USAA AND THE MAGNIFICENT SEVEN

By Morton N. Lane, Ph.D.

INTRODUCTION

In 1997 USAA – assisted by its investment bankers, Goldman Sachs, Merrill Lynch and Lehman Bros - stunned the nascent world of insurance securitization with it’s sponsorship of Residential Re and a near-$500 million securities issue. Since that date USAA has sponsored a new security every year, including this year’s Residential Re 2003 Ltd [Res Re 2003] bringing its total issues to seven - the magnificent seven.

In 1997 the thought of $500 million of coverage emanating from the securities market rather than the traditional (re)insurance markets was revolutionary. At the time, other experiments in securitization had seldom exceeded $100 million. Furthermore, in contrast to previous issues, Res Re was based on a single risk, hurricanes, rather than a portfolio of risks. USAA had established, it was thought, a blaze for the path ahead. In many ways it did. Larger deals based on single risks did follow.

However, USAA itself has changed. Most noticeably, its issue size dropped from the heyday of 1997 to a low size of $125 million in 2002. So did the character of it’s coverage, of which more below.

It may come as a surprise then to realize that as of this writing, USAA still currently takes the same near-$500 million of coverage from the securities markets, instead of the traditional reinsurance.
markets, as it did in 1997! Furthermore, nearly one sixth of all its coverage comes from securitizations. The history of USAA’s issues reveals many subtle and some not-so-subtle changes that have occurred over the past seven years. The objective of this short note is to detail these changes as an important market record. USAA’s issues were thought to be a loadstone of the market, but as a closer inspection reveals, they are also a reflection of the possibilities and appetites in the market itself. The analysis is laid out in several sections.

Size and Term
The historical record of Res Re issuance is presented in Table 1, above. A total of $1,762 million bonds has been issued. The largest year was 1998 with a risk transfer size of $450 million. In Fig 1, 1997 shows larger total size, but it is based on the technicality that part of that year’s issue was capital-guaranteed by purchase of zero-coupon treasuries. The actual risk transfer amount was less than the $163.8 million of Res Re IA-1. It was probably also motivated by a desire to economize on the expense of securities issuance, investment banking fees being what they are. It is also likely that the reinsurance market price cycle has had its influence. In 1999 and 2000 the reinsurance price cycle was low - prices were soft in the traditional market and provided strong competition for securitization. This was true right up until 9/11/2001 so that even the 2001 issue in June was not competitive with reinsurance from the traditional market. That has now changed and, true to form, securities issue size has picked up.

In 2000, Munich Re issued two, three-year PRIME securities in a total amount of $300 million. Famously, Munich was recorded as saying they were disappointed with the issue size. Ideally they wanted $500 million of coverage. Consider, however, if they had followed the path of USAA and revisited the market each of the last three years. In aggregate, they would have garnered almost $1 billion (exactly $900 million) of pre-

### Table 1
Residential Re Issues - 1997 to 2003

|------------------------|---------------------------|------------------|------------|----------------|------------------|-------------|----------------------|-------------------------------|--------------------------------|-------------------------------|------------------|-------------------------------|-------------------------------|--------------------------------|---------------------------|
| Residential Re I       | Goldman Sachs, Merrill Lynch, Lehman Bros. | 163.8 | AAr | Aaa | AAr | Jun-97 | 12 | 12 | 273 | 277 | 0.00% | N/A | N/A | 253 | 0.00%
| Class A-1              |                          |                  |            |                |                 |             |                      |                               |                                |                               |                 |                               |                               |                                |              |
| Residential Re I Class A-2 | Goldman Sachs, Merrill Lynch, Lehman Bros. | 313.2 | BB | Ba2 | BB | Jun-97 | 12 | 12 | 576 | 584 | 0.63% | 1.00 | 0.42 | 521 | 0.67%
| Residential Re II      | Goldman Sachs, Merrill Lynch, Lehman Bros. | 450.0 | BB | Ba2 | BB | Jun-98 | 12 | 12 | 400 | 406 | 0.58% | 0.87 | 0.32 | 346 | 0.87%
| Residential Re III     | Goldman Sachs, Merrill Lynch, Lehman Bros. | 200.0 | BB | Ba2 | BB | Jun-99 | 12 | 12 | 366 | 371 | 0.45% | 0.76 | 0.26 | 326 | 0.59%
| Residential Re 2000 Ltd. | Goldman Sachs, Merrill Lynch, Lehman Bros. | 200.0 | BB+ | Ba2 | BB+ | Jun-00 | 12 | 12 | 410 | 416 | 0.54% | 0.95 | 0.31 | 362 | 0.57%
| Class A-3              | Merrill Lynch, Lehman Bros. |                  |            |                |                 |             |                      |                               |                                |                               |                 |                               |                               |                                |              |
| Residential Re 2001 Ltd. | Goldman Sachs, Merrill Lynch, Lehman Bros. | 150.0 | BB+ | Ba2 | BB+ | Jun-01 | 36 | 36 | 499 | 503 | 0.66% | 1.12 | 0.41 | 438 | 0.61%
| Residential Re 2002 Ltd. | Goldman Sachs, Merrill Lynch, Lehman Bros. | 125.0 | BB+ | Ba3 | BB+ | Jun-03 | 36 | 36 | 480 | 495 | 0.67% | 1.12 | 0.40 | 436 | 0.60%
| Residential Re 2003 Ltd. | Goldman Sachs, BNP Paribas | 180.0 | BB+ | Ba2 | BB+ | Jun-06 | 36 | 36 | 495 | 502 | 0.48% | 1.10 | 0.28 | 454 | 0.44%

