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Mortality Studies of Malaysian Assured Lives from 2011 to 2015 Summary Report

Life Insurance Association of Malaysia
(LIAM)



building value together

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EXECUTIVE SUMMARY

- 1) Actuarial Partners was appointed by LIAM to construct a new Mortality Table for the period of 2011 to 2015. All life insurance companies operating in Malaysia have been requested to submit the number of in-force policies as at the end of each calendar year as well as the number of deaths during each calendar year from 2010 to 2015.
- 2) Data was first split to male and female, and then to medical, non-medical and non-underwritten lives. Medical refers to life medically examined on entry. Non-medical refers to life not medically examined on entry but satisfactory evidence of health has been received. Non-underwritten refers to policies sold without underwriting.
- 3) A summary of all data considered in this study is shown in the following table:

Table 1.1: Summary of the Data

Class of Business	Males		Females	
	Exposed to Risk	Deaths	Exposed to Risk	Deaths
Ordinary and Unit Linked Business				
With Medical	1,730,178	6,205	1,332,027	2,885
Without Medical	14,055,077	26,830	13,322,541	14,372
Without Underwriting	226,339	506	272,645	343
Total	16,011,594	33,541	14,927,213	17,600

- 4) The aggregate numbers of exposed to risk for non-medical lives provide satisfactory bases for the study. Therefore, the construction of the mortality table was based on the non-medical mortality experience. The study is carried out based on lives with Death coverage without Dread Disease.
- 5) The exposure is calculated using a census method. The age definition used is age next birthday at 31 December for in-force and age next birthday at death for deaths. Duration is defined as curtate. The formula used to calculate the initial exposed to risk is as below;

For a particular calendar year Y:

$$Ex,r = (Startlf\ x,r + Endlf\ x,r + Death\ x,r)/2$$

Where:

Ex,r = Initial exposure at age x and duration r

Startlf x,r = In force at 1/Jan/Y at age x and duration r

Endlf x, r = In force at 1/Jan/Y+1 at age x and duration r

Death x,r = Actual death during Y at age x and duration r

Note: Startlf x,r and Endlf x,r comprise entirely different sets of lives.

- 6) Table below shows the mortality experience and average age of non-medical male lives with Ordinary and Unit Linked policies and subdivided by duration.

Table 1.2: Summary of the Male Mortality Experience by Duration

Duration Of Policy (Years)	Exposed to Risk (1)	Average Age (2)	Deaths		Ratio of Actual to Expected ² (5)
			Actual (3)	Expected ¹ (4)	
Without Medical Examination					
0	1,489,120	26.6	1,249	2,149	0.58
1	1,267,034	27.2	1,123	1,883	0.59
2	1,070,039	27.9	1,165	1,688	0.68
3	922,227	28.5	1,008	1,535	0.65
4+	9,306,658	36.2	22,083	32,268	0.68
Total	14,055,077	33.2	26,628	39,524	0.67

¹ The Expected number of deaths has been calculated by reference to the M1999-2003 (MO) table

² Non-medical deaths at age less than 5 are excluded as there is no mortality rate for the corresponding ages in M1999-2003 (MO) table.

- 7) Table 1.3 shows the non-medical mortality rates for the period under review, the non-medical mortality rates for the 2006/2010 mortality study and the corresponding M9903 (MO) rates. The rates produced for M9903 (MO) were based on non-medical lives only therefore the comparison made was against the non-medical experience.

Table 1.3: Comparison of Non-Medical Mortality Rates against 2006/10 Rates and M9903 (MO)

Age Group	Rates of Mortality			Ratios	
	Male*	Male**	M9903**	(1) Vs (2)	(1) Vs (3)
	2011/15 (1)	2006/10 (2)	(MO) (3)	(4)	(5)
01 - 05	0.00019	0.00025	N/A	(25%)	N/A
06 - 10	0.00015	0.00017	0.00021	(11%)	(28%)
11 - 15	0.00021	0.00026	0.00041	(18%)	(49%)
16 - 20	0.00059	0.00061	0.00106	(3%)	(44%)
21 - 25	0.00071	0.00081	0.00116	(13%)	(39%)
26 - 30	0.00072	0.00090	0.00107	(20%)	(32%)
31 - 35	0.00091	0.00089	0.00103	3%	(12%)
36 - 40	0.00115	0.00136	0.00124	(16%)	(7%)
41 - 45	0.00166	0.00172	0.00195	(4%)	(15%)
46 - 50	0.00242	0.00285	0.00336	(15%)	(28%)
51 - 55	0.00382	0.00446	0.00554	(14%)	(31%)
56 - 60	0.00549	0.00676	0.00891	(19%)	(38%)
61 - 65	0.00920	0.01106	0.01550	(17%)	(41%)
66 - 70	0.01575	0.02145	0.02573	(27%)	(39%)

71 - 75	0.02722	0.03634	0.04178	(25%)	(35%)
76 - 80	0.04776	0.05827	0.06470	(18%)	(26%)
81 - 85	0.07875	0.06939	0.09797	13%	(20%)
86 - 90	0.08274	N/A	0.14384	N/A	(42%)
91 - 95	0.04630	N/A	0.21209	N/A	(78%)
96 - 100	0.01274	N/A	0.29938	N/A	(96%)

* Non-medical Male Ordinary and Unit Linked Lives

** Non-medical Male Ordinary Lives

The ratios in column (4) and (5) of Table 1.3 show that the mortality experience of non-medical male lives during 2011 to 2015 is relatively lower than the non-medical male mortality experience of the previous 2006/2010 study and the rates from M9903 (MO).

- 8) The mortality experience for female lives with Ordinary and Unit Linked policies subdivided by duration is shown in the following table.

Table 1.4: Summary of the Female Mortality Experience by Duration

Duration Of Policy (Years)	Exposed to Risk (1)	Average Age (2)	Deaths		Ratio of Actual to Expected ² (5)
			Actual (3)	Expected ¹ (4)	
Without Medical Examination					
0	1,450,523	27.9	365	1,117	0.32
1	1,275,027	28.6	448	1,035	0.42
2	1,100,533	29.6	646	972	0.66
3	955,137	30.2	596	904	0.64
4+	8,541,322	36.2	12,195	14,850	0.82
Total	13,322,541	33.6	14,250	18,878	0.75

¹ The expected number of deaths has been calculated by reference to the M1999-2003 (FO) table

² Non-medical deaths at age less than 5 are excluded as there is no mortality rate for the corresponding ages in M1999-2003 (FO) table.

