

# **Draft – September 30, 2006**

## **2006 Report of the SOA International Experience Survey Working Group**

### **International Experience Survey/Studies**

**September 30, 2006**

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## **I. INTRODUCTION**

Historically, actuaries practicing in international markets have been challenged by the lack of data available in developing markets throughout the world. Without such data, it has been difficult to evaluate and illustrate business performance and market attractiveness to senior management.

The International Experience Survey/Study (IES) is a pilot study being conducted by the Society of Actuaries to provide actuaries with practical information on experience in emerging and other markets outside of the United States and Canada. The IES has evolved from being a survey of multi-national company experience to national studies directed by actuaries from the data contributors located in the country under study. This report follows this evolution by dividing results into two major subdivisions of results:

- Survey: The survey presents high-level results that facilitate comparisons of experience between different countries.
- National studies: In depth studies of experience in countries directed by local actuaries to present more comprehensive results

To date the focus of the IES has been Latin America, the Pacific Rim and Central Europe.

### **International Survey**

The current survey includes information on mortality, persistency, and agent retention and agent productivity. In addition, the survey is compiling limited expense information to evaluate whether a more extensive expense study is feasible. The desired end result of the data survey is a study by country of:

1. Overall individual life insurance mortality
2. Individual life insurance persistency experience at the critical 13 and 25 month policy durations
3. Retention of agents and agent production
4. Study of total company expenses as compared to standardized expenses (experimental basis)

The current survey contains data on the following countries: Argentina, Brazil, Malaysia<sup>1</sup>, Mexico, Poland, South Korea and Taiwan.

In addition to these formal inter-company surveys, surveys of international embedded value financial assumptions are performed annually and published in *International News*, the newsletter of the Society of Actuaries International Section.

### **National Studies**

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<sup>1</sup> Study contribution provided by the Malaysian Actuarial Association

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More in-depth inter-company studies are performed in countries where a sufficient number of companies located in the country under study have agreed to participate. The parameters for these studies are determined by the local actuaries and have initially focused on traditional mortality and persistency studies, frequently subdivided by product type.

This report includes results from two national studies, Argentina and Poland.

### Data Collection and Support

To accomplish the study goals the IES provides two methods of data collection:

- (1) Survey: A data template was developed in which multinational companies were asked to provide the data fields requested in an Excel format for each country they sell individual life insurance through an agency source.
- (2) National Studies: A “tool” for data collection was programmed in Microsoft Access that processes a policy master file and outputs mortality and persistency results in Microsoft Excel workbooks.

A copy of the requested data fields in (1) is found in Appendix A while a copy of the specifications for the “tool” in (2) is found in Appendix C.

### Study Direction

Following these subdivisions, the IES has two levels of direction, both of which are supported by SOA research staff:

- The International Experience Survey working group (IESWG) defines the project, variables, and countries to be studied, reviews the research results and methodology and reports its findings to the SOA membership.
- Each country has its own working group (referred to as the country working group), composed of local actuaries, that defines the study parameters for the national study.

All data compilation is performed by SOA staff (or subject to SOA confidentiality requirements) to maintain confidentiality of individual company submissions.

## II. RESULTS - SURVEY OF ALL COUNTRIES

14 companies (more if subsidiaries are counted separately) are contributing to the surveys and are listed in Section IV of the report. The IES compiles summary information from the contributing companies rather than seriatim policy information. As such, local actuaries are primarily responsible for data quality while the SOA evaluation of the quality of this information is limited to high-level reviews of reasonability.

All of the current contributing companies are either local country companies or multinational companies operating in many international markets. A limitation of the survey is that these companies do not necessarily include a large portion of the markets. To remedy this, efforts are ongoing to recruit additional companies to participate in the survey.

While the contributing companies have provided much data for many different countries, it has been difficult to build a large concentration in any one market. Thus, we are unable to report on all the variables for all markets under study at this time.

### A. General Information

All experience in financial units is presented in local country currency units unless otherwise stated. The currency units and approximate conversion rates to U.S. dollars are listed in the table below:

Table 1: Currency Information  
(Approximate Conversion Rate during 2006)

	Argentina <sup>2</sup>	Brazil	Chile	Guatemala	Malaysia	Mexico	Poland	S. Korea	Taiwan
Abbreviation	AR	BR	CL	GU	MY	MX	PL	KR	TW
Currency	Peso	Real	Peso	Quetzal	Ringgits	Peso	Zloty	Won	Dollar
1 \$US =	3.07 ARS	2.18 BRL	543 CLP	6.33 Q	3.68 MYR	10.87 MXN	3.02 PLN	967 KRW	33 TWD

The study includes contributions from 14 companies and their subsidiaries covering a 6-year period.

### B. Mortality Experience

Actual mortality has been compared against expected mortality where expected mortality is based upon either (a) a recognized local country mortality table or (b) the 2001 SOA Basic Mortality Table (ultimate mortality) and results are expressed as an actual to expected (A/E) claims ratio. The study is based upon experience during calendar years 2000 to 2005.

<sup>2</sup> Data provided separately for AR\$ and US dollar (\$US) denominated business. All financial information converted to \$US in the analysis.

