

# **Ultimate Life: What Individual Life Insurance Should Be and Could Be**

## **Overview of Ultimate Life**

Advances in computer technology coupled with advances in actuarial science now make it possible to replace ordinary, corporate-driven, linear, individual life insurance plans with extra-ordinary, consumer-driven, shaped, family life insurance programs. Continuing inflation, increased life expectancies and the acceleration of change make it imperative to do so!

Ultimate Life is a consumer-driven life insurance program providing death benefits, living benefits and tax-free savings values shaped to the projected financial risks and preferences of the consumers and their dependents all in one contract. The premium schedule is shaped to the consumers' projected ability to pay and preferences. An Ultimate Life Financial Risk Analysis computer program assists the consumers to identify, quantify, project and insure their financial risks. A maximum, tax-free savings value is determined based upon the consumers' selections for death benefits, living benefits and premium schedule.

Based upon the consumers' selections, a personalized application is prepared by the Ultimate Life Financial Risk Analysis computer program. Periodic Fiscal Exams for the consumers and their dependents help to maintain the benefits, values and premium schedules. Ultimate Life is also possible in three distinct Variable Ultimate Life versions and the concepts are applicable to other types of insurance such as health and P&C.

## **The Anatomy of Individual Life Insurance and Annuity Plans**

The three Primary Premiums/Components of individual life insurance are Mortality Premiums/Amounts At Risk, Reserve Premiums/Reserve Values and Savings Premiums/Savings Values. These Primary Premiums/Components blended one or two at a time can replicate all traditional life insurance and annuity plans. Ultimate Life blends all three and can replicate and enhance all traditional plans and can create and maintain the consumer-driven programs described in the overview.

Appendix 1 illustrates a simple, graphic representation of the Three Primary Premiums/Components and the seven unique individual life insurance and annuity plans they form when combined.

## **Financial Risk Analysis Computer Program**

The life insurance process begins with a Financial Risk Analysis for the consumer and dependents. Financial risks are identified, quantified, projected and insured according to the consumer's personal specifications. After issue of the Ultimate Life contract, if each risk is insured for its projected value and maintained (either periodically increased or decreased) through the required Fiscal Exams, future evidence of insurability will be waived. The consumer may elect to ignore the results of the Financial Risk Analysis or select lesser death benefits. Future evidence of insurability may then be required for increases in the Specified Death Benefits.

## **Periodic Fiscal Exams for Consumers**

The insurer will schedule Periodic Fiscal Exams in order to assist the consumer to determine the current and projected financial risks for himself and his family. The insurer will apply current inflation and interest rates during each exam. The consumer may be asked to demonstrate actual changes in earned income or other factors. The insureds are encouraged to schedule a fiscal exam whenever their fiscal condition changes. The Financial Risk Analysis Computer Program is used in these exams and allows the consumer to define a personalized premium schedule.

## **Replicating, Enhancing and Creating Traditional Life Insurance Plans**

For simplicity and brevity, Ultimate Life as described in this monograph will illustrate the financial risks of (1) the cost of final expenses, (2) the loss of future earned income and (3) the loss of retirement income purchasing power. A tax-free savings value will also be illustrated.

The illustrations assume the 2001 CSO Mortality Table (male rates), 5% interest, 3% inflation and 4% earned income raises. Intervals are annual with net annual premiums paid at the start of the year and specified death benefits, values, claims, interest, inflation, raises, earned income occurring at the end of the year. The consumer is a single male age 35. He is earning \$40,000 per year and anticipates 4% raises to age 65 when he plans to retire.

Guideline Premium tests are ignored and more decimals are carried than are shown.

## Ultimate Life: What Individual Life Insurance Should Be and Could Be

### Definitions Used Appendix Illustrations

Illustrations in the Appendix use the following definitions in the fourteen column headings

1. Age = Age attained at the start of the year
2. FE = Final Expenses, which are projected and insured
3. PVEI = Present Value of Earned Income, which is projected and insured
4. SDB = Specified Death Benefit = FE + PVEI
5. SLB = Specified Living Benefit
6. RP = Reserve Premiums, which accumulate at interest producing the Reserve Values. A negative RP indicates a RV withdrawal.
7. MP = Mortality Premiums, which are defined as  ${}_tMP_x = v * q_{x+t-1} * {}_tAAR_x$
8. SP = Savings Premiums, which accumulate at interest to produce the Savings Values. A negative SP indicates a SV withdrawal.
9. RV = Reserve Values, which are the accumulation at interest of the RPs.
10. AAR = Amounts At Risk = SDB - RV.
11. SV = Savings Values, which are the accumulation at interest of the SPs
12. TV = Total Value = RV + SV
13. TDB = Total Death Benefit = SDB + SV
14. TP = Total Premiums = RP + MP + SP
15. EI = Earned Income, which is projected
16. TP/EI = Total Premium as a percentage of projected Earned Income