- 9) Table 1.5 shows the non-medical mortality rates for the period under review and the corresponding M9903 (FO) rates. The rates produced for M9903 (FO) were based on non-medical lives only therefore the comparison made was against the non-medical experience. A graph of these mortality rates is presented on the next page.

Table 1.5: Comparison of Non-Medical Mortality Rates against 2006/10 Rates and M9903 (FO)

Age Group	Rates of Mortality			Ratios	
	Female*	Female**	M9903**	(1) Vs (2)	(1) Vs (3)
	2011/15 (1)	2006/10 (2)	(FO) (3)	(4)	(5)
01 - 05	0.00020	0.00021	N/A	(6%)	N/A
06 - 10	0.00010	0.00017	0.00017	(43%)	(43%)
11 - 15	0.00011	0.00014	0.00022	(22%)	(49%)
16 - 20	0.00026	0.00024	0.00031	7%	(18%)
21 - 25	0.00019	0.00025	0.00034	(25%)	(46%)
26 - 30	0.00025	0.00028	0.00037	(12%)	(33%)
31 - 35	0.00040	0.00042	0.00048	(3%)	(17%)
36 - 40	0.00059	0.00064	0.00066	(8%)	(11%)
41 - 45	0.00086	0.00099	0.00104	(14%)	(17%)
46 - 50	0.00134	0.00149	0.00173	(11%)	(23%)
51 - 55	0.00197	0.00251	0.00287	(21%)	(31%)
56 - 60	0.00316	0.00375	0.00479	(16%)	(34%)
61 - 65	0.00561	0.00697	0.00810	(19%)	(31%)
66 - 70	0.01118	0.01501	0.01384	(26%)	(19%)
71 - 75	0.02340	0.02678	0.02313	(13%)	1%
76 - 80	0.04178	0.05325	0.03651	(22%)	14%
81 - 85	0.06906	0.06947	0.05618	(1%)	23%
86 - 90	0.10428	N/A	0.08332	N/A	25%
91 - 95	0.12250	N/A	0.12447	N/A	(2%)
96 - 100	0.00930	N/A	0.17358	N/A	(95%)

* Non-medical Female Ordinary and Unit Linked Lives

** Non-medical Female Ordinary Lives

The ratios in column (5) of Table 1.5 show the mortality rates of non-medical female lives during 2011 to 2015 are significantly lower than the rates from M9903 (FO) except for ages 71 to 90.

- 10) The construction of the mortality table was based on the non-medical mortality experience for lives assured with curtate duration greater or equal to 2 years for Ordinary Whole Life, Endowment and Unit Linked Insurance policies during the five years ending 31 December 2015. Crude rates are derived based on the number of deaths and exposure in each age and a few graduation methods are considered based on the distribution of the crude rates.

- 11) For Male, 4 graduation methods are used in order to come out with the graduated rates namely Whittaker-Henderson, Heligman-Pollard, Cubic Spline and Coale Kisker method as follows:
- Age 5 – 16: Whittaker method is used to smoothen up the volatile crude rates in early ages. These ages are not credible and thus more weight is placed on smoothness over goodness of fit.
 - Age 17 - 23: Heligman-Pollard is then used as it can provide a smoother and a better fit curve for the accident hump.
 - Age 24 – 71: Cubic Spline method is used with the knot being placed at age 24, 52, 67 and 76. Cubic Spline is known for its ability to fit the curve nicely throughout credible ages.
 - Age 72 – 99: Coale Kisker method is used instead of common exponential method as it can produce a smoother closure of a life table. The start age for Coale Kisker method is set at age 73 with the target age of 115.
- 12) For Female, 3 graduation methods are used to produce the graduated rates which are Heligman-Pollard, Cubic Spline and Coale Kisker as follows:
- Age 5 – 29: Heligman-Pollard is used for these ages as it produced a smooth curve which fit quite nicely to the pattern of the crude rates. There is no accident hump observed for Females and thus only 1 method is used to graduate the crude rates from age 5-29.
 - Age 30 – 75: Cubic Spline is used throughout credible ages (age 30-75) with knot being placed at age 24, 47, 62 and 75.
 - Age 76 – 99: Coale Kisker is also used for Female for a similar reason with start age of 68 and target age of 120.
- 13) A few tests have been conducted to assess the smoothness, goodness of fit and reasonableness of the graduated rates against the crude rates.
- For smoothness test, both Male and Female satisfy the first condition of Barnett's Rule of Thumb 86.2% of the time and 84.0% respectively.
 - The goodness of fit of the graduated rates is assessed by comparing actual versus expected. Both Male and Female are 100.1% and 101.2% respectively close to the actual.
 - Sign test is conducted to see the reasonableness of the graduated rates by testing the difference between crude rates and graduated rates. For Male, 57.7% positive sign and 42.3% negative sign whereas for Female, 54.6% positive sign and 45.4% negative sign. Both are indicating the graduated rates are appropriate.
 - A runs test was also conducted to see if the function fits well to the data set. The test concluded that Male and Female graduated curve fit well to the data set with 95% confidence.
 - We have also calculated confidence interval along the crude rates by using Garwood's method to see whether the graduated rates are within a 95% confidence interval. Both Male and Female graduated rates are 92.8% within the confidence interval.

14) The graduated mortality rates with age next birthday definition are as below.

