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# International Experience Study

by Bill Horbatt and Mike Gabon

The SOA has launched an international experience study of mortality, persistency and other variables of interest to actuaries practicing outside of North America. A pilot study was completed early this fall and results were presented at the 2003 SOA Annual Meeting in Orlando. This can be found on the SOA Web site at: *http://www.soa.org/research/index.asp*

## Origin of the Study

The study originated from a brainstorming session held by the Actuarial Society of Greater New York (ASNY) over two years ago, when the chief international actuaries of three New York-area companies were discussing the lack of relevant industry information that they could use to evaluate their foreign operations and help plan for the future. Some countries had credible mortality data; some countries had persistency and agent performance data compiled by the LIMRA; but attractive markets in Latin America and Asia always lacked some critical information and comparisons among different countries was difficult, at best. Thus began the saga of the international experience study.

As companies committed themselves to the study, it became apparent that this was a project of interest to more actuaries than the originators (or some may say, instigators) and the group reached out to the International Section Council (ISC) for their support. The ISC recognized that the study was a natural adjunct to their recently completed international mortality table project and recommended that the SOA's Board Committee on Research support the study, which they wholeheartedly did.

The original three companies, MetLife, NYLife and Pru, were quickly joined by AIG and ING and a pilot study commenced for three countries (Mexico, South Korea and Taiwan) studying individual life mortality and persistency during the 2000-2002 time period.

## Pilot Study Results

The pilot study was based on a small sample in each country and only the most rudimentary data quality control was performed. Results should be viewed in this light. As more companies join the study and the request for data is refined, the quality of results is expected to improve.

The SOA's staff has aggregated and compiled the data submitted to maintain confidentiality. In addition, steps have been taken to ensure no one company's contribution would dominate results. Results have been presented both in



terms of mean values and standard deviation from the mean. This approach should enable companies to both benchmark their performance against peer companies and to perform stochastic analyses. One can imagine a proud local country actuary turning to his CEO to say, "Did you realize that our performance relative to the benchmark numbers for this country are much better than expected. In fact, our experience assumption for persistency alone raises our embedded value 10 percent above the value determined using benchmark experience."

Graph illustrates the results of two studied parameters that include a relationship between persistency and mortality that actuaries would expect to see:

**GRAPH 1**   Persistency and Actual to Tabular (A/T) mortality using 2001 CSO table

**2000 -2001   Agency Experience**
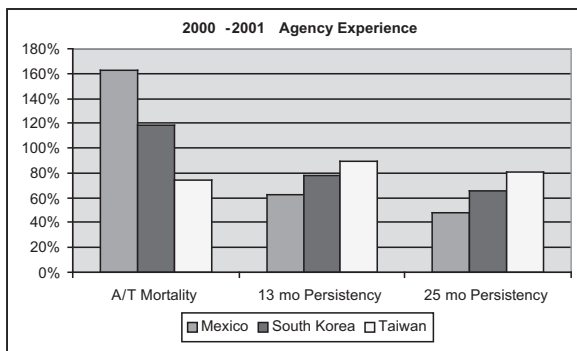


Several observations can be made from this graph.

• Taiwan experienced both the best mortality and the best persistency, likely better than the North American experience.
• Mexico's experience was clearly the worst, while South Korea was between these two countries.  Both of these countries appear to have less favorable experience than North America.
• There appears to be a direct correlation between mortality and persistency, with countries having "better sales" experiencing better mortality.

The measurement of mortality results may be tempered by the fact that different countries have different statutory valuation tables and thus have different gross premiums.  Graph 2 illustrates local tabular mortality versus the 2001 CSO table:

The study attempts to measure variations among companies and among years. The table below shows the standard deviations for the two variables measured in the pilot study:

(1) Actual to Tabular (A/T) mortality

based upon amounts insured and the 2001 CSO basic valuation table
(2) Persistency measured by policy

The relatively large standard deviations may be the result of non-uniformity in the mortality tables used to calculate expected values and this is being addressed in a revised request for data (RFD) that has been created after the pilot study.

Mortality was also studied based upon policies insured, while persistency was studied based upon policies, premiums and amounts.  Observations on these variables were:

• Mortality was substantially the same by amount and policy.

• Persistency generally improved over the period in Taiwan and deteriorated in Mexico.

**GRAPH 2** Local Tabular Mortality

**2000 -2001   Agency Experience**
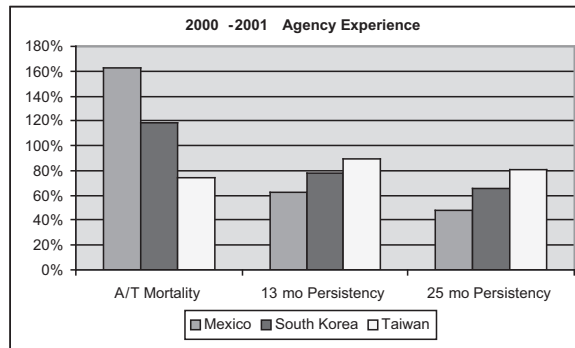


Note: Local mortality is based upon the 1982-89 Mexican experience, Korean 1988-92 (3) and 1989 Taiwan Standard Ordinary tables.

• In Mexico, both mortality and persistency were more favorable for dollar-denominated products than peso-denominated products.

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## Future Improvements

The International Experience Study Working Group is considering several improvements in the study.

First, additional companies are being recruited to join the study and, based upon interest expressed to date, compa-

Latin America, additional countries include Argentina, Brazil, Chile and Peru. Outside these regions, other countries under consideration include India, Italy and Poland.

Third, the study will be expanded to include additional variables of interest to actuaries. The working group is currently

**Table 1**

| | A/T Mortality (1) | | Persistency (2) | | | |
| --- | --- | --- | --- | --- | --- | --- |
| | | | 13 month | | 25 month | |
| | Mean | Standard Deviation | Mean | Standard Deviation | Mean | Standard Deviation |
| Mexico | 163% | 27% | 63% | 15% | 48% | 10% |
| South Korea | 118% | 31% | 78% | 16% | 65% | 20% |
| Taiwan | 74% | 5% | 90% | 5% | 81% | 5% |

nies contacted may join the study sometime during the next three to 12 months. Discussions are also occurring with the British Institute of Actuaries and local country actuarial and industry organizations.

Second, the study will be expanded to additional countries whenever three or more companies agree to participate in a given country. Countries where the pilot companies have a presence are the most likely countries to be added. In Asia, this includes China, Hong Kong, Indonesia, Japan, Philippines and Thailand. In

discussing an RFD revision including information on agent production and retention. Also being considered is a methodology to investigate company expense levels.

For further information on the study please contact either of the authors of this article, Bill Horbatt (*horbatt@actuarial-consortium.com*) and Mike Gabon (*michael.gabon@aig.com*), or Ronora Styker (*rstryker@soa.org*) and Jack Luff (*jluff@soa.org*) in the SOA's research department. ☐

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