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Table 2A: Actual to Expected Mortality (A/E) by Sum Insured  
(Currency Amounts in Millions)

	Argentina	Brazil	Chile	Guatemala	Malaysia	Mexico	Poland	S. Korea	Taiwan
Currency	\$US	BRL	CLP	Q	MYR	\$US	PLN	KRW	1,000 TWD
Actual Deaths	NA	NA	NA	NA	NA	NA	82	168	2,077
A/E Ratio	NA	NA	NA	NA	NA	NA	28%	33%	32%
Expected Table	NA	NA	NA	NA	NA	NA	PTTZ GUS	3rd EMT	1989 TSO
2001 SOA A/E Ratio	NA	NA	NA	NA	NA	NA	53%	74%	70%

NA = excluded due to lack of 3 contributing companies

Table 2B: Actual to Expected Mortality (A/E) By Policies

	Argentina	Brazil	Chile	Guatemala	Malaysia	Mexico	Poland	S. Korea	Taiwan
Actual Deaths	829	606	NA	NA	5,806	NA	1,124	NA	1,511
A/E Ratio	36%	NA	NA	NA	88%	NA	37%	NA	33%
Expected Table	1958CSO	NA	NA	NA	Malaysian 1983-88 Male Ordinary	NA	PTTZ GUS 2000	NA	1989 TSO
2001 SOA A/E Ratio	65%	58%	NA	NA	125%	NA	58%	NA	72%

NA = excluded due to lack of 3 contributing companies

Note that companies may have contributed to only one of the two tables above, so comparisons between results should be viewed with caution.

The estimated exposure to risk over the entire 5-year study period (life years or currency years) based upon contracts insured is as follows:

Table 2C: Estimated Exposure to Risk

	Units	Argentina	Brazil	Chile	Guatemala	Malaysia	Mexico	Poland	S. Korea	Taiwan
Contracts	1,000's	591	455	NA	NA	NA	NA	949	NA	NA
Currency		\$US	Real	NA	NA	NA	NA	Zloty	Won	1000\$NT
Insurance	Millions	NA	NA	NA	NA	NA	NA	NA	392,128	2,190

NA = excluded due to lack of 3 contributing companies

**C. Persistency Experience**

Persistency experience focuses on policies that remain in force for either one or two full years as defined by payment of the first premium due during the second or third policy year, respectively (for single premium products the policy must only remain in force). This is referred to as 13 or 25-month persistency. The study is based upon experience from policies sold during calendar years 1999 to 2004.

Table 3: 13 and 25 Month Persistency  
Persistency By Policy, Premium and Insurance

	Period	Argentina	Brazil	Chile	Guatemala	Mexico	Poland	S. Korea	Taiwan
Policy	13 Month	71%	73%	NA	NA	NA	74%	89%	93%
	25 Month	53%	61%	NA	NA	NA	65%	82%	86%
Premium	13 Month	NA	NA	NA	NA	NA	NA	92%	93%
	25 Month	NA	NA	NA	NA	NA	NA	87%	87%
Insurance	13 Month	NA	NA	NA	NA	NA	NA	91%	93%
	25 Month	NA	NA	NA	NA	NA	NA	85%	86%

NA = excluded due to lack of 3 contributing companies

Note that companies may have contributed to only one of the three types of persistency (policy, premium, insurance) above, so comparisons between results should be viewed with caution. Note also that Argentina information is based solely upon policies, since policy restructurings after the currency crisis made premium and insurance data incomparable between years.

**D. Agent Retention**

Agent retention was studied by comparing the number of agents hired during a calendar year against the number remaining at subsequent calendar year ends. An average annual attrition rate was also calculated for agents with at least five years experience, where attrition is defined as the percentage of agents at leaving during the year.

Table 4  
Agent Retention Rate by Time Elapsed from Hire

Average Time Elapsed (years)	Argentina	Brazil	Chile	Guatemala	Mexico	Poland	S. Korea	Taiwan
0.5	76%	NA	NA	NA	NA	NA	NA	NA
1.5	46%	NA	NA	NA	NA	NA	NA	NA
2.5	33%	NA	NA	NA	NA	NA	NA	NA
3.5	26%	NA	NA	NA	NA	NA	NA	NA
4.5	29%	NA	NA	NA	NA	NA	NA	NA
5.5	26%	NA	NA	NA	NA	NA	NA	NA
Over 5 year attrition rate	20%	NA	NA	NA	NA	NA	NA	NA

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NA = excluded due to lack of 3 contributing companies

Additional observations can be made:

- Argentinean experience was influenced strongly by the currency crisis that occurred during the early 2000's and the changes in company practices in response to the crisis.

### E. Agent Productivity

Agent productivity was studied based upon the average sales per annum per agent. Sales are expressed in terms of number of policies, premium and insurance.