GRADUATED RATES								
AGE NEXT	MALE	FEMALE	AGE NEXT	MALE	FEMALE	AGE NEXT	MALE	FEMALE
1	0.00014	0.00013	34	0.00094	0.00043	67	0.01407	0.00958
2	0.00014	0.00013	35	0.00098	0.00046	68	0.01554	0.01110
3	0.00014	0.00013	36	0.00103	0.00050	69	0.01723	0.01289
4	0.00014	0.00013	37	0.00109	0.00054	70	0.01920	0.01500
5	0.00014	0.00013	38	0.00116	0.00059	71	0.02148	0.01744
6	0.00013	0.00013	39	0.00123	0.00063	72	0.02415	0.02026
7	0.00014	0.00013	40	0.00131	0.00068	73	0.02724	0.02348
8	0.00014	0.00013	41	0.00140	0.00074	74	0.03064	0.02714
9	0.00014	0.00013	42	0.00151	0.00079	75	0.03446	0.03126
10	0.00014	0.00014	43	0.00162	0.00086	76	0.03869	0.03316
11	0.00015	0.00014	44	0.00175	0.00092	77	0.04338	0.03764
12	0.00018	0.00014	45	0.00190	0.00099	78	0.04855	0.04263
13	0.00022	0.00015	46	0.00206	0.00106	79	0.05425	0.04817
14	0.00027	0.00015	47	0.00223	0.00114	80	0.06052	0.05431
15	0.00033	0.00016	48	0.00243	0.00122	81	0.06741	0.06109
16	0.00040	0.00018	49	0.00264	0.00132	82	0.07497	0.06856
17	0.00052	0.00020	50	0.00287	0.00143	83	0.08323	0.07676
18	0.00064	0.00021	51	0.00312	0.00156	84	0.09225	0.08576
19	0.00072	0.00021	52	0.00339	0.00170	85	0.10209	0.09558
20	0.00075	0.00021	53	0.00369	0.00187	86	0.11279	0.10629
21	0.00072	0.00021	54	0.00402	0.00207	87	0.12442	0.11792
22	0.00067	0.00021	55	0.00440	0.00230	88	0.13701	0.13053
23	0.00062	0.00021	56	0.00481	0.00256	89	0.15065	0.14416
24	0.00060	0.00022	57	0.00528	0.00286	90	0.16536	0.15885
25	0.00064	0.00023	58	0.00580	0.00319	91	0.18123	0.17463
26	0.00067	0.00024	59	0.00639	0.00357	92	0.19829	0.19155
27	0.00071	0.00025	60	0.00704	0.00400	93	0.21661	0.20961
28	0.00074	0.00027	61	0.00778	0.00448	94	0.23624	0.22886
29	0.00077	0.00028	62	0.00859	0.00501	95	0.25723	0.24931
30	0.00080	0.00030	63	0.00948	0.00563	96	0.27963	0.27096
31	0.00083	0.00033	64	0.01047	0.00636	97	0.30349	0.29382
32	0.00086	0.00036	65	0.01156	0.00724	98	0.32886	0.31787
33	0.00090	0.00039	66	0.01275	0.00830	99	0.35576	0.34311

ANNEXURE 1

MORTALITY STUDIES OF MALAYSIAN ASSURED LIVES
FROM 2011 TO 2015

MALES - ORDINARY AND UNIT LINKED

YEAR	IN FORCE					Total
	D0	D1	D2	D3	D4+	
2010	299,724	247,221	200,033	165,340	2,004,211	2,916,529
2011	328,952	265,421	220,544	178,236	2,037,003	3,030,156
2012	355,634	283,457	237,222	203,476	2,082,206	3,161,995
2013	337,010	306,951	253,331	219,268	2,142,981	3,259,541
2014	349,981	304,750	271,585	233,346	2,209,599	3,369,261
2015	352,893	305,248	263,096	243,962	2,266,011	3,431,210
Total	2,024,194	1,713,048	1,445,811	1,243,628	12,742,011	19,168,692

YEAR	DEATH					Total
	D0	D1	D2	D3	D4+	
2011	321	281	217	237	5,275	6,331
2012	307	297	278	225	5,416	6,523
2013	295	268	287	261	5,696	6,807
2014	304	257	327	226	5,691	6,805
2015	412	295	287	262	5,819	7,075
Total	1,639	1,398	1,396	1,211	27,897	33,541

YEAR	AVERAGE AGE					Total
	D0	D1	D2	D3	D4+	
2011	27.1	27.7	28.2	28.5	36.9	34.0
2012	27.3	27.8	28.5	28.6	37.2	34.1
2013	27.4	28.0	28.7	29.3	37.3	34.2
2014	27.6	28.3	28.9	29.5	37.5	34.4
2015	28.2	28.4	29.1	29.8	37.6	34.6
Total	27.5	28.1	28.7	29.2	37.3	34.3

YEAR	EXPOSED TO RISK					Total
	D0	D1	D2	D3	D4+	
2011	314,498.5	256,461.5	210,397.0	171,906.5	2,023,244.5	2,976,508.0
2012	342,446.5	274,587.5	229,022.0	190,968.5	2,062,312.5	3,099,337.0
2013	346,469.5	295,338.0	245,420.0	211,502.5	2,115,441.5	3,214,171.5
2014	343,647.5	305,979.0	262,621.5	226,420.0	2,179,135.5	3,317,803.5
2015	351,643.0	305,146.5	267,484.0	238,785.0	2,240,714.5	3,403,773.0
Total	1,698,705.0	1,437,512.5	1,214,944.5	1,039,582.5	10,620,848.5	16,011,593.0

YEAR	EXPECTED DEATH (M8388)					Total
	D0	D1	D2	D3	D4+	
2011	537.3	467.8	407.5	346.1	8,196.8	9,955.5
2012	589.8	497.3	449.5	373.9	8,649.9	10,560.4
2013	610.7	542.7	477.9	436.1	9,122.2	11,189.5
2014	632.1	577.9	520.1	466.8	9,646.8	11,843.7
2015	711.1	596.8	545.5	506.5	10,158.0	12,517.9
Total	3,081.0	2,682.5	2,400.4	2,129.4	45,773.7	56,067.0

YEAR	ACTUAL/EXPECTED DEATH					Total
	D0	D1	D2	D3	D4+	
2011	0.53	0.56	0.51	0.66	0.64	0.63
2012	0.50	0.57	0.60	0.60	0.62	0.61
2013	0.46	0.47	0.60	0.58	0.62	0.60
2014	0.44	0.43	0.61	0.47	0.59	0.57
2015	0.51	0.47	0.50	0.51	0.57	0.56
Total	0.49	0.50	0.56	0.56	0.61	0.59

ANNEXURE 2

MORTALITY STUDIES OF MALAYSIAN ASSURED LIVES
FROM 2011 TO 2015

MALES - ORDINARY AND UNIT LINKED WITH MEDICAL EXAMINATION

YEAR	IN FORCE					Total
	D0	D1	D2	D3	D4+	
2010	25,469	24,981	17,853	14,150	244,252	326,705
2011	26,266	24,550	22,182	15,926	246,412	335,336
2012	27,967	23,546	22,321	20,551	248,768	343,153
2013	25,479	26,849	21,386	20,763	252,888	347,365
2014	31,040	24,952	24,945	20,219	258,236	359,392
2015	34,869	29,052	20,101	20,767	252,164	356,953
Total	171,090	153,930	128,788	112,376	1,502,720	2,068,904

YEAR	DEATH					Total
	D0	D1	D2	D3	D4+	
2011	27	49	20	17	1,053	1,166
2012	26	26	30	25	1,089	1,196
2013	24	23	16	27	1,069	1,159
2014	24	19	34	22	1,128	1,227
2015	60	37	25	34	1,301	1,457
Total	161	154	125	125	5,640	6,205

