2008-09 REPORT OF THE INDIVIDUAL LIFE INSURANCE EXPERIENCE COMMITTEE

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Report of the Individual Life Insurance Experience Committee

Mortality Study for Standard Individually Underwritten Life Insurance For Observation Years 2008 and 2009

1. Introduction

This study is the latest in the continuing reports from the Society of Actuaries (SOA) on inter-company mortality experience. This report includes mortality experience for the observation years 2008 and 2009, a two-year study period. The prior study covered policy anniversary to anniversary experience for the two-year period of policy anniversaries between 2005 and 2007.

Consistent with previous studies, this report examines mortality under standard individually underwritten life insurance and excludes rated, converted, and guaranteed or simplified issued business, as indicated by the individual company data submissions. Policies in force under non-forfeiture provisions are also excluded. It should be noted that the definition of standard may not be consistent across companies. It is possible that some of the above types of business have inadvertently been included in the study since it is not always possible to identify these types of policies. For example, higher mortality ratios, which decrease as duration increases, for the lower face amount bands for recent issues, may indicate that the data includes policies that are not fully underwritten. The study includes experience of direct written business, both retained by the writing company and reinsured (ceded) to other companies. No reinsurance business assumed by a company is included. Data was reviewed for reasonableness to check that late reported claims have been included in the study. Although it is likely that there is a small impact, it is expected that the extra mortality due to any remaining IBNR (incurred but not reported) claims is immaterial.

This report includes a change in the definition of exposure period. Prior studies were done solely on a policy year basis. This study begins the process of including data submitted on either a policy or a calendar year basis. This change requires a new definition of study period. Each year is now expressed as an observation year. The definition of observation year depends on whether the data is submitted on a policy or a calendar year basis. Data submitted on a policy year basis includes 12 months of data ending in the observation year. For example, 2008 data would include the experience of a policy beginning on the policy anniversary in 2007 and ending on the day before the anniversary in 2008. Experience submitted for 2008 on a calendar year basis would include the observations from Jan. 1, 2008 to Dec. 31, 2008. Duration is still calculated on a true policy year basis. A calendar year submission will contribute partial year experience for each of the two policy durations in that calendar year. For example, if a policy reaches its first anniversary on April 1, then the experience between January 1 and March 31 would be included in duration 1, and the experience for the remainder of the year would be included in duration 2.

Henceforth, the study period in these reports will be referred to as observation years, in this case 2008 and 2009.

The inclusion of calendar year data creates an exposure formula issue. The exposure formulas used for calendar year data had to be adjusted to reflect this grouping structure. Although the formulas are consistent with the underlying Balducci assumption, which is also used in the policy year calculations, some nonsensical results can arise when experience is analyzed on a calendar year basis. For example, some of the cells have values for an experience q_x in excess of 1.00. These are most likely to occur in cells with very little exposure. The committee believes that this issue does not significantly impact the overall results. However, the assumptions underlying the exposure formula will be reviewed for a potential change for the next report.

Thirty-six companies contributed data to the SOA for this 2008-2009 observation period study, compared to 39 companies for the prior 2005-2007 policy year study. The face amount exposure from all contributing companies for the two-year period included in this study is about $9.4 trillion in the select period (policy years 1-25) and $219 billion in the ultimate period. It includes 219,608 policy claims in the select period and 539,257 policy claims in the ultimate period. The prior study contained face amount exposures of just over $8.8 trillion in the select period and $167 billion in the ultimate period. It also included 209,089 select period claims and 510,121 claims in the ultimate period.

The data call requested that the smoking status of each policy be classified as one of unknown, no tobacco usage, nonsmoker, cigarette smoker or tobacco user. In this report and in the related pivot tables, the nonsmoker category and experience summaries consist of business classified as either nonsmoker or no tobacco usage. Similarly, the smoker category contains the policies classified by contributing companies as either cigarette smoker or tobacco user. Some companies allow some tobacco usage within a nonsmoker classification (e.g., occasional cigar). This data is classified as nonsmoker.

Except where specifically noted otherwise, the expected mortality basis used to compute actual-to-expected (A/E) ratios in this report is the 2008 Primary (also called RR 100) Valuation Basic Table (2008 VBT). The 2008 Primary VBT is actually a collection of tables for each combination of issue age basis (nearest or last), gender and smoking class (nonsmoker, smoker and composite). Where the smoker status is not known, composite smoking rates are used to calculate expected claims. The 2008 VBT table is based on experience from contributors to the SOA intercompany studies for the 2002-04 study period, and projected to 2008. The Primary Table was developed from face amounts of $100,000 and larger at the earlier durations. At later durations, the minimum face amount was lowered to approximately reflect face amounts equivalent to $100,000 in the 2008 dollar value, when adjusted for changes in currency values over time at the time of policy issue. The Age Nearest Birthday (ANB) and Age Last Birthday (ALB) versions of the table are used in a consistent manner with how issue age was calculated for each individual policy record. The application of the composite or smoker distinct tables in the expected calculations relies on the smoking status information provided in the individual company submissions for policies issued in 1980 and later. The composite version of the 2008 VBT was used to calculate expected claims for business issued prior to 1980 because the smoking information for policies from that issue period was not viewed as reliably accurate. Many companies labeled all of this earlier business as either smoker or nonsmoker, rather than as unknown smoking status. Of course, some inaccuracies in the data will still exist in policies issued in the early 1980s, but to a less significant degree. Regardless of issue date or individual

policy coding, juvenile policies (issue ages 0 – 17) are all classified as unknown smoking status in this report and the expected basis is composite for these policies.