Notes to Table 1
Res Re I, Class A-1 was a principal protected tranche, therefore loss probabilities are 0.0%. Res Re II spread was actually 400bps over a 50 week period; indicated spread of 400bps is annualized. All deals are converted to a 365-day year as LIBOR convention uses a 360-day year but CAT risk is a 365-day year. Adjusted spreads are therefore comparable to reinsurance pricing. Expected Excess Return is defined as Adjusted Spread Premium less Expected Loss. Conditional Expected Loss is defined as Expected Loss divided by the Probability of First Dollar Loss.

As of the present writing the issues from 2001, 2002 and 2003 provide securities coverage totaling $435 million ($150 +$125+$160).

The switch from a one-year term to a three-year term has been effective in accumulating coverage. It was probably also motivated by a desire to economize on the expense of securities issuance, investment banking fees being what they are. It is also likely that the reinsurance market price cycle has had its influence. In 1999 and 2000 the reinsurance price cycle was low - prices were soft in the traditional market and provided strong competition for securitization. This was true right up until 9/11/2001 so that even the 2001 issue in June was not competitive with reinsurance from the traditional market. That has now changed and, true to form, securities issue size has picked up.

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funded coverage from the capital market. Who is to say whether or not that may have stilled the eagerness with which Munich was downgraded during 2003?

**Perils**

If the accumulated securities market coverage for USAA has escaped some observers’ notice, changes in underlying coverages have been even less well appreciated. In the original issue, the only losses that were eligible for coverage were those that were a) USAA losses occurring in any of 20 specified Gulf and east coast states, and b) caused by a category 3 (or greater) hurricane making landfall in one of those coastal states. The combination of indemnity losses with a physical index trigger allowed comfort to investor and issuer alike.

Investors realized that there was no moral hazard, because USAA could not influence the strength, and therefore the category, of hurricanes. At the same time USAA did not confront a “basis risk”. They knew that if an eligible devastating hurricane did occur, they would be compensated for their exact loss, not someone else’s index of losses.

This happy coincidence of trigger-design prevailed in every issue through 2002. Each of the 1997-2000 deals were single occurrence, single year deals. The change to multiple year coverage shifted that slightly. Still event-based, the new cover meant that the limit would apply to just one hurricane per year, with any unused limit being available to subsequent coverage years. In other words, the cover could be applied to up to three hurricanes provided they occurred in separate years. In contrast, Res Re 2003 is a multiple occurrence (aggregate) event cover.

Of course, these are subtleties. The occurrence of any suitably large hurricane was a remote possibility to begin with. Nevertheless, the smallest detail of design is important when the dreaded remote event does occur. One other rather small option that USAA retained for itself in the multiple-year coverage was their ability to choose the offending hurricane in the event that a particular year produced a devastating crop of hurricanes or even to ignore it in a particularly light year.

More dramatically, the switch to multiple year coverage has brought expanded peril coverage. Specifically, in Res Re 2002, wind damage in Hawaii was added to the list of eligible exposures.
In Res Re 2003, Hawaii coverage was continued, the list of wind covered states was expanded, US earthquake was added as a cause of loss and the category 3 hurricane designation was dropped so that any hurricane damage causing losses to rise above the total losses threshold ($25 million) was included. Now, given USAA’s book of business, earthquake is not a huge expected exposure. Nevertheless, a devastating earthquake in any US State could, provided it was not otherwise covered, result in a loss to investors in Res Re 2003.

These changes mean that the Res Re deal has evolved from the quintessential single-peril bond to the archetypical multi-peril bond. It has been an observation of ours that the trend to multi-peril bonds has been in full swing now for a number of years. The establishment of Res Re 2003 as covering US wind and quake coverage appears to complete the transformation. Several other changes result from this peril shift and some are commented on in the section on Res Re 2003 below, but one other major change concerns insurances.