### Replicating A Traditional Ordinary Life Insurance Plan

To replicate this popular life insurance plan, the Face Amount is set equal to \$100,000 of Final Expenses, which are projected at 0.0% inflation to age 120. The projected Earned Income and Specified Living Benefits to be insured are set to zero. Total Premiums are paid through age 120 and are level.

**Appendix 2** illustrates how Ultimate Life replicates this plan by blending the Reserve Premiums and the Mortality Premiums. The Reserve Premiums are positive through age 62 which, with the interest credits, build the Reserve Values thereby reducing both the Amounts At Risk and the corresponding Mortality Premiums. From age 63 through age 99, the Reserve Premiums are negative resulting in withdrawals from the Reserve Values to maintain the \$822.50 Total Premium. Since the interest credited on the Reserve Values exceeds the corresponding withdrawals, the Reserve Values continue to increase to the \$100,000 Specified Death Benefit at age 120. This reduces the Amount At Risk and the Mortality Premium to \$0. Although the Total Premium is level, the ratio of the Total Premium to the projected Earned Income drops from 2.1% at age 35 to 0.7% at age 64. This demonstrates that a greater percentage of Earned Income is usually required to begin a level premium life insurance plan.

### Enhancing A Traditional Ordinary Life Insurance Plan

One enhancement is to shape the Total Premium schedule. The consumer's objective is a constant ratio of Total Premium to the projected Earned Income and also to the projected retirement income. At age 65, the consumer's level, lifetime retirement income is projected to be \$49,898 or 40% of his age 64 projected Earned Income. At age 35, the initial Total Premium is \$526.93 and increases each year to \$1,643.30 at age 64. The Total Premium drops to \$657.32 and remains a constant 1.3% of the projected level lifetime retirement income.

**Appendix 3** illustrates this Ultimate Life enhancement of Ordinary Life.

### Creating A Simplified Consumer-Driven Universal Life Insurance Program

**Step 1** in creating an Ultimate Life Insurance Program is to quantify, project and insure Final Expenses. The consumer's Final Expenses are determined to be \$7,000 and are projected to increase by 3% inflation each year through age 120. This "permanent" life insurance serves as a base for the Ultimate Life program. The consumer selects a premium schedule that increases the Total Premiums by 4.0% to age 65 keeping a 0.3% ratio of Total Premiums to projected Earned Income. The net single premium for the resulting shaped death benefit coverage is \$3,080.19, which corresponds to an equivalent \$20,913 level face amount of ordinary life with a \$172.01 level annual premium.

**Appendix 4** illustrates the results of Step 1

## Ultimate Life: What Individual Life Insurance Should Be and Could Be

**Step 2** is to add and insure projected Earned Income. The consumer is earning \$40,000 per year and anticipates 4.0% annual raises to his planned retirement age of 65. The resulting Total Premium is \$1,843.29 at age 35 and increases each year by 4.0% to remain a constant 4.6% of projected Earned Income. The age 60 Reserve Value for just the insured Final Expenses (see Appendix 4) is \$8,771. Adding the insured Earned Income death benefits reduces the age 60 Reserve Value to \$2,848. This demonstrates the death benefits and premium schedule for just the Earned Income coverage produces negative Reserve Values. If this coverage and premium schedule were provided either as a rider or as a separate policy, the premiums would have to be increased to avoid the negative Reserve Values!

**Appendix 5** illustrates the results of Step 2

**Step 3** is to add and insure Retirement Income Purchasing Power. The consumer wants to have a \$50,000 Reserve Value at age 65 to provide lifetime annual increases to his level, lifetime retirement income. The age 35 Total Premium is increased by \$393.10 to \$2,236.36 or 5.6% of Earned Income. Total Premiums increase annually by 4.0% to age 65 when the program is fully paid. The Specified Death Benefits and the Total Death Benefits are not increased.