The select period is defined as the first 25 policy years. Unless specifically noted otherwise, this definition is used throughout this report and all accompanying appendices. The ultimate period is durations 26 and later. This convention does not imply that the actual select period is 25 years for all issue ages. It is believed that the older issue ages have a shorter select period. Although the 2008 VBT is structured as a 25-year select and ultimate table, the actual select period for older issue ages is less than 25 years.

The comments included in this report are neither comprehensive nor conclusive. They are provided as a high level view indicating some of the areas that warrant a more in-depth analysis of the results. The reader should exercise caution in any direct application of the results discussed in this report because they are generally presented in a one-dimensional view. Results can be influenced by distributions of other criteria outside the view being presented, e.g., face amounts, issue ages and policy durations.

2. Accompanying Pivot Tables

Several pivot tables have been produced in conjunction with this report, giving the user more flexibility to examine the experience in multiple characteristic dimensions. These files are located on the SOA website (www.SOA.org) under Research, Experience Studies, Individual Life. Specifically, five pivot tables accompany this report:

Table 1 - Pivot Tables Accompanying This Report						
Observation Period	Years in Study	Products	Experience: All or Preferred plans only	Companies: All or Common	Number of Contributing Companies	
					Any Period	2008-2009
2008-2009	2	All	All	All	36	36
2008-2009	2	All	Preferred	All	30	30
2005-2009	5	All	All	All	51	36
2005-2009	5	All	Preferred	All	43	30
2006-2009	4	All	All	Common	31	31
2006-2009	4	All	Preferred	Common	27	27
2005-2009	5	10, 15 & 20-Year Term	All	All	51	36

Note: The 2008 and 2009 observation periods in the 2005-2009 pivot tables contain the same data contained in the corresponding 2008-2009 pivot tables.

The pivot tables listed in Table 1 include new experience data from the 2008 and 2009 observation years. The experience for the 2005, 2006 and 2007 observation years is from prior SOA studies.

The Common Company pivot tables provide more consistency among observation years. A company is deemed to be a Common Company if it contributed experience for all of the observation years in the study period. Normally, the Common Company data would be over a five-year period, the same as is used for the 2005-2009 All Company experience. Because only 19 (27) companies contributed Preferred (All) experience data for all five years, it was decided to publish the data based on the most recent four years. Using data for only four years enabled the Common Company results to also include the experience of an additional eight (four) companies. It is expected that future reports will return to providing Common Company results over the full five year period.

Pivot tables with All Company data for prior time periods referenced in this report can be found on the SOA website - see the 2002-2004, 2004-2005 and 2005-07 Individual Life Experience Reports. All of these previous reports were based on policy year data only. They are located on the website in the same directory as this report.

The pivot tables accompanying this report allow the user to analyze experience for the following expected bases:

- The SOA's 1975-80 15-year select and ultimate tables (maximum issue age of 70) with mortality rate extensions to issue age 95. The 1975-80 table was extended in two stages. The extension for issue ages 71 to 87 was published with the 2002-04 study, and the further extension for ages 88 to 99 (and attained ages through 120) was published with the 2005-07 study.

- 2001 VBT

- 2008 VBT, Primary table rates

- 2008 VBT, Limited Underwriting table rates

The mortality tables listed above have different maximum issue ages. When an actual issue age was older than an expected table's maximum issue age, the expected mortality rates for that older age were determined by using the attained age rates for the maximum issue age actually included in that table.

3. Appendices

The Appendices to this report provide a number of high-level summaries of the mortality experience. Table 2 lists each Appendix and provides a brief description of its contents. "Select" policy years indicates that durations 1 – 25 are included. "Ult" means that the appendix shows values for durations 26+. Additional comments and observations on the experience follow this table.