YEAR	AVERAGE AGE					Total
	D0	D1	D2	D3	D4+	
2011	31.8	30.6	29.5	30.7	44.6	41.0
2012	33.1	32.6	31.4	30.0	44.8	41.3
2013	34.6	34.1	33.4	32.2	44.8	41.7
2014	34.0	35.3	35.0	34.4	44.8	42.0
2015	32.7	34.7	36.3	35.9	45.2	42.2
Total	33.2	33.5	33.2	32.8	44.8	41.7

YEAR	EXPOSED TO RISK					Total
	D0	D1	D2	D3	D4+	
2011	25,881.0	24,790.0	20,027.5	15,046.5	245,858.5	331,603.5
2012	27,129.5	24,061.0	22,266.5	18,251.0	248,134.5	339,842.5
2013	26,735.0	25,209.0	21,861.5	20,670.5	251,362.5	345,838.5
2014	28,271.5	25,910.0	23,182.5	20,502.0	256,126.0	353,992.0
2015	32,984.5	27,020.5	22,535.5	20,510.0	255,850.5	358,901.0
Total	141,001.5	126,990.5	109,873.5	94,980.0	1,257,332.0	1,730,177.5

YEAR	EXPECTED DEATH (M8388)					Total
	D0	D1	D2	D3	D4+	
2011	74.5	69.8	54.8	44.7	1,984.8	2,228.5
2012	82.2	74.8	68.5	52.2	2,095.8	2,373.5
2013	88.8	83.1	74.1	69.6	2,196.3	2,511.9
2014	93.1	92.4	83.2	76.1	2,311.8	2,656.6
2015	101.7	95.4	89.7	82.0	2,418.0	2,786.9
Total	440.2	415.4	370.4	324.6	11,006.6	12,557.3

YEAR	ACTUAL/EXPECTED DEATH					Total
	D0	D1	D2	D3	D4+	
2011	0.35	0.60	0.31	0.36	0.53	0.52
2012	0.32	0.32	0.41	0.48	0.52	0.50
2013	0.25	0.26	0.20	0.39	0.49	0.46
2014	0.24	0.19	0.41	0.29	0.49	0.46
2015	0.55	0.38	0.28	0.41	0.54	0.52
Total	0.35	0.34	0.32	0.38	0.51	0.49

ANNEXURE 3

**MORTALITY STUDIES OF MALAYSIAN ASSURED LIVES
FROM 2011 TO 2015**

MALES - ORDINARY AND UNIT LINKED WITHOUT MEDICAL EXAMINATION

YEAR	IN FORCE					Total
	D0	D1	D2	D3	D4+	
2010	267,712	216,911	176,248	147,173	1,748,504	2,556,548
2011	294,250	236,090	193,518	158,295	1,779,161	2,661,314
2012	306,008	253,980	210,731	179,910	1,822,818	2,773,447
2013	296,284	264,422	226,819	195,460	1,877,981	2,860,966
2014	307,205	269,459	232,997	208,873	1,940,139	2,958,673
2015	301,668	268,088	234,507	211,182	2,002,531	3,017,976
Total	1,773,127	1,508,950	1,274,820	1,100,893	11,171,134	16,828,924

YEAR	DEATH					Total
	D0	D1	D2	D3	D4+	
2011	287	223	184	203	4,178	5,075
2012	266	266	244	192	4,295	5,263
2013	247	229	259	224	4,582	5,541
2014	268	211	275	189	4,542	5,485
2015	297	238	230	215	4,486	5,466
Total	1,365	1,167	1,192	1,023	22,083	26,830

YEAR	AVERAGE AGE					Total
	D0	D1	D2	D3	D4+	
2011	26.5	27.1	27.6	27.7	35.8	33.0
2012	26.3	27.1	28.0	28.2	36.0	33.1
2013	26.4	27.0	28.0	28.8	36.2	33.2
2014	26.6	27.1	27.8	28.8	36.4	33.3
2015	27.1	27.4	28.0	28.7	36.6	33.6
Total	26.6	27.2	27.9	28.5	36.2	33.2

YEAR	EXPOSED TO RISK					Total
	D0	D1	D2	D3	D4+	
2011	281,124.5	226,612.0	184,975.0	152,835.5	1,765,921.5	2,611,468.5
2012	300,262.0	245,168.0	202,246.5	169,198.5	1,803,137.0	2,720,012.0
2013	301,269.5	259,315.5	218,904.5	187,797.0	1,852,690.5	2,819,977.0
2014	301,878.5	267,046.0	230,045.5	202,261.0	1,911,331.0	2,912,562.0
2015	304,585.0	268,892.5	233,867.0	210,135.0	1,973,578.0	2,991,057.5
Total	1,489,119.5	1,267,034.0	1,070,038.5	922,227.0	9,306,658.0	14,055,077.0

YEAR	EXPECTED DEATH (M9903)					Total
	D0	D1	D2	D3	D4+	
2011	393.2	337.8	293.7	249.6	5,703.6	6,978.0
2012	413.0	360.2	324.1	275.8	6,048.2	7,421.4
2013	421.4	374.0	345.3	323.0	6,420.1	7,883.9
2014	441.0	394.3	355.0	340.1	6,836.6	8,366.9
2015	480.8	416.9	369.6	346.5	7,259.9	8,873.8
Total	2,149.4	1,883.3	1,687.8	1,535.1	32,268.5	39,524.0

YEAR	ACTUAL/EXPECTED DEATH					Total
	D0	D1	D2	D3	D4+	
2011	0.64	0.63	0.61	0.80	0.73	0.72
2012	0.62	0.71	0.74	0.69	0.71	0.71
2013	0.56	0.60	0.75	0.68	0.71	0.70
2014	0.56	0.52	0.76	0.55	0.66	0.65
2015	0.53	0.53	0.59	0.61	0.62	0.61
Total	0.58	0.60	0.69	0.66	0.68	0.67

ANNEXURE 4

**MORTALITY STUDIES OF MALAYSIAN ASSURED LIVES
FROM 2011 TO 2015**

MALES - ORDINARY AND UNIT LINKED WITHOUT UNDERWRITING

YEAR	IN FORCE					Total
	D0	D1	D2	D3	D4+	
2010	6,543	5,329	5,932	4,017	11,455	33,276
2011	8,436	4,781	4,844	4,015	11,430	33,506
2012	21,659	5,931	4,170	3,015	10,620	45,395
2013	15,247	15,680	5,126	3,045	12,112	51,210
2014	11,736	10,339	13,643	4,254	11,224	51,196
2015	16,356	8,108	8,488	12,013	11,316	56,281
Total	79,977	50,168	42,203	30,359	68,157	270,864

