers also take leveraged positions on the amount of coverage they provide. Line limits and aggregate accumulations are two ways to look at this. Investment banks had CDO positions that were multiples of their capital. AIG did the same with credit swaps (\$450 billion in limits on \$70 billion of capital, over 6x). Leverage (in assets or premiums) can quickly turn from a financial advantage to a survival threat, even if it has been built up gradually. Objective measures of leverage are at least as important as stochastic estimates of impairments.

Small premiums can bring big risks. Insurers need to see and understand the potential downside on all of the risks that they take, even in small operations. AIG never had as much as 1 percent of its revenue from swaps, yet it cost them their company.

Bubbles and ERM

We just saw classic, but particularly severe, bubbles in home prices and debt securities. During a bubble, the buyers, sellers, investors and lenders of an asset class all develop an elevated view of values, based on observing each others' actions. Other recent bubbles involved technology stocks in the 1990s and commercial real estate in the 1980s. The debts of several emerging markets and various commodities (most recently oil) have also had bubbles, as have had several insurance products. In insurance, however, the costs and risks are born by sellers not buyers, so bubbles are seen

as falling prices, not rising. Bubbles are a concern to any trading firm, including banks and insurers, and a particular challenge to ERM.

The key attributes of ERM are that firms should:

- Identify risks in all areas at once,
- Consider how risks can affect more than one area,
- Use consistent measures so that different risks and different operations can be compared and
- Use these measures in decision making.

Bubbles end much faster than they inflate, after a trading break directs the market's attention away from trends and back to fundamental value, which changes much less than prices. ERM innovations did not manage this bubble well. Price and volatility data before and during a bubble do not reflect levels after the "pop," so economic capital models are inaccurate. Mark-to-market rules accelerate bubbles on the way up. The Basel and Solvency II standards rely too much on firms' internal assessments.

But inflated views of values are widely held, so external assessments are no better. Rating agencies and modelers are diligent and objective, but they are also susceptible to bubbles. CDOs were highly rated before their collapse. Ratings and models evolve as their authors learn from events, so they do not mean the same things at different dates.

Cycle Management

The insurance market has similar cycles driven by delays in recognizing results. Cycles cause a bias in how individual insurers, their reinsurers and the market measure their costs, exposures and risk.

An economic capital model for insurance risks should include the potential phase of the underwriting cycle (that is, its level). The phase of the cycle can only be known after it turns, so the phase is unknown, just like trends, renewal retentions and catastrophes. The charge for cycle risk will be the derivative of a risk measure with respect to the unknown

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phase variable. (It will be sinusoidal because a function with $f' = -f$ is in the sine family.) The charge reflects:

- Amplitude of the bias that is expected for a product (bigger bias = more risk),
- Time since the last trough (longer = more risk) and
- Perceived height of the current cycle (the better you think things are, the worse they can really be.).

In a simpler approach, without capital modeling, insurers should use line or position limits to control leverage, grow less than simulated risk models suggest is prudent, expect good results to “slip” back and manage their gross underwriting performance, as well as the net.

Regulatory and Accounting Challenges

With commitments now of \$150 billion to AIG, the outgoing administration, many legislators and some trade groups have called for federal regulation of insurance and derivatives. We expect increased regulation and solvency oversight from all aspects of government.

In a time of distress, price information is limited. As a result, when a firm sells an underperforming asset, that single point has an immediate effect on others' statements.

In derivative products, that fall can be magnified many times over, even though a rational buyer might look through to the underlying mortgage and see a higher value. Since financial institutions trade across boundaries, and trades can be multiples of firms' capital, their results are closely linked. The same losses have actually been reported over again, as “spirals” of mortgage insurance claims, CDO write-downs, guarantees of CDOs, falls in the price of bonds, preferred stock and debt, credit default swaps and bankruptcies. A lot of the current problems, perhaps the dominant share, and the speed of the decline, were caused by mark-to-market accounting.

While having collateral from your trading partners is always good, getting extra collateral later adds instability to the entire system. This is required in the EU for banks under Basel and for insurers under Solvency II, and is included in the NAIC reinsurance security proposal. This unintended hazard should be discussed by policymakers.

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