App.	Part	Observation Period	Expected Basis	Policy Years	All or Common Companies	Under-writing	Other Information
Table 2 – List of Appendices							
A	1	2008-09	2008 VBT	Select	All	All	Various 1-dimensional looks
	2	2008-09	2001 VBT	Select	All	All	Various 1-dimensional looks
B	1	2008-09	2008 VBT	Ult	All	All	Some 1- & 2-dimensional looks
	2	2008-09	2001 VBT	Ult	All	All	Some 1- & 2-dimensional looks
C	1	2008-09	2008 VBT	Select	All	All	Iss Ages 18+, M/F, S/NS Splits
	2	2008-09	2008 VBT	Select	All	All	Iss Ages 18+, M/F, S/NS Splits, <$100k
	3	2008-09	2008 VBT	Select	All	All	Iss Ages 18+, M/F, S/NS Splits, ≥$100k
D	1	2008-09	2008 VBT	Select	All	All	Splits by Quintile, Male, NS, IA's 18+, <$100k
	2	2008-09	2008 VBT	Select	All	All	Splits by Quintile, Male, NS, IA's 18+, ≥$100k
	3	2008-09	2008 VBT	Select	All	All	Splits by Quintile, Female, NS, IA's 18+, <$100k
	4	2008-09	2008 VBT	Select	All	All	Splits by Quintile, Female, NS, IA's 18+, ≥$100k
	5	2008-09	2008 VBT	Select	All	All	Splits by Quintile, Male, S, IA's 18+, <$100k
	6	2008-09	2008 VBT	Select	All	All	Splits by Quintile, Male, S, IA's 18+, ≥$100k
	7	2008-09	2008 VBT	Select	All	All	Splits by Quintile, Female, S, IA's 18+, <$100k
	8	2008-09	2008 VBT	Select	All	All	Splits by Quintile, Female, S, IA's 18+, ≥$100k
E	1	2006-09	2008 VBT	Select	Both	All	By Sex, Smoking Status & Observation Year
	2	2006-09	2008 VBT	Ult	Both	All	By Sex & Observation Year
F	1	2006-09	2008 VBT	Select	Both	All	M, NS, <$100k & $100-2,499k, By IA (25+) & Obs Yr
	2	2006-09	2008 VBT	Select	Both	All	F, NS, <$100k & $100-

App.	Part	Observation Period	Expected Basis	Policy Years	All or Common Companies	Under-writing	Other Information
							2,499k, By IA (25+) & Obs Yr
	3	2006-09	2008 VBT	Select	Both	All	M, S, <$100k & $100-2,499k, By IA (25+) & Obs Yr
	4	2006-09	2008 VBT	Select	Both	All	F, S, <$100k & $100-2,499k, By IA (25+) & Obs Yr
G	1	2008-09	2008 VBT	Select	All	All	Male, IA's 18+, ≥$100k, Split by S/NS, IA & Dur
	2	2008-09	2008 VBT	Select	All	All	Female, IA's 18+, ≥$100k, Split by S/NS, IA & Dur
	3	2008-09	2008 VBT	Select	All	All	Male, IA's 18+, ≥$50k, Split by S/NS, IA & Dur
	4	2008-09	2008 VBT	Select	All	All	Female, IA's 18+, ≥$50k, Split by S/NS, IA & Dur
	5	2008-09	2001 VBT	Select	All	All	Male, IA's 18+, ≥$100k, Split by S/NS, IA & Dur
	6	2008-09	2001 VBT	Select	All	All	Female, IA's 18+, ≥$100k, Split by S/NS, IA & Dur
	7	2008-09	2001 VBT	Select	All	All	Male, IA's 18+, ≥$50k, Split by S/NS, IA & Dur
	8	2008-09	2001 VBT	Select	All	All	Female, IA's 18+, ≥$50k, Split by S/NS, IA & Dur
H		2008-09	2008 VBT	Select	All	All	By Product Type & (a) Size Band & (b) Dur
I		2005-09	2008 VBT	All	All	All	Level Term 10, 15 & 20 by Iss Yr & Duration Groups
J	1	2005-09	2008 VBT	Select	All	Preferred	IA's 25+, $100-2,499k, 1-dim Splits, incl Risk Class
	2	2006-09	2008 VBT	Select	Common	Preferred	IA's 25+, $100-2,499k, 1-dim Splits, incl Risk Class
K		2006-09	2008 VBT	Select	Both	Preferred	IA's 25+, $100-2,499k, By Obs Year & Risk Class
L	1	2005/06-09	2008 VBT	1-15	Both	Preferred	NS, IA's 25+, $100-2,499k, By Size, Dur & Risk Class
	2	2005/06-09	2008 VBT	1-15	Both	Preferred	S, IA's 25+, $100-2,499k, By Size, Dur & Risk Class
M	1	2005-09	2008 VBT	Select	All	Preferred	IA's 25+, $100-2,499k, By Iss Age, Risk Class & Dur
	2	2005-09	2008 VBT	Select	All	Preferred	Relative Experience Ratios for App M, Part 1

Table 2 – List of Appendices

4. General Mortality Observations in the Select Period (Appendix A)

Appendix A provides experience for the Select policy years across a number of univariate characteristics for the most recent observation years, 2008 and 2009. The results are provided on both the 2008 VBT and 2001 VBT expected bases. Some of the A/E ratios and other numbers cited in this section are not specifically from Appendix A, but instead were derived from the accompanying pivot tables.

Overall, the select period A/E ratio by amount is 89.7% for the 2008 VBT expected basis. Appendix A shows the variability between A/E's by policy and by face amount. Except for the experience by face amount band, the A/E ratios by policy are significantly greater than the corresponding A/E's by face amount. Except when results are split by face amount band, the results on a policy count basis are weighted heavily towards the higher A/E ratios in the lower face amount bands. In the 2008-09 experience, policies under $100,000 comprise 51.6% (53.4% in the 2005-07 study) of the exposure by policy, but only 9.4% (11.2% in the 2005-07 study) of the exposure by face amount.

The A/E experience ratios by face amount range from 127% for the smallest face amount group, to the low 70%'s for policies in the $2.5-5.0 million and $5.0-10.0 million face amount bands. The A/E of the $10.0 million+ policies goes back up to 82.4%. Since this largest amount band only has 35 claims, its experience has very low credibility.