**Appendix 6** illustrates the results of Step 3.

**Step 4** is to add a \$50,000 Savings Value at age 65. The Total Premium at age 35 is increased by \$441.51 to \$2,677.90 or 6.7% of Earned Income. Since the sum of Total Premiums is greater than the sum of the age 65 \$50,000 Savings Value, there is no tax on the Savings Value withdrawal. The \$50,000 Savings Value benefit requires larger premiums than the \$50,000 Retirement Income Purchasing Power benefit. This is because the Savings Values are paid in addition to the Specified Death Benefits whereas the Reserve Values for the Retirement Income Purchasing Power benefit are paid as a part of the Specified Death Benefit reducing both the Amounts At Risk and the corresponding Mortality Premiums. The loss of future Earned Income and the loss of Retirement Income Purchasing Power are mutually exclusive! Combining these two financial risks into one Ultimate Life Insurance program requires less premium dollars than insuring each separately!

**Appendix 7** illustrates the results of Step 4

### Ultimate Life's Twenty-One Differential Advantages

The best way to demonstrate the superiority of Ultimate Life is not to argue about it but rather to place Ultimate Life along side of traditional life!

#	Feature	Traditional Life	Ultimate Life	Differential Advantage
1	Basis of Benefits	Needs / Rules of Thumb	Projected Financial Risks & Personal Goals	Adequate Protection
2	Orientation	Present Only	Present and Projected	Up-To-Date Programs
3	Death Benefits	Level	Projected & Shaped with Inflation and Raises	Financial Risks Insured
4	Benefits Designed	By Companies	By Consumers	Personal Fit
5	Family Plan Design	One Plan Fits All	Unique Benefits for Each Family Member	Better Fit
6	Proceeds	One Designation	Designations for Each Financial Risk	Better Use of Proceeds
7	Administration	Original Contracts	Periodic Re-Issue Makes All Contracts Current	Easier to Administer
8	Premium Schedule	Level	Projected Income & Consumer Preferences	More Affordable Early
9	Benefit Focus	Death	Dying Too Soon + Living Too Long + Savings	Tax Advantages
10	Type of Insurance	Static	Dynamic with Periodic Fiscal Exam Updates	Periodic Adjustments
11	Contract	Base Contract & Riders	One Contract without Riders	Tax Advantages
12	Coverage Options	Level or Increasing	Shaped or Level or Increasing	All Options
13	Updates	Infrequent	Periodic Fiscal Exams	Up-To-Date Coverage
14	Pour-In Options	None	Accepts Matching Funds	Accepts Other Funds

## Ultimate Life: What Individual Life Insurance Should Be and Could Be

### Ultimate Life's Twenty-One Differential Advantages (continued)

15	Claim Payment	Claim Forms and Delay	Quick Cash for Final Expenses	Cash When Needed
16	Applications	Handwritten & General	Computer Prepared & Letter Quality	Personal & Specific
17	Insurability	Intervals & Events	Periodic Fiscal Exams & Updates	Better Timing
18	Savings Values	May Be "Lost" at Death	Paid In Addition to Specified Death Benefits	Encourages Saving
19	Dependent Benefits	Separate Riders	One Contract without Riders	Better Fit & Tax Savings
20	Billing Class	Payment Mode Only	Payment Mode and Method	Greater Cost Savings
21	Employer Premiums	Not Applicable	Separate Death Benefits & Mortality Premiums	Greater Savings

### Ultimate Life Summary

I created the Ultimate Life basic concepts in 1971. Based upon over thirty-five years of research and development, personal presentations to the Wisconsin, Illinois and North Carolina Insurance Departments and almost 50 years of life insurance industry experience, I feel confident in claiming that Ultimate Life:

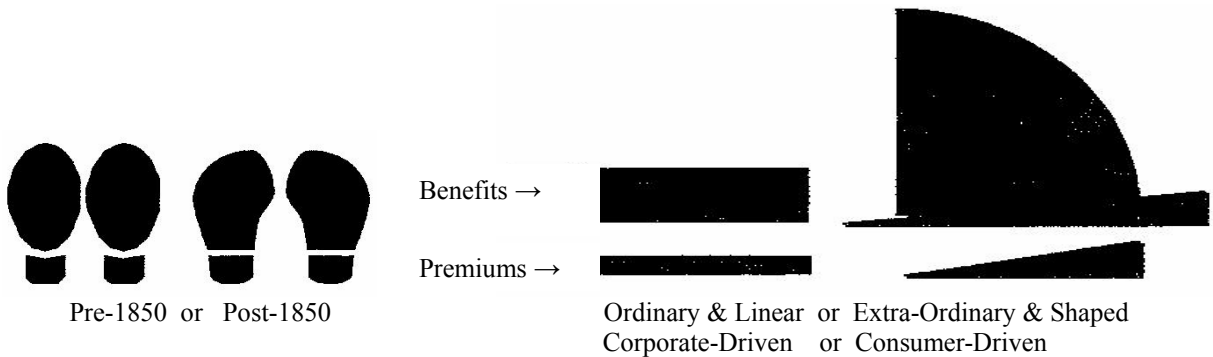
- Replicates and enhances all traditional product designs,
- Elevates the agent to a life insurance architect,
- Utilizes the advances in computer technology,
- Tailors scheduled premiums to consumers' projected income or personal objectives,
- Encourages periodic Fiscal Exams for consumers,
- Reenergizes the life insurance industry,
- Facilitates tax-favored savings for consumers,
- Shapes specified death and living benefits to consumers' projected financial risks or personal objectives and
- Advances knowledge in Actuarial Science.