YEAR	DEATH					Total
	D0	D1	D2	D3	D4+	
2011	7	9	13	17	44	90
2012	15	5	4	8	32	64
2013	24	16	12	10	45	107
2014	12	27	18	15	21	93
2015	55	20	32	13	32	152
Total	113	77	79	63	174	506

YEAR	AVERAGE AGE					Total
	D0	D1	D2	D3	D4+	
2011	36.1	39.5	42.4	47.4	51.6	44.3
2012	35.4	39.2	40.9	42.0	51.0	41.5
2013	33.9	38.7	40.8	38.8	49.1	39.5
2014	35.9	37.1	40.4	40.8	46.9	39.9
2015	41.4	38.7	38.8	41.9	44.3	41.1
Total	36.4	38.4	40.3	42.3	48.6	41.0

YEAR	EXPOSED TO RISK					Total
	D0	D1	D2	D3	D4+	
2011	7,493.0	5,059.5	5,394.5	4,024.5	11,464.5	33,436.0
2012	15,055.0	5,358.5	4,509.0	3,519.0	11,041.0	39,482.5
2013	18,465.0	10,813.5	4,654.0	3,035.0	11,388.5	48,356.0
2014	13,497.5	13,023.0	9,393.5	3,657.0	11,678.5	51,249.5
2015	14,073.5	9,233.5	11,081.5	8,140.0	11,286.0	53,814.5
Total	68,584.0	43,488.0	35,032.5	22,375.5	56,858.5	226,338.5

YEAR	EXPECTED DEATH (M8388)					Total
	D0	D1	D2	D3	D4+	
2011	24.4	22.8	29.4	29.7	105.2	211.5
2012	47.4	22.4	23.1	19.5	103.2	215.6
2013	53.2	44.0	22.2	12.7	102.1	234.2
2014	50.1	48.6	44.2	17.4	94.3	254.6
2015	79.1	41.4	48.0	43.3	77.4	289.1
Total	254.1	179.2	166.9	122.5	482.3	1,205.0

YEAR	ACTUAL/EXPECTED DEATH					Total
	D0	D1	D2	D3	D4+	
2011	0.29	0.35	0.44	0.57	0.42	0.42
2012	0.32	0.22	0.17	0.41	0.31	0.30
2013	0.43	0.36	0.54	0.63	0.44	0.44
2014	0.24	0.56	0.41	0.86	0.22	0.37
2015	0.70	0.48	0.67	0.30	0.41	0.53
Total	0.44	0.42	0.47	0.50	0.36	0.42

ANNEXURE 5

**MORTALITY STUDIES OF MALAYSIAN ASSURED LIVES
FROM 2011 TO 2015**

FEMALES - ORDINARY AND UNIT LINKED

YEAR	IN FORCE					Total
	D0	D1	D2	D3	D4+	
2010	291,745	254,156	206,828	164,284	1,729,775	2,646,788
2011	315,008	268,859	232,790	182,324	1,776,095	2,775,076
2012	340,286	282,773	245,860	216,112	1,841,585	2,926,616
2013	326,738	305,701	258,362	228,791	1,930,719	3,050,311
2014	351,580	305,390	277,348	240,249	2,022,723	3,197,290
2015	346,615	318,515	270,696	252,969	2,102,657	3,291,452
Total	1,971,972	1,735,394	1,491,884	1,284,729	11,403,554	17,887,533

YEAR	DEATH					Total
	D0	D1	D2	D3	D4+	
2011	86	108	117	107	2,667	3,085
2012	105	107	162	145	2,835	3,354
2013	97	101	155	150	2,935	3,438
2014	109	138	180	155	3,280	3,862
2015	137	125	169	150	3,280	3,861
Total	534	579	783	707	14,997	17,600

YEAR	AVERAGE AGE					Total
	D0	D1	D2	D3	D4+	
2011	28.6	29.5	30.0	30.0	36.3	33.9
2012	28.6	29.5	30.5	30.4	36.6	34.0
2013	28.8	29.6	30.5	31.3	36.8	34.3
2014	29.1	29.8	30.7	31.4	37.1	34.5
2015	29.7	29.9	30.8	31.6	37.3	34.8
Total	29.0	29.7	30.5	31.0	36.8	34.3

YEAR	EXPOSED TO RISK					Total
	D0	D1	D2	D3	D4+	
2011	303,419.5	261,561.5	219,867.5	173,357.5	1,754,268.5	2,712,474.5
2012	327,699.5	275,869.5	239,406.0	199,290.5	1,810,257.5	2,852,523.0
2013	333,560.5	294,287.5	252,188.5	222,526.5	1,887,619.5	2,990,182.5
2014	339,213.5	305,614.5	267,945.0	234,597.5	1,978,361.0	3,125,731.5
2015	349,166.0	312,015.0	274,106.5	246,684.0	2,064,330.0	3,246,301.5
Total	1,653,059.0	1,449,348.0	1,253,513.5	1,076,456.0	9,494,836.5	14,927,213.0

YEAR	EXPECTED DEATH (M8388)					Total
	D0	D1	D2	D3	D4+	
2011	297.4	280.9	253.4	208.2	3,638.1	4,678.0
2012	324.9	295.7	284.3	233.3	3,894.4	5,032.6
2013	341.7	320.8	298.4	280.1	4,175.3	5,416.2
2014	359.5	345.0	323.3	297.8	4,500.1	5,825.7
2015	405.7	361.7	342.6	324.8	4,821.2	6,255.9
Total	1,729.2	1,604.1	1,501.8	1,344.2	21,029.1	27,208.5

YEAR	ACTUAL/EXPECTED DEATH					Total
	D0	D1	D2	D3	D4+	
2011	0.23	0.34	0.44	0.49	0.73	0.65
2012	0.27	0.32	0.54	0.58	0.72	0.65
2013	0.23	0.29	0.49	0.52	0.70	0.63
2014	0.26	0.36	0.51	0.50	0.73	0.65
2015	0.30	0.33	0.48	0.44	0.68	0.61
Total	0.26	0.33	0.50	0.50	0.71	0.64

ANNEXURE 6

**MORTALITY STUDIES OF MALAYSIAN ASSURED LIVES
FROM 2011 TO 2015**

FEMALES - ORDINARY AND UNIT LINKED WITH MEDICAL EXAMINATION

YEAR	IN FORCE					Total
	D0	D1	D2	D3	D4+	
2010	23,865	23,971	16,706	12,663	163,032	240,237
2011	23,660	23,642	21,651	14,666	166,747	250,366
2012	26,306	22,687	21,826	20,284	171,512	262,615
2013	23,863	25,907	21,076	20,513	179,000	270,359
2014	29,099	23,574	24,350	20,012	187,800	284,835
2015	32,088	27,942	19,297	20,514	184,741	284,582
Total	158,881	147,723	124,906	108,652	1,052,832	1,592,994