Table 3 shows the results by issue age band. The results are fairly consistent in the issue age range, from 25 to 69. The "by amount" A/E ratio of 49.5% for issue ages 80+ is significantly lower than the overall A/E of 89.7%. While the "by policy" ratio of 88.3% for issue ages 80+ is also lower than the overall A/E, the difference between it and the overall A/E by count of 112.5% is smaller. This indicates that at least some of the relatively low mortality at the oldest ages is coming from large face amount policies.

The ratios of the young adult issue age group (18 – 24) are high on both by amount and by policy bases. The oldest juvenile age group (10 – 17) also shows higher than expected mortality.

Table 3 – by Issue Age Select Period, M/F Combined, NS/SM Combined, All Face Amounts, All Companies, 2008-09 Experience Expected Basis = 2008 VBT Primary Tables			
Issue Age Group	**A/E Ratio**		**Number of Policy Claims**
	By Amount	**By Policy**	
0	77.4%	89.8%	894
1-4	83.4	96.2	907
5-9	94.1	111.8	914
10 – 17	112.1	139.8	2,059
18 – 24	108.1	137.8	3,935
25 – 29	92.8	116.6	5,845
30 – 34	93.7	112.5	9,536
35 - 39	91.8	111.7	13,679
40 – 49	90.6	114.2	39,071
50 – 59	93.5	110.5	56,117
60 – 69	92.4	113.3	63,947
70 – 79	83.2	110.8	20,981
80 +	49.5	88.3	1,723
All Issue Ages	**89.7%**	**112.5%**	**219,608**

Table 4 compares the A/E ratios by face amount band for the 2008-09 and 2005-09 observation periods. As expected, the A/E's generally decrease with increasing policy size, from 127.3% for policies with face amounts between $1 and $9,999, to 71.9% for policies with face amounts of $5,000,000 - 9,999,999 for the 2008-09 observation period. There is actually an increase in A/E to 82.4% for face amounts of $10,000,000+. Actual policy claims total 206 in the $2,500,000 - 4,999,999 size band, 112 in the $5,000,000 - 9,999,999 size band and 35 with face amounts of $10,000,000+, raising credibility issues in these very large size bands. The general trend of decreasing mortality ratios with increasing policy size is likely due to a combination of the additional underwriting that occurs as the face amount increases and socioeconomic factors. The experience for the largest size policies does not fit into this pattern and warrants additional review. No firm conclusions on the underlying appropriateness of these results can be made because of the limited number of claims. However, the same pattern occurs for both the two and five-year observation periods.

The values in Table 4 for the observation period 2005-09 are not shown in Appendix A, but are available from the 2005-09 All Company pivot table.

Table 4 – Face Amount Band Select Period, M/F Combined, NS/SM Combined, All Issue Ages Expected Basis = 2008 VBT Primary Tables				
	Observation Period 2008-09		Observation Period 2005-09	
Face Amount Band ($)	A/E by Amount	No. of Policy Claims	A/E by Amount	No. of Policy Claims
1 – 9,999	127.3%	53,665	122.6%	122,443
10,000 – 24,999	118.3	49,123	117.4	120,028
25,000 – 49,999	113.4	34,584	112.3	88,159
50,000 – 99,999	108.2	37,077	107.2	94,858
100,000 – 249,999	95.4	30,612	96.6	79,743
250,000 – 499,999	86.0	8,268	87.8	20,346
500,000 – 999,999	82.3	3,923	84.5	9,380
1,000,000 – 2,499,999	78.0	2,003	81.0	4,775
2,500,000 – 4,999,999	74.3	206	80.1	498
5,000,000 – 9,999,999	71.9	112	73.4	227
10,000,000 +	82.4	35	86.2	78

Table 5 summarizes 2005-09 experience by issue age and face amount band. Overall (all issue ages combined) A/E's decrease as the face amount band increases. The table shows that the lower overall A/E of 80.3% at $1 million and over is largely driven by very favorable high amount experience at the oldest issue ages, offsetting A/E's that are higher than the overall A/E of 80.3% for most other issue age bands. The experience is shown for the observation period 2005-09 to increase the credibility of the results. Although less credible, the experience for the 2008-09 observation period is generally consistent with that of the longer observation period.

The numbers in Table 5 are not in Appendix A, but are available from the 2005-09 All Company pivot table.

Table 5 –Issue Age Band and Face Amount Band Select Period, M/F Combined, Smoking Status Combined, Observation Period 2005-09 Expected Basis = 2008 VBT Primary Tables								
Face Amt Band ($)	**A/E Ratio by Amount**				**No. of Policy Claims**			
	1 – 99K	**100 – 499K**	**500 – 999K**	**1,000K+**	**1 – 99K**	**100 – 499K**	**500 – 999K**	**1,000K+**
Issue Ages								
All	110.7%	93.1%	84.5%	80.3%	425,486	100,089	9,380	5,578
0 - 17	110.6	87.2	47.0		11,472	776	16	4
18 - 29	115.4	91.3	72.6	86.0	19,065	5,596	258	104
30 - 39	116.7	92.5	84.5	83.6	36,771	19,697	1,898	833
40 - 49	117.1	94.1	81.3	84.4	68,800	25,586	2,571	1,407
50 - 59	108.5	92.1	86.6	89.2	114,174	23,881	2,299	1,353
60 - 69	106.9	96.2	89.3	80.7	133,778	16,953	1,391	999
70 - 74	103.7	93.6	92.7	87.4	29,022	4,308	464	373
75 - 79	101.6	91.0	84.8	68.3	10,031	2,219	278	254
80+	87.2	80.7	75.7	47.7	2,373	1,073	205	251