### One Comment with Three Questions

Although our left and right feet have had different shapes since the dawn of creation, it was not until about 1850 that the manufacture of distinctive left and right shoes in the USA first became generally accepted!

(1) Which is the better fit for your feet?

(2) Which is the better fit for your life insurance program?



(3) The objective of this monograph is to briefly and simply explain Ultimate Life in order to encourage a dialogue. I would welcome the opportunity to discuss Ultimate Life and to respond to your questions. What questions do you have?

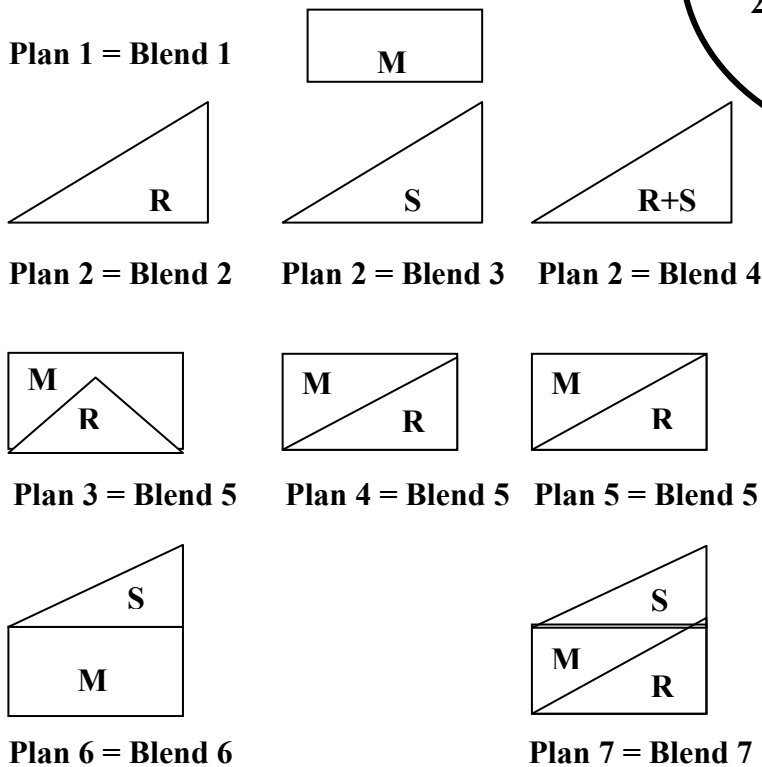
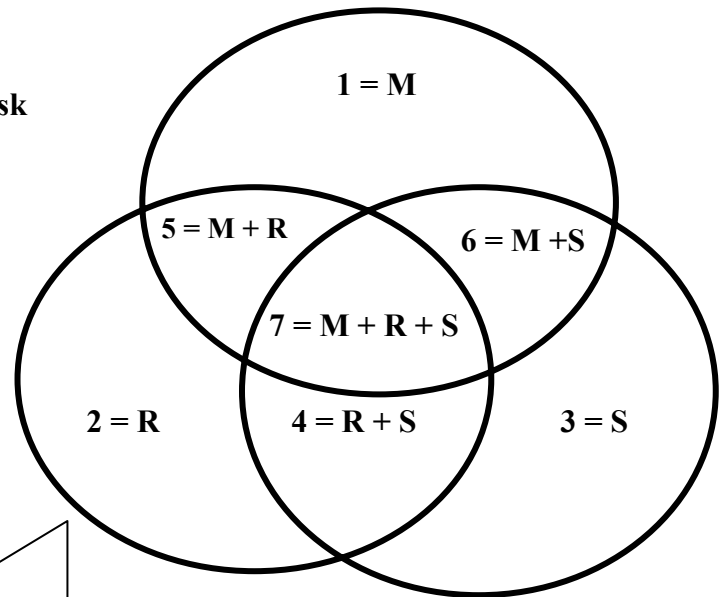
**Appendix 1: The Anatomy of Individual Life Insurance and Annuity Plans**

The three primary premiums of individual life insurance and annuity plans are mortality, reserve and savings. The related components are amounts at risk, reserve values and savings values. When blended one, two or three at a time, these premiums/components produce seven unique plans of individual life!