**Inurrance**

It has been past practice of the Res Re issues to take as their trigger the aggregate (gross) losses of USAA. In other words, the trigger was calculated before any allowance for other potential or actual reinsurance recoveries. The securities cover sat on top of any other covers. Res Re 2003 changes to a calculation of loss after allowance for any inurring reinsurances. In other words, the securities cover sits within the coverage structure much more consistently with traditional covers. A glance at Table 3 and Figure 5 shows that the $ amount of the payment trigger is numerically much lower than previous deals. This is simply because the figure is calculated net of recoveries, rather than gross. It is an ultimate net loss figure, much more consistent with traditional reinsurance. In fact, one could argue that USAA has completed the transition of introducing the securities market to insurance practice, rather than the other way round. Res Re 2003 is a fill-in-the-gaps cover that may actually be more robust than the traditional cover.

**Prices and Probabilities**

Figures 2 and 3 above, show the issue-price and issue-statistics for the seven securities. Clearly, they have issued in a rather narrow band of statistical likelihood. The attachment probability has been around 1 in 100 and the exhaustion probability has been around 1 in 300. Expected losses have always, therefore, been around 50 basis points. Highest expected losses were in 2001 and 2002 and the lowest expected losses were in 1999 and 2003. Remember the comment about the soft markets. In 2000 and 2001 the traditional market was very competitive. Evidently, not only did issue size drop but so did the attachment probabilities rise to make the securities more issuer-attractive.

Adherence to these probability bands has meant that the investor knows what risk he is getting. Even when structural changes have been made, attachments have been adjusted to the requisite probability rather than the other way round. This was true even during the one major risk-model change that took place in 2000. The other result of the consistency of approach is a consistency of rating. The Res Re transactions have always been rated close to BB+ or Ba2.

The price paid to the investor has also fluctuated within a fairly narrow range. Highest premium paid was in 1997 at 576 basis points over LIBOR (also the year of the initial issue). The lowest price was 366 basis points over LIBOR in 1999. The three multi-year deals have all been issued within a whisker of each other at just under 500 basis points. Of course, one of the benefits of multi-year deals is that they average out price fluctuations year to year. That is not yet a manifest benefit, given how stable original issue price has been.

Another way to look at price is to compare the price to the risk. While we have resisted the idea, people continue to equate expected loss with risk. It is, of course, one measure of risk but it is far from the best. Notwithstanding, even we admit that it is certainly the most accessible of measures and in Fig 3 plot the price as a multiple of expected loss. (Actually, adjusted price is plotted to underscore exposure period, but this does not really change the results.)

The largest issue – 1997 - was issued at 9.3 times the risk. Res Re 2003 was issued at 10.5 times expected...
loss. In between those dates the issue price averaged a multiple around 7.5. It seems likely that the higher multiples have been paid when the issue was difficult to move. In this case, that is either because of size or novelty.

Table 2
Total USAA Reinsurance Program

<table>
<thead>
<tr>
<th>RECOVERIES FROM OTHER SOURCES (2003 Only)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Florida Hurricane Cat Fund</td>
<td>$392mm</td>
</tr>
<tr>
<td>1st Layer Traditional Reinsurance</td>
<td>$245mm</td>
</tr>
<tr>
<td>Reinstatement</td>
<td>$245mm</td>
</tr>
<tr>
<td>2nd Layer Traditional Reinsurance</td>
<td>$495mm</td>
</tr>
<tr>
<td>Reinstatement</td>
<td>$495mm</td>
</tr>
<tr>
<td>3rd Layer Traditional Reinsurance</td>
<td>$193mm</td>
</tr>
<tr>
<td>Res Re 2001 Ltd.</td>
<td>$150mm</td>
</tr>
<tr>
<td>Res Re 2002 Ltd.</td>
<td>$125mm</td>
</tr>
<tr>
<td></td>
<td>$2,340mm</td>
</tr>
</tbody>
</table>

Note that each issue covers different perils (see Table 3).

Some Res Re 2003 Specifics
Perhaps the most significant change in the structure of Res Re 2003, is the insurance structure discussed above. Table 2 lays out the details. USAA will receive recoveries from a variety of different sources if it experiences large losses. First and foremost, it will receive recoveries from the Florida Hurricane Catastrophe Fund. These recoveries are for 90% of $435 million XS $150 million, but of course are only in respect of Florida hurricanes. In addition, it has purchased traditional cover for 70% of $350 million XS $250 million for hurricanes outside of Florida. Another layer covers the next 90% of $550 million for all hurricane coverage. Both these layers also cover earthquake losses and have one reinstatement. Finally, excess $1,150 million, a combination of three covers, one traditional and two securities, allows for recovery up to an amount of $1,700 million. In total and including reinstatements, approximately $2,300 million cover is available to USAA (see Table 2).