Table 5: Average Annual Agent Productivity

Average Productivity	Argentina	Brazil	Chile	Guatemala	Mexico	Poland	S. Korea	Taiwan
Currency	\$US	NA	NA	NA	NA	NA	NA	NA
Policies	26	NA	NA	NA	NA	NA	NA	NA
Premium	21,200	NA	NA	NA	NA	NA	NA	NA
Insurance (1,000's)	2,359	NA	NA	NA	NA	NA	NA	NA

NA = excluded due to lack of 3 contributing companies

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### III. RESULTS – NATIONAL STUDIES

This section of the report presents the results from local country companies that performed in depth intercompany national studies of individual life insurance mortality and persistency. Note that expected mortality differs in this section of the report from the prior section since select and ultimate mortality was used here.

#### A. Argentina

3 Argentinean companies participated in the study of individual life insurance experience from 1999 to 2005. The following table presents individual life insurance actual to tabular claims based upon the 2001 SOA Basic Table (select & ultimate mortality).

Table 6A: Argentina Mortality Rates by Policy Count  
Based upon 2001 SOA Basic Mortality Table – Select & Ultimate

Issue Age		Male			Female		
From	To	Exposure (life years)	Actual Deaths	Actual / Tabular	Exposure (life years)	Actual Deaths	Actual / Tabular
0	19	10,284	4	81.63%	9,614	1	50.59%
20	29	67,034	45	131.83%	34,542	8	99.32%
30	39	164,208	109	111.23%	68,611	38	147.64%
40	49	118,670	192	141.13%	55,761	41	81.75%
50	59	37,235	143	168.05%	19,508	35	92.15%
60	69	3,846	44	248.06%	2,017	9	131.71%
70	120	47	2	266.23%	24	0	0.00%
	Total	401,323	539	143.10%	190,077	132	99.62%

The next table presents persistency experience for the same companies over the same period by policy duration.

Table 6B: Argentina Persistency by Policy Count

Policy Year(s)	Exposure (life-years)	Lapses	Lapse Rate
1	222,296	65,208	29.3%
2	150,178	37,472	25.0%
3	108,420	21,473	19.8%
4	74,616	15,351	20.6%
5	51,209	12,135	23.7%
6-10	75,184	16,570	22.0%
11-15	1,381	152	11.0%
Total	683,284	168,361	24.6%



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### 2. Poland

Below are results of the mortality study for 4 companies writing individual life insurance (both risk products and savings) in Poland during 1999 to 2005. The following tables present actual to tabular claims based upon the 2001 SOA Basic Table (select & ultimate mortality) and experience from 1999 to 2005. Note that only 3 of the companies contributed data based upon insurance.

Table 7A: Poland Mortality Rates by Policy Count  
Based upon 2001 SOA Basic Mortality Table – Select & Ultimate

Issue Age		Male			Female		
From	To	Exposure (life years)	Actual Deaths	Actual / Tabular	Exposure (life years)	Actual Deaths	Actual / Tabular
0	19	27,917	5	33.49%	27,659	7	121.31%
20	29	180,677	116	125.68%	157,391	52	140.53%
30	39	213,515	189	162.93%	165,309	80	136.07%
40	49	135,321	319	220.30%	117,261	125	120.11%
50	59	39,915	182	228.71%	29,336	57	108.41%
60	69	4,400	41	247.31%	3,246	10	105.92%
70	120	1,034	25	221.81%	781	13	191.97%
	Total	602,779	876	184.77%	500,983	344	125.38%

Table 7B: Poland Mortality Rates by Sum Insured  
Based upon 2001 SOA Basic Mortality Table – Select & Ultimate  
(Amounts in 1,000's)

Issue Age		Male			Female		
From	To	Exposure (life years)	Actual Deaths	Actual / Tabular	Exposure (life years)	Actual Deaths	Actual / Tabular
0	19	1,663,840	278	32.61%	2,123,050	147	32.18%
20	29	15,868,612	9,390	126.25%	16,509,192	3,932	111.39%
30	39	22,365,809	13,714	126.98%	20,118,933	4,960	79.14%
40	49	10,598,340	16,596	165.59%	11,159,522	7,140	83.41%
50	59	3,114,206	14,463	254.21%	2,576,384	3,911	93.26%
60	69	645,776	3,278	129.28%	296,683	194	21.61%
70	120	183,839	2,934	141.29%	94,522	661	84.39%
	Total	54,440,421	60,653	153.89%	52,878,286	20,946	84.83%

The next table presents persistency experience for the same companies over the same period by policy duration.

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Table 7C: Poland Persistency by Policy Count

Policy Year(s)	Exposure (life years)	Lapses	Lapse Rate
1	415,106	107,758	26.0%
2	276,490	34,825	12.6%
3	202,960	19,511	9.6%
4	153,224	19,686	12.8%
5	102,209	10,648	10.4%
6-10	82,051	10,380	12.7%
Total	1,232,039	202,808	16.5%

The experience above represents individual life insurance. In the future, the Poland working group hopes to: (a) subdivide the individual life insurance experience between risk and savings products and (b) study group term life mortality.

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**IV. PARTICIPATING COMPANIES**

AEGON  
AIG / ALICO  
Aspecta  
Bradesco  
Brazil Previdenza  
Generali  
G&T  
ICATU Hartford  
ING  
MetLife  
New York Life  
Prudential Financial  
Seguros Occidente  
Winterthur  
Zurich Financial Services