Drilling into the detail for policies below $50,000 shows very high actual-to-expected ratios (by amount) at the earlier durations, with the ratios generally worsening with each successively smaller size band. To a lesser extent, A/E's for the $50K-99K face amount range follow the same pattern. Interestingly, the pattern is less pronounced when the A/E's are based on the Limited Underwriting version of the 2008 VBT. The pattern for lower face amount bands of high early A/E's, which decrease as duration increases, may be due to the inclusion of some guaranteed or simplified issue business that was not properly coded for exclusion from this study.

The differences between the A/E's for different low face amount bands tend to decrease with increasing duration. However, there is still a difference even at the latest durations. This could be for a variety of reasons. For instance, one possibility is that lower face amounts have higher mortality associated with lower socioeconomic status.

5. General Mortality Observations in the Ultimate Period (Appendix B)

Appendix B provides experience during the ultimate period (policy years 26+) across a number of univariate characteristics for the most recent observation years, 2008 and 2009. The results are provided on both the 2008 VBT and 2001 VBT expected bases. Although Appendix B shows results combined for all issue ages, many of the values referred to in this section are directly from this appendix. The figures shown separately for issue age bands 0-17 and 18+ can be obtained from the pivot tables included separately in this package.

Overall for 2008-2009, the A/E ratio by amount in the ultimate period for policies issued at ages 18+ was 94.9% of the 2008 VBT, as compared to 97.5% for the 2005-07 study. On the 2001 VBT expected basis, this ratio dropped to 78.7% in this report, from 81.1% for the prior 2005-07 study.

The difference between male and female A/E's (by amount) for issue ages 18 and older using the 2008 VBT table as the expected basis is much smaller than the difference when the 2001 VBT is the expected basis—male and female A/E's are 95.6% and 92.3%, respectively, based on the 2008 VBT, but 77.0% and 86.9%, respectively, when the expected basis is the 2001 VBT.

Ultimate A/E ratios for male issue ages 18 and older are fairly constant between attained ages 50 and 79, ranging between 89.0% and 97.1%. For attained ages 85+, the A/E ratio averages 100.3%. Similarly, A/E ratios for female issue ages 18 and older between attained ages 50 and 84 are in a narrow range between 86.2% and 89.9%. For attained ages 85+, the A/E ratio averages 100.1%. For issue ages 18 and older, this study has a fairly small number of claims for attained ages of 49 and younger.

Also similar to prior studies, mortality ratios in the ultimate durations generally decrease by increasing face amount from the $1-9,999 band to the $50,000-99,999 band, possibly suggesting lower ultimate mortality associated with higher socioeconomic status, some underwriting effects persisting beyond the 25-year select period and/or a change in the mix of business due to the introduction of smoker/non-smoker rating structures. For female issue ages 18 and older, the ultimate A/E ratio for the band between $100,000 and $249,999 (87.9%) is higher than the A/E ratio for the $50,000 - 99,999 band (81.1%). This relationship also shows up in the longer period study. For males, the A/E ratios for the same two face amount bands are similar to each other.

For policies issued between ages 0 and 17, the female A/E ratio (by amount) for attained ages 25 to 59 is 126.8%. For males, the corresponding A/E ratio is 135.7%. For each of the attained age groups 40-44, 45-49, 50-54 and 55-59, for which there is ultimate experience for both issue ages 0-17 and 18 and older, the A/E ratios for the 0-17 issue age group are higher than the corresponding A/E's for 18 and older issue ages.

6. Gender and Smoking Status Experience (Appendix C)

The overall actual-to-expected ratios by amount for male and female non-smokers are essentially the same. However, when summarized by broad face amount bands of $1-99,999 and $100,000 and more, the female non-smoker ratios are actually lower than those for males.

For the Face Amount Bands in Table 6, the A/E ratio for female smokers is higher than the corresponding A/E for non-smokers overall, and for face amounts of $100K and higher, combined. Although the same general pattern holds for males, the difference between the smoker and non-smoker A/E's is much smaller. Interestingly, this pattern does not hold for combined face amounts under $100K. In fact, for each of the more granular face amount bands less than $1 million, the male smoker A/E by amount is lower than the corresponding non-smoker A/E. So, it appears that the higher overall A/E ratio for male smokers is due to a difference in the distribution of face amounts - smokers have a higher proportion of their business written at smaller face amounts.