**M** = Mortality Premiums ← Amounts At Risk

**R** = Reserve Premiums → Reserve Values

**S** = Savings Premiums → Savings Values



Plan	Concerns
1 Pay As You Go Term	Mortality Premiums Increase Significantly & No Savings Values
2 Accumulation Annuity	Interest is Taxed at Death, Maturity or Surrender & No Insurance
3 Level Premium Term	No Savings Values & Termination Without Value
4 Permanent Life	Premiums Intended for Savings are “Lost” at Death
5 Level Universal Life	Premiums Intended for Savings are “Lost” at Death
6 Increasing Universal Life	Mortality Premiums Increase Significantly
7 Ultimate Life	Ultimate Life Eliminates All These Concerns!

Item	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(A) Age	Age	FE	PVEI	SDB	SLB	RP	MP	SP	RV	AAR	SV	TV	TDB	TP	EI	TP/EI
35	35	100,000	0	100,000	0	709.06	113.43	0.00	745	99,255	0	745	100,000	822.50	40,000	2.1%
(B) FE	36	100,000	0	100,000	0	700.57	121.93	0.00	1,517	98,483	0	1,517	100,000	822.50	41,600	2.0%
\$100,000	37	100,000	0	100,000	0	701.57	120.92	0.00	2,330	97,670	0	2,330	100,000	822.50	43,264	1.9%
(C) Inflation	38	100,000	0	100,000	0	693.40	129.10	0.00	3,174	96,826	0	3,174	100,000	822.50	44,995	1.8%
0.0%	39	100,000	0	100,000	0	685.43	137.07	0.00	4,053	95,947	0	4,053	100,000	822.50	46,794	1.8%
(D) FE thru Age	40	100,000	0	100,000	0	668.62	153.88	0.00	4,958	95,042	0	4,958	100,000	822.50	48,666	1.7%
120	41	100,000	0	100,000	0	661.18	161.31	0.00	5,900	94,100	0	5,900	100,000	822.50	50,613	1.6%
(E) % FE Insured	42	100,000	0	100,000	0	645.11	177.39	0.00	6,872	93,128	0	6,872	100,000	822.50	52,637	1.6%
100%	43	100,000	0	100,000	0	629.48	193.02	0.00	7,877	92,123	0	7,877	100,000	822.50	54,743	1.5%
(F) EI	44	100,000	0	100,000	0	614.30	208.19	0.00	8,915	91,085	0	8,915	100,000	822.50	56,932	1.4%
\$40,000	45	100,000	0	100,000	0	591.02	231.48	0.00	9,982	90,018	0	9,982	100,000	822.50	59,210	1.4%
(G) Retire at Age	46	100,000	0	100,000	0	576.93	245.57	0.00	11,087	88,913	0	11,087	100,000	822.50	61,578	1.3%
65	47	100,000	0	100,000	0	554.99	267.51	0.00	12,224	87,776	0	12,224	100,000	822.50	64,041	1.3%
(H) Raises	48	100,000	0	100,000	0	550.37	272.13	0.00	13,413	86,587	0	13,413	100,000	822.50	66,603	1.2%
4.0%	49	100,000	0	100,000	0	537.99	284.51	0.00	14,648	85,352	0	14,648	100,000	822.50	69,267	1.2%
(I) % EI Insured	50	100,000	0	100,000	0	518.22	304.27	0.00	15,925	84,075	0	15,925	100,000	822.50	72,038	1.1%
0%	51	100,000	0	100,000	0	499.36	323.14	0.00	17,245	82,755	0	17,245	100,000	822.50	74,919	1.1%
(J) Prens thru Age	52	100,000	0	100,000	0	473.66	348.84	0.00	18,605	81,395	0	18,605	100,000	822.50	77,916	1.1%
120	53	100,000	0	100,000	0	449.20	373.30	0.00	20,007	79,993	0	20,007	100,000	822.50	81,033	1.0%