YEAR	DEATH					Total
	D0	D1	D2	D3	D4+	
2011	7	14	6	10	483	520
2012	13	17	15	9	487	541
2013	8	7	12	19	507	553
2014	11	16	23	16	565	631
2015	7	7	11	21	594	640
Total	46	61	67	75	2,636	2,885

YEAR	AVERAGE AGE					Total
	D0	D1	D2	D3	D4+	
2011	33.6	32.4	31.5	32.2	42.2	39.0
2012	35.2	34.5	33.5	31.9	42.4	39.5
2013	36.7	36.2	35.7	34.5	42.4	40.2
2014	36.4	37.5	37.3	36.7	42.5	40.6
2015	35.0	37.2	38.7	38.4	43.0	40.9
Total	35.4	35.6	35.4	35.0	42.5	40.1

YEAR	EXPOSED TO RISK					Total
	D0	D1	D2	D3	D4+	
2011	23,766.0	23,813.5	19,181.5	13,669.5	165,131.0	245,561.5
2012	24,989.5	23,173.0	21,746.0	17,479.5	169,373.0	256,761.0
2013	25,088.5	24,300.5	21,457.0	20,408.0	175,509.5	266,763.5
2014	26,486.5	24,748.5	22,724.5	20,270.5	183,682.5	277,912.5
2015	30,597.0	25,761.5	21,829.0	20,273.5	186,567.5	285,028.5
Total	130,927.5	121,797.0	106,938.0	92,101.0	880,263.5	1,332,027.0

YEAR	EXPECTED DEATH (M8388)					Total
	D0	D1	D2	D3	D4+	
2011	44.3	43.2	33.8	25.8	752.6	899.7
2012	50.4	47.3	44.1	32.3	808.6	982.8
2013	56.5	53.8	48.8	45.9	862.6	1,067.6
2014	60.1	60.9	55.9	51.1	925.7	1,153.7
2015	64.1	64.0	61.2	56.7	977.4	1,223.3
Total	275.4	269.1	243.8	211.8	4,327.0	5,327.0

YEAR	ACTUAL/EXPECTED DEATH					Total
	D0	D1	D2	D3	D4+	
2011	0.14	0.23	0.12	0.35	0.64	0.57
2012	0.22	0.32	0.32	0.22	0.60	0.54
2013	0.12	0.13	0.23	0.41	0.59	0.51
2014	0.10	0.25	0.41	0.25	0.61	0.54
2015	0.06	0.11	0.18	0.37	0.60	0.52
Total	0.12	0.20	0.26	0.33	0.61	0.53

ANNEXURE 7

MORTALITY STUDIES OF MALAYSIAN ASSURED LIVES
FROM 2011 TO 2015

FEMALES - ORDINARY AND UNIT LINKED WITHOUT MEDICAL EXAMINATION

YEAR	IN FORCE					Total
	D0	D1	D2	D3	D4+	
2010	260,734	222,201	181,652	145,715	1,551,285	2,361,587
2011	281,931	239,374	203,630	162,341	1,593,938	2,481,214
2012	290,644	252,640	218,828	191,566	1,656,368	2,610,046
2013	287,250	260,919	230,545	204,968	1,735,675	2,719,357
2014	311,189	269,908	235,783	214,617	1,821,389	2,852,886
2015	297,860	281,693	241,170	216,971	1,904,423	2,942,117
Total	1,729,608	1,526,735	1,311,608	1,136,178	10,263,078	15,967,207

YEAR	DEATH					Total
	D0	D1	D2	D3	D4+	
2011	79	91	103	92	2,137	2,502
2012	81	86	141	131	2,305	2,744
2013	77	82	140	124	2,405	2,828
2014	85	107	142	137	2,675	3,146
2015	101	112	146	120	2,673	3,152
Total	423	478	672	604	12,195	14,372

YEAR	AVERAGE AGE					Total
	D0	D1	D2	D3	D4+	
2011	27.8	28.8	29.3	29.2	35.5	33.1
2012	27.5	28.7	29.8	29.9	35.8	33.3
2013	27.6	28.4	29.7	30.8	36.1	33.5
2014	28.0	28.5	29.4	30.6	36.4	33.7
2015	28.5	28.9	29.5	30.3	36.7	34.0
Total	27.9	28.6	29.6	30.2	36.2	33.6

YEAR	EXPOSED TO RISK					Total
	D0	D1	D2	D3	D4+	
2011	271,372.0	230,833.0	192,692.5	154,074.0	1,573,680.0	2,422,651.5
2012	286,328.0	246,050.0	211,299.5	177,019.0	1,626,305.0	2,547,002.0
2013	288,985.5	256,820.5	224,756.5	198,329.0	1,697,224.0	2,666,115.5
2014	299,262.0	265,467.0	233,235.0	209,861.0	1,779,869.5	2,787,694.5
2015	304,575.0	275,856.5	238,549.5	215,854.0	1,864,242.5	2,899,077.5
Total	1,450,522.5	1,275,027.0	1,100,533.0	955,137.0	8,541,321.5	13,322,541.0

YEAR	EXPECTED DEATH (M9903)					Total
	D0	D1	D2	D3	D4+	
2011	202.4	188.0	169.4	141.1	2,541.1	3,242.0
2012	206.6	199.1	190.5	161.5	2,729.1	3,486.8
2013	213.2	200.7	200.8	195.4	2,939.2	3,749.3
2014	233.8	213.0	200.7	203.5	3,188.3	4,039.4
2015	260.5	234.2	210.8	202.8	3,452.3	4,360.6
Total	1,116.5	1,034.9	972.2	904.4	14,850.0	18,878.0

YEAR	ACTUAL/EXPECTED DEATH					Total
	D0	D1	D2	D3	D4+	
2011	0.31	0.45	0.60	0.65	0.84	0.76
2012	0.34	0.41	0.72	0.80	0.84	0.78
2013	0.30	0.37	0.67	0.62	0.82	0.75
2014	0.33	0.46	0.65	0.67	0.84	0.77
2015	0.34	0.47	0.67	0.58	0.77	0.72
Total	0.33	0.43	0.66	0.66	0.82	0.75