Table 6 – Gender and Smoking Class Select Period, All Companies, 2008-09 Expected Basis = 2008 VBT Primary Tables				
Face Amount Band	A/E Ratios by Amount			
	Male NS	Male SM	Female NS	Female SM
All Amounts	88.8%	91.3%	88.8%	97.2%
< $100K	115.9	104.5	109.3	103.8
≥ $100K	84.5	86.0	82.8	92.8

7. Company Experience by Quintile Ranking (Appendix D)

Appendix D contains summaries of 2008-09 select period experience for issue ages 18 and older by quintile for each of the eight combinations of gender, smoking status and policies, with face amounts under $100,000 and $100,000 and over. Each company was assigned to a quintile based on its overall (i.e., both sexes, all products, all face amounts, all issue ages, durations 1-25 and smoker/non-smoker/unknown smoking status combined) actual-to-expected ratio (by amount and using the 2001 VBT rather than the 2008 VBT as the expected basis). Table 7 below summarizes the overall actual-to-expected ratios by quintile for each of the eight combinations. The range of actual-to-expected ratios is quite broad. The last column of Table 7 shows the ratio of the A/E for Quintile 5 to the A/E for Quintile 1.

Table 7 – Company Experience Grouped into Experience Rank Quintiles Select Period, Issue Ages 18+, Observation Periods 2008-09 Expected Basis = 2008 VBT Primary Tables							
A/E Ratio	Experience Rank Quintile						Ratio of A/E's
	1	2	3	4	5	All	Quin5 / Quin1
	78.0%	83.8%	89.6%	97.9%	122.6%	89.7%	157%

8. Experience by Observation Year (Appendices E & F)

All Company and Common Company mortality experience for each of the most recent four observation years are summarized in Table 8. Overall, their experience is very similar.

The overall All Company select period A/E ratio by amount of 89.7% for the 2008-09 study continues the overall apparent trend of reductions in mortality ratios over time, with individual study year ratios decreasing steadily from 93.8% for 2006 to 88.1% for 2009. On a Common Company basis, individual study year ratios are fairly level between 2006 and 2008 (92.8%, 92.3% and 92.9%), and then there's a much larger drop in 2009 to 88.0%.

The changes in average industry results from year to year are not likely a good indicator of the level of underlying mortality improvement for the insured population. The improvement rates implied by changes in average A/E's tend to be larger than what is experienced in the U.S. general population. There are a number of insurance specific factors contributing to the mortality reduction changes, most of which are already directly reflected in the rating structures. Changes in company and industry practices can result in substantial differences in mortality for various issue-year periods. Factors such as the introduction of policies priced recognizing smoking status and preferred risk type factors are working themselves through the inforce block. Increasing proportions of face amounts are sold to individuals with the better mortality risk profiles. Since these types of factors are embedded in the industry's rate structures, overall experience should be expected to improve at a level greater than the underlying general mortality improvement.

Table 8 shows the progression of A/E's for the gender/smoking status subgroups.

Table 8 – A/E Ratios by Amount for Observation Year Periods Select Period, All Face Amounts, All Issue ages, Observation Periods 2006-09 Expected Basis = 2008 VBT Primary Tables						
		Observation Period				
		2006	**2007**	**2008**	**2009**	**Annual Chg***
All Companies						
	All	**93.8%**	**92.3%**	**91.6%**	**88.1%**	**-2.1%**
	Non-smoker					
	M & F	92.5%	91.4%	90.5%	87.3%	-1.9%
	Male	91.6%	89.6%	91.3%	86.7%	-1.8%
	Female	94.7%	96.3%	88.5%	89.0%	-2.0%
	Smoker					
	M & F	99.5%	97.1%	94.3%	91.7%	-2.7%
	Male	100.2%	96.7%	93.9%	88.7%	-4.0%
	Female	97.6%	98.2%	95.3%	99.0%	0.5%
Common Companies						
	All	**92.8%**	**92.3%**	**92.9%**	**88.0%**	**-1.7%**
	Non-smoker					
	M & F	91.1%	91.3%	92.0%	87.1%	-1.5%
	Male	90.6%	90.0%	92.1%	86.4%	-1.5%
	Female	92.6%	95.1%	91.8%	89.1%	-1.3%
	Smoker					
	M & F	100.3%	97.7%	96.2%	91.5%	-3.0%
	Male	100.4%	97.2%	94.7%	88.4%	-4.1%
	Female	100.1%	99.1%	100.0%	98.8%	-0.4%

For example, -1.8% for All Company, Male, Nonsmoker is (86.7/91.6)^(1/3) – 1.

In Appendix E, page 2 shows that All Company "by amount" ultimate mortality has improved at an annual rate of 1.7% from 2006 to 2009, with substantial differences in the "improvement rate" by sex.

Appendix F provides further breakdowns by face amount band. Male and female non-smokers both have a significant improvement (decrease) in A/E's from 2006 to 2009 for the face amount band of $100K - 2.5M, but no improvement, and actual increases in A/E's for face amounts of less than $100K.

This appendix also shows improvement rates by issue age. For face amounts of $100K - 2.5M, the All Company improvement rate from 2006 to 2009 for male non-smokers between issue ages 25-39 is very small. The rates of improvement for older issue ages are much higher and tend to increase with increasing age. The rate of improvement for issue ages 70+ actually reached 6.4%.