Res Re 2003 actually fills in the gaps in coverage, as is indicated by the shaded areas in right hand item in Table 3. Clearly, coverage starts at a fairly low level. Indeed, any NHC designated hurricane which has caused more than $25 million in losses to USAA is eligible.

Figure 5 shows the exact cover for Res Re 2003 and demonstrates that because of various insurance recoveries from the security are not linear with losses to USAA.

One final detail that results from the change in structure is that the securities now allow for greater development time in the event of a loss. Figure 5 provides the motivation. Clearly, earthquake losses develop slower than hurricanes. As a result, more time for calculation is allowed with earthquake losses. Indemnity deals require this, parametric deals do not.
Concluding Remarks

The object of this paper has been to trace out the remarkable changes that have taken place in that poster-boy security of insurance securitization, Residential Re. One of the eternal mysteries of life is whether one is in the van-guard or rear-guard of particular societal trends or fads. Res Re was a vanguard security in 1997. In 2003 it appears to be in the rear-guard of the multi-peril trend. Probably, as with life, however, the answer is that inevitably everyone eventually appears in all sections of the parade. Of course, it may be that the very presence of USAA in the multi-peril parade will give legitimacy, and betoken even more issues for the future of multi-peril deals.

However, a new trend is already underway, initiated by Swiss Re. Instead of multi-peril deals investors are now offered the opportunity of multiple-choice. In the Pioneer transaction and the new Arbor transaction investors can select single or multiple tranches at pre-specified prices. Investments (or issues) can be done serially up to certain pre-specified amounts. Obviously, the debate about which of the single or multi-peril types is the most acceptable form of issuance will now be settled by the market. The virtue of the multiple choice form is that it allows investors the ability to shape the accumulations of their own portfolio. At the same time, the issuer can signal his interest by price.

Time will tell, of course, whether USAA’s acceptance of multi-peril deals puts the stamp of approval on the multi-peril trend, or whether Swiss Re has initiated an even more desirable form. We will discuss the possibilities further in an upcoming fall paper entitled *Multiple-Choice vs. Multi-Peril.* It is even possible that one form suits insurers (USAA) and that the other suits reinsurers (Swiss Re). Whichever prevails however, cedents should reflect on the changes that have taken place in USAA issues. No doubt each change was motivated by the direct coverage needs of USAA, as well as acceptability in the market. What has emerged in the process is a demonstration that the securities market is much more robust and adaptable than previously given credit. It promises to be even more so in the future.
### Recovery Potential From the Florida Hurricane Catastrophe Fund, Traditional Reinsurance, Existing Securitizations and Res Re 2003 Ltd

<table>
<thead>
<tr>
<th>FHCF</th>
<th>Hurricane</th>
<th>Earthquake</th>
<th>Res Re 2003 Ltd*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Traditional Reinsurance 1st Layer with 1 Reinstatement 90% of $350mm XS $250mm</td>
<td>Traditional Reinsurance 1st Layer with 1 Reinstatement 90% of $350mm XS $250mm</td>
<td>Quake Only</td>
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<td>Traditional Reinsurance 2nd Layer with 1 Reinstatement 90% of $550mm XS $600mm</td>
<td>Traditional Reinsurance 2nd Layer with 1 Reinstatement 90% of $550mm XS $600mm</td>
<td>Quake Only</td>
</tr>
<tr>
<td></td>
<td>Traditional Reinsurance 3rd Layer Hurricane, EQ</td>
<td>Traditional Reinsurance 3rd Layer Hurricane, EQ</td>
<td>Quake Only</td>
</tr>
<tr>
<td></td>
<td>Res Re 2001 (Cat. 3, 4, 5 Hurricane; 90% $550mm XS $600mm)</td>
<td>Res Re 2002 (Cat. 3, 4, 5 Hurricane; 90% $550mm XS $600mm)</td>
<td>Quake Only</td>
</tr>
<tr>
<td></td>
<td>Florida Hurricane Only 90% of $435mm XS $150mm</td>
<td>Florida Hurricane Only 90% of $435mm XS $150mm</td>
<td>Quake Only</td>
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<td></td>
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</tbody>
</table>

**Key:***
- **Florida Hurricane-Catastrophe Fund**
- **Reinsurance from Traditional Markets**
- **Reinsurance from outstanding Securities**
- **Reinsurance from Res Re 2003**

* Losses in the shaded area are eligible for Res Re 2003 Ltd

Causes of Loss could be Hurricane or Earthquake, except as noted.