ANNEXURE 8

**MORTALITY STUDIES OF MALAYSIAN ASSURED LIVES
FROM 2011 TO 2015**

FEMALES - ORDINARY AND UNIT LINKED WITHOUT UNDERWRITING

YEAR	IN FORCE					Total
	D0	D1	D2	D3	D4+	
2010	7,146	7,984	8,470	5,906	15,458	44,964
2011	9,417	5,843	7,509	5,317	15,410	43,496
2012	23,336	7,446	5,206	4,262	13,705	53,955
2013	15,625	18,875	6,741	3,310	16,044	60,595
2014	11,292	11,908	17,215	5,620	13,534	59,569
2015	16,667	8,880	10,229	15,484	13,493	64,753
Total	83,483	60,936	55,370	39,899	87,644	327,332

YEAR	DEATH					Total
	D0	D1	D2	D3	D4+	
2011	0	3	8	5	47	63
2012	11	4	6	5	43	69
2013	12	12	3	7	23	57
2014	13	15	15	2	40	85
2015	29	6	12	9	13	69
Total	65	40	44	28	166	343

YEAR	AVERAGE AGE					Total
	D0	D1	D2	D3	D4+	
2011	38.8	42.1	43.9	47.1	51.9	45.9
2012	38.4	41.6	43.5	43.6	51.6	44.0
2013	37.0	41.3	43.0	41.1	50.3	42.3
2014	37.8	40.0	42.9	42.7	48.3	42.3
2015	42.3	40.7	41.7	44.3	45.6	42.9
Total	38.7	41.0	42.8	44.1	49.6	43.3

YEAR	EXPOSED TO RISK					Total
	D0	D1	D2	D3	D4+	
2011	8,281.5	6,915.0	7,993.5	5,614.0	15,457.5	44,261.5
2012	16,382.0	6,646.5	6,360.5	4,792.0	14,579.0	48,760.0
2013	19,486.5	13,166.5	5,975.0	3,789.5	14,886.0	57,303.5
2014	13,465.0	15,399.0	11,985.5	4,466.0	14,809.0	60,124.5
2015	13,994.0	10,397.0	13,728.0	10,556.5	13,520.0	62,195.5
Total	71,609.0	52,524.0	46,042.5	29,218.0	73,251.5	272,645.0

YEAR	EXPECTED DEATH (M8388)					Total
	D0	D1	D2	D3	D4+	
2011	16.7	18.7	23.2	20.0	79.1	157.8
2012	32.9	16.6	19.6	14.5	78.2	161.8
2013	36.2	33.1	17.0	9.6	78.8	174.7
2014	26.8	36.2	34.6	12.5	71.1	181.3
2015	40.0	25.5	37.3	34.5	54.0	191.2
Total	152.5	130.1	131.7	91.2	361.3	866.8

YEAR	ACTUAL/EXPECTED DEATH					Total
	D0	D1	D2	D3	D4+	
2011	0.00	0.16	0.34	0.25	0.59	0.40
2012	0.33	0.24	0.31	0.34	0.55	0.43
2013	0.33	0.36	0.18	0.73	0.29	0.33
2014	0.41	0.41	0.40	0.16	0.56	0.45
2015	0.73	0.23	0.32	0.26	0.24	0.36
Total	0.41	0.31	0.33	0.31	0.46	0.39

ANNEXURE 9

**MALE - RAW AND GRADUATED RATES
ORDINARY AND UNIT LINKED WITHOUT MEDICAL EXAMINATION**

MALE				
AGE	EXPOSURE	CLAIMS	RAW	GRADUATED
1	-	-	0.00000	0.00014
2	388	-	0.00000	0.00014
3	64,983	17	0.00026	0.00014
4	97,993	25	0.00026	0.00014
5	109,542	10	0.00009	0.00014
6	118,370	23	0.00019	0.00013
7	125,323	16	0.00013	0.00014
8	131,378	17	0.00013	0.00014
9	137,066	28	0.00020	0.00014
10	143,122	15	0.00010	0.00014
11	150,440	13	0.00009	0.00015
12	158,006	28	0.00018	0.00018
13	163,408	30	0.00018	0.00022
14	168,890	42	0.00025	0.00027
15	173,603	59	0.00034	0.00033
16	175,722	74	0.00042	0.00040
17	175,804	94	0.00053	0.00052
18	169,616	90	0.00053	0.00064
19	166,045	102	0.00061	0.00072
20	161,057	141	0.00088	0.00075
21	151,673	89	0.00059	0.00072
22	148,097	118	0.00080	0.00067
23	149,689	111	0.00074	0.00062
24	154,413	106	0.00069	0.00060
25	160,148	115	0.00072	0.00064
26	172,299	110	0.00064	0.00067
27	189,957	144	0.00076	0.00071
28	205,168	148	0.00072	0.00074
29	217,645	162	0.00074	0.00077
30	230,017	170	0.00074	0.00080
31	237,438	187	0.00079	0.00083
32	242,260	209	0.00086	0.00086
33	245,168	195	0.00080	0.00090
34	247,206	234	0.00095	0.00094
35	248,551	284	0.00114	0.00098
36	249,439	265	0.00106	0.00103
37	250,235	303	0.00121	0.00109
38	251,352	268	0.00107	0.00116
39	253,137	270	0.00107	0.00123
40	254,219	342	0.00135	0.00131
41	254,405	401	0.00158	0.00140
42	254,055	405	0.00159	0.00151
43	252,724	390	0.00154	0.00162
44	250,773	433	0.00173	0.00175

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MALE				
AGE	EXPOSURE	CLAIMS	RAW	GRADUATED
45	246,061	459	0.00187	0.00190
46	241,918	487	0.00201	0.00206
47	238,653	536	0.00225	0.00223
48	234,772	540	0.00230	0.00243
49	229,119	619	0.00270	0.00264
50	221,949	635	0.00286	0.00287
51	214,864	684	0.00318	0.00312
52	206,912	730	0.00353	0.00339
53	197,520	762	0.00386	0.00369
54	186,451	810	0.00434	0.00402
55	154,067	681	0.00442	0.00440
56	136,253	624	0.00458	0.00481
57	124,191	651	0.00524	0.00528
58	112,604	631	0.00560	0.00580
59	100,234	607	0.00606	0.00639
60	86,097	560	0.00650	0.00704
61	74,081	564	0.00761	0.00778
62	65,610	563	0.00858	0.00859
63	57,781	524	0.00907	0.00948
64	50,062	536	0.01071	0.01047
65	42,579	482	0.01132	0.01156
66	35,525	488	0.01374	0.01275
67	29,399	442	0.01503	0.01407
68	24,408	358	0.01467	0.01554
69	20,283	355	0.01750	0.01723
70	17,247	355	0.02058	0.01920
71	15,235	360	0.02363	0.02148
72	13,496	345	0.02556	0.02415
73	11,627	314	0.02701	0.02724
74	9,683	278	0.02871	0.03064
75	8,122	286	0.03521	0.03446
76	6,672	254	0.03807	0.03869
77	5,403	256	0.04738	0.04338
78	4,339	226	0.05209	0.04855
79	3,475	178	0.05122	0.05425
80	2,767	168	0.06072	0.06052
81	2,103	177	0.08419	0.06741
82	1,607	100	0.06225	0.07497
83	1,271	121	0.09520	0.08323
84	981	68	0.06932	0.09225
85	744	62	0.08339	0.10209
86	545	44	0.08073	0.11279
87	353	37	0.10482	0.12442
88	247	28	0.11336	0.13701
89	187	7	0.03753	0.15065
90	143	6	0.04196	0.16536