9. Gender/Smoking Status Experience by Issue Age, Duration and Face Amount Band (Appendix G)

Appendix G shows 2008-09 select experience by issue age band and duration band. Results are shown separately for each of the gender and smoking status combinations. Parts one to four show the results using the 2008 VBT expected basis. Parts one and two show the A/E's by count and amount for face amounts of $100K+. Parts three and four of the appendix are based on face amounts of $50K and larger. Parts five to eight show the same information using the 2001 VBT as the expected basis.

10. Experience by Plan Type (Appendix H)

Appendix H has some experience summaries by product type. The pivot tables also include product type as one of their fields. Based on individual company reporting, policies have been grouped into the following product categories: Term, Traditional Whole Life, Universal Life, Variable Life, Variable Universal Life and Unknown. When reviewing experience by product type, the reader should bear in mind that product types have very different target markets. Differences in the underlying distributions of the business by the various risk characteristics and differences in company practices need to be considered in any comparison.

11. Experience for Term Products (Appendix I)

Appendix I, which did not have a counterpart in previous reports, provides experience for 10, 15 and 20-year level premium term products by duration and issue era. Of particular interest is the experience during the level premium period compared to the post-level period.

As expected, the A/E ratios in the post-level premium period are significantly higher than in the level premium period. This applies to all three level premium periods. This experience should be viewed only as an early indicator, since many of the cells do not yet have enough experience to be deemed credible.

Differences are also expected to emerge by issue year era. The structures of the term programs changed significantly, with the introduction of the XXX regulations, in the year 2000. The post-level premium period experience in this study is all for pre-2000 issues. Pre-2000 and 2000+ issues may have different mortality patterns after the level premium period. The impact on the mortality during the post-level period is beyond the scope of this report. However, other research has been conducted on this issue. See, for example, the SOA-sponsored paper, "Report on the Lapse and Mortality Experience of Post-Level Premium Period Term Plans"; Rozar, Rushing, Willeat; July 2010, which can be found in the SOA website (www.soa.org) by following the successive links: Research \ Life Insurance \ 07/2010 Lapse and Mortality Experience of Post-Level Premium Period Term Plans.

This experience should be viewed with the additional caution that, based on the instructions for the data submitted to this study, the level premium period (10, 15 or 20 years) is the number of

years that premiums were guaranteed to remain level when the policy was issued. In some cases, companies expected premiums to remain level for a longer period of time and experience for shock lapse rates and mortality anti-selection will occur based on the actual rather than the guaranteed number of years of level premiums. Actual mortality anti-selection will be greater than what is implied by the pivot tables if the study includes any products with expected level premium periods that are longer than the guaranteed level premium periods. For future studies, we hope to obtain information that will allow us to identify the expected level premium period for these products.

12. Preferred Structure Experience (Appendices J-M)

Appendices J and K provide summaries of experience for the 43 companies that contributed preferred experience to some or all of the 2005-2009 study. Experience for the 27 Common Companies that submitted preferred risk class data is also summarized.

As in prior studies, contributors to the 2008-2009 Intercompany Study provided information related to their preferred risk class structure.

Companies included two pieces of information for each policy written under a preferred risk structure:

1. The total number of preferred classes in their preferred class structure; and
2. The preferred class rank.

The preferred class rank of the policy would be "1" if it qualified for the most restrictive preferred class,"2" for the next most restrictive preferred class, and so on up to the total number of classes in their preferred structure. The highest rank would be coded for policies which were classified as standard/residual. Overall, 30 of the 36 companies contributing to the 2008-2009 study contributed at least some data by number of risk classes and risk class rank.

Only data for issue ages 25 and older and face amounts of $100,000+ are included in the preferred appendices and pivot tables. For the 2008-2009 observation years, companies submitted preferred experience, with $5.1 trillion of exposure and over 19,000 claims.

The appendices use only the experience for face amounts between $100K and $2.5M. The experience for the observation years 2005 – 2009 (2006-2009 for Common Companies) is used to increase the credibility of the results.

The experience shown will include some mortality anti-selection due to anti-selective lapsation since the level premium term plan experience for the durations beyond the level premium period was included.

Overall, the 2005-2009 actual-to-expected ratios (2008 VBT S/NS expected basis) for this block of multiple risk class business are 93.1% by policy and 87.6% by amount. In the prior study, the appendices showed A/E's of 66.8% by policy and 63.5% by amount. These prior study results

used the 2001 VBT as the expected basis and included only the results for the two most recent policy years, face amounts of $100,000 - 2,499,999 and durations 1-15. This study's 2001 VBT A/E's for the subset of data with the same policy characteristics as in the prior study are 62.8% by policy and 59.2% by amount.

Tables 9 and 10 display All Company preferred experience by smoking status and preferred risk structure. The results are shown separately for various duration groups. Only experience for 2, 3 or 4 non-smoker and 2 smoker classes is included.