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MALE				
AGE	EXPOSURE	CLAIMS	RAW	GRADUATED
91	107	10	0.09390	0.18123
92	72	1	0.01389	0.19829
93	58	3	0.05172	0.21661
94	46	1	0.02174	0.23624
95	42	-	0.00000	0.25723
96	43	1	0.02353	0.27963
97	42	1	0.02381	0.30349
98	40	-	0.00000	0.32886
99	16	-	0.00000	0.35576

ANNEXURE 10

**FEMALE - RAW AND GRADUATED RATES
ORDINARY AND UNIT LINKED WITHOUT MEDICAL EXAMINATION**

FEMALE				
AGE	EXPOSURE	CLAIMS	RAW	GRADUATED
1	-	-	0.00000	0.00013
2	310	-	0.00000	0.00013
3	59,396	21	0.00035	0.00013
4	89,017	13	0.00015	0.00013
5	99,387	15	0.00015	0.00013
6	107,078	13	0.00012	0.00013
7	112,891	14	0.00012	0.00013
8	117,503	9	0.00008	0.00013
9	121,752	12	0.00010	0.00013
10	126,898	9	0.00007	0.00014
11	133,086	15	0.00011	0.00014
12	139,698	12	0.00009	0.00014
13	144,159	23	0.00016	0.00015
14	148,522	14	0.00009	0.00015
15	152,177	17	0.00011	0.00016
16	153,330	38	0.00025	0.00018
17	152,660	38	0.00025	0.00020
18	145,444	42	0.00029	0.00021
19	140,003	30	0.00021	0.00021
20	133,375	39	0.00029	0.00021
21	123,452	26	0.00021	0.00021
22	120,365	20	0.00017	0.00021
23	122,417	18	0.00015	0.00021
24	128,010	28	0.00022	0.00022
25	136,974	25	0.00018	0.00023
26	153,108	30	0.00020	0.00024
27	176,646	44	0.00025	0.00025
28	197,283	50	0.00025	0.00027
29	213,977	49	0.00023	0.00028
30	230,206	67	0.00029	0.00030
31	241,564	71	0.00029	0.00033
32	248,522	90	0.00036	0.00036
33	254,030	87	0.00034	0.00039
34	258,066	119	0.00046	0.00043
35	262,157	143	0.00055	0.00046
36	264,433	145	0.00055	0.00050
37	266,772	132	0.00049	0.00054
38	268,626	161	0.00060	0.00059
39	270,949	171	0.00063	0.00063
40	271,533	183	0.00067	0.00068
41	269,871	185	0.00069	0.00074
42	266,351	214	0.00080	0.00079
43	260,711	213	0.00082	0.00086
44	253,064	240	0.00095	0.00092
45	243,045	254	0.00105	0.00099

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FEMALE				
AGE	EXPOSURE	CLAIMS	RAW	GRADUATED
46	234,099	241	0.00103	0.00106
47	226,889	263	0.00116	0.00114
48	219,357	321	0.00146	0.00122
49	210,211	324	0.00154	0.00132
50	199,656	308	0.00154	0.00143
51	189,152	313	0.00165	0.00156
52	179,061	331	0.00185	0.00170
53	168,366	353	0.00210	0.00187
54	156,314	329	0.00210	0.00207
55	134,364	304	0.00226	0.00230
56	118,480	349	0.00295	0.00256
57	106,680	335	0.00314	0.00286
58	95,179	270	0.00284	0.00319
59	83,408	283	0.00339	0.00357
60	71,186	263	0.00369	0.00400
61	61,070	286	0.00468	0.00448
62	53,556	265	0.00495	0.00501
63	46,614	275	0.00590	0.00563
64	39,866	250	0.00627	0.00636
65	33,358	240	0.00719	0.00724
66	27,575	242	0.00878	0.00830
67	22,871	223	0.00975	0.00958
68	19,103	224	0.01173	0.01110
69	16,159	212	0.01312	0.01289
70	13,947	213	0.01527	0.01500
71	12,691	220	0.01734	0.01744
72	11,806	262	0.02219	0.02026
73	10,564	260	0.02461	0.02348
74	9,307	225	0.02418	0.02714
75	8,191	263	0.03211	0.03126
76	7,118	227	0.03189	0.03316
77	6,087	231	0.03795	0.03764
78	5,114	232	0.04537	0.04263
79	4,302	209	0.04858	0.04817
80	3,565	195	0.05470	0.05431
81	2,939	150	0.05104	0.06109
82	2,405	155	0.06446	0.06856
83	1,977	149	0.07537	0.07676
84	1,531	137	0.08948	0.08576
85	1,183	102	0.08622	0.09558
86	863	77	0.08922	0.10629
87	617	72	0.11669	0.11792
88	422	40	0.09479	0.13053
89	301	37	0.12313	0.14416
90	205	25	0.12225	0.15885

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FEMALE				
AGE	EXPOSURE	CLAIMS	RAW	GRADUATED
91	134	16	0.11940	0.17463
92	87	18	0.20690	0.19155
93	61	9	0.14876	0.20961
94	47	1	0.02151	0.22886
95	48	2	0.04211	0.24931
96	41	1	0.02469	0.27096
97	35	-	0.00000	0.29382
98	30	-	0.00000	0.31787
99	1	-	0.00000	0.34311



Actuarial Partners Consulting Sdn Bhd
(formerly known as Mercer Zainal Consulting Sdn Bhd)
Suite 17.02 Kenanga International
Jalan Sultan Ismail
50250 Kuala Lumpur
Tel: +603 2161 0433
Fax: +603 2161 3595
<http://www.actuarialpartners.com/>



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