<table>
<tr><td colspan="9">Table 9 - 2005-2009 Experience by Risk Class Structure and Rank for All Companies
Only Experience from Preferred Risk Programs Included
Gender Combined, Issue Ages 25+, Face Amounts $100-2,499K
Expected Basis: 2008 VBT</td></tr>
<tr><td rowspan="3">Smoking Status</td><td colspan="2">Risk Class</td><td colspan="6">A/E (by Amount)</td></tr>
<tr><td rowspan="2">Structure</td><td rowspan="2">Rank</td><td colspan="6">Duration</td></tr>
<tr><td>1-5</td><td>6-10</td><td>11-15</td><td>16-20</td><td>21-25</td><td>1-25</td></tr>
<tr><td rowspan="12">Nonsmoker</td><td rowspan="3">2</td><td>1</td><td>80.1%</td><td>76.2%</td><td>76.1%</td><td>86.3%</td><td>68.5%</td><td>78.0%</td></tr>
<tr><td>2</td><td>92.0</td><td>102.1</td><td>102.5</td><td>100.0</td><td>96.2</td><td>99.5</td></tr>
<tr><td>Total</td><td>86.2</td><td>87.4</td><td>87.7</td><td>93.0</td><td>88.0</td><td>88.1</td></tr>
<tr><td rowspan="4">3</td><td>1</td><td>67.9</td><td>65.1</td><td>72.0</td><td></td><td></td><td>66.9</td></tr>
<tr><td>2</td><td>76.4</td><td>80.0</td><td>100.1</td><td></td><td></td><td>78.7</td></tr>
<tr><td>3</td><td>107.1</td><td>107.2</td><td>108.1</td><td></td><td></td><td>107.2</td></tr>
<tr><td>Total</td><td>85.8</td><td>83.2</td><td>89.4</td><td></td><td></td><td>84.9</td></tr>
<tr><td rowspan="5">4</td><td>1</td><td>65.4</td><td>74.0</td><td></td><td></td><td></td><td>67.6</td></tr>
<tr><td>2</td><td>90.8</td><td>80.8</td><td></td><td></td><td></td><td>87.7</td></tr>
<tr><td>3</td><td>107.4</td><td>85.8</td><td></td><td></td><td></td><td>101.6</td></tr>
<tr><td>4</td><td>119.2</td><td>127.1</td><td></td><td></td><td></td><td>121.0</td></tr>
<tr><td>Total</td><td>90.6</td><td>85.8</td><td></td><td></td><td></td><td>89.4</td></tr>
<tr><td rowspan="3">Smoker</td><td rowspan="3">2</td><td>1</td><td>76.9</td><td>80.6</td><td>88.2</td><td>77.0</td><td>99.0</td><td>79.8</td></tr>
<tr><td>2</td><td>101.4</td><td>109.6</td><td>125.6</td><td>112.2</td><td>116.4</td><td>107.8</td></tr>
<tr><td>Total</td><td>86.9</td><td>93.0</td><td>101.8</td><td>86.5</td><td>104.6</td><td>91.0</td></tr>
</table>

Table 10 summarizes the relative mortality of each risk class structure. This relative mortality is the ratio of the A/E for the risk class rank group divided by the A/E for that risk class structure. For example, for the duration group 1-5 of the two-class structure, the value of 93.0% for the best preferred class is derived from the actual A/E of 80.1% for that class divided by the A/E of 86.2% of all business with a two-class structure.

The results indicate that there is still significant selection in durations 21-25 since the better risk class mortality is still significantly lower than that of the residual class. This indicates that the select period of preferred business is likely in excess of 25 years. Appendix M provides more detail, including both the number of claims in each category and experience for various issue age ranges. Credibility concerns still exist for this experience since the amount of experience in durations 21-25 is relatively small. The 3 and 4 class structures have not been in place long enough to provide information past durations 15 and 10, respectively. However, to the extent

that experience is available, the patterns are reasonably similar to the results coming from the two-class structure.

Appendix M also contains the results based on Common Company experience.

Smoking Status	Risk Class		Ratio* of A/E to A/E for Risk Class Structure (by Amount)					
	Structure	Rank	Duration					
			1-5	6-10	11-15	16-20	21-25	1-25
Nonsmoker	**2**	**1**	93.0%	87.2%	86.7%	92.7%	77.9%	88.5%
		2	106.8%	116.9%	116.8%	107.5%	109.3%	112.9%
		Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
	3	**1**	79.1%	78.3%	80.6%			78.8%
		2	89.1%	96.2%	112.0%			92.6%
		3	124.8%	128.8%	120.9%			126.3%
		Total	**100.0%**	**100.0%**	**100.0%**			**100.0%**
	4	**1**	72.1%	86.2%				75.6%
		2	100.2%	94.1%				98.2%
		3	118.5%	99.9%				113.7%
		4	131.5%	148.0%				135.4%
		Total	**100.0%**	**100.0%**				**100.0%**
Smoker	**2**	**1**	88.5%	86.6%	86.6%	89.0%	94.7%	87.7%
		2	116.6%	117.8%	123.4%	129.7%	111.3%	118.5%
		Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

**Table 10 - 2005-2009 Experience by Risk Class Structure and Rank for All Companies
Only Experience from Preferred Risk Programs Included
Gender Combined, Issue Ages 25+, Face Amounts $100-2,499K
Expected Basis: 2008 VBT**

* Ratio of A/E for the risk class rank to the overall A/E of the risk class structure.

Additional companies have provided experience for the 2-3 earlier observation years included in the 4 or 5 year experience, but not in the two observation years of 2008-2009, which are the focus of this study. The prior reports provide a list of companies contributing to the earlier years.

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