(K) All Prens Incr	54	100,000	0	100,000	0	410.99	411.51	0.00	21,439	78,561	0	21,439	100,000	822.50	84,274	1.0%
0.0%	60	100,000	0	100,000	0	168.98	653.52	0.00	30,688	69,312	0	30,688	100,000	822.50	106,633	0.8%
(L) Interest	61	100,000	0	100,000	0	120.21	702.29	0.00	32,348	67,652	0	32,348	100,000	822.50	110,899	0.7%
5.0%	62	100,000	0	100,000	0	49.56	772.94	0.00	34,018	65,982	0	34,018	100,000	822.50	115,335	0.7%
(M) SV	63	100,000	0	100,000	0	-16.45	838.95	0.00	35,701	64,299	0	35,701	100,000	822.50	119,948	0.7%
\$0.0000	64	100,000	0	100,000	0	-83.74	906.23	0.00	37,398	62,602	0	37,398	100,000	822.50	124,746	0.7%
(N) SV at Age	65	100,000	0	100,000	0	-157.66	980.16	0.00	39,103	60,897	0	39,103	100,000	822.50	0	-
65	66	100,000	0	100,000	0	-220.08	1,042.57	0.00	40,827	59,173	0	40,827	100,000	822.50	0	-
(O) SLB	67	100,000	0	100,000	0	-276.73	1,099.23	0.00	42,578	57,422	0	42,578	100,000	822.50	0	-
\$0	68	100,000	0	100,000	0	-338.17	1,160.67	0.00	44,351	55,649	0	44,351	100,000	822.50	0	-
(P) SLB at Age	69	100,000	0	100,000	0	-387.58	1,210.07	0.00	46,162	53,838	0	46,162	100,000	822.50	0	-
65	70	100,000	0	100,000	0	-455.42	1,277.91	0.00	47,992	52,008	0	47,992	100,000	822.50	0	-
(Q) Net SP	80	100,000	0	100,000	0	-1,440.00	2,262.50	0.00	66,111	33,889	0	66,111	100,000	822.50	0	-
\$14,728.46	90	100,000	0	100,000	0	-2,790.73	3,613.23	0.00	79,787	20,213	0	79,787	100,000	822.50	0	-
(R) Eq OL Face	100	100,000	0	100,000	0	-3,650.41	4,472.91	0.00	87,069	12,931	0	87,069	100,000	822.50	0	-
\$100,000	116	100,000	0	100,000	0	-4,138.61	4,961.10	0.00	93,550	6,450	0	93,550	100,000	822.50	0	-
(S) Eq OL L Prem	117	100,000	0	100,000	0	-4,165.49	4,987.98	0.00	93,854	6,146	0	93,854	100,000	822.50	0	-
\$822.50	118	100,000	0	100,000	0	-4,191.25	5,013.75	0.00	94,145	5,855	0	94,145	100,000	822.50	0	-
(T) ? Prens to 65	119	100,000	0	100,000	0	-4,225.80	5,048.30	0.00	94,416	5,584	0	94,416	100,000	822.50	0	-
\$24,674.90	120	100,000	0	100,000	0	822.50	0.00	0.00	100,000	0	0	100,000	100,000	822.50	0	-

Appendix 3: Enhancing an Ordinary Life Plan

Robert E. Reuter, FSA, MAAA, CLU, FLMI

Item	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(A) Age	Age	FE	PVEI	SDB	SLB	RP	MP	SP	RV	AAR	SV	TV	TDB	TP	EI	TP/EI
35	35	100,000	0	100,000	0	413.14	113.79	0.00	434	99,566	0	434	100,000	526.93	40,000	1.3%
(B) FE	36	100,000	0	100,000	0	425.31	122.69	0.00	902	99,098	0	902	100,000	548.00	41,600	1.3%
\$100,000	37	100,000	0	100,000	0	447.87	122.05	0.00	1,417	98,583	0	1,417	100,000	569.92	43,264	1.3%
(C) Inflation	38	100,000	0	100,000	0	462.02	130.70	0.00	1,973	98,027	0	1,973	100,000	592.72	44,995	1.3%
0.0%	39	100,000	0	100,000	0	477.25	139.18	0.00	2,573	97,427	0	2,573	100,000	616.43	46,794	1.3%
(D) FE thru Age	40	100,000	0	100,000	0	484.38	156.71	0.00	3,210	96,790	0	3,210	100,000	641.09	48,666	1.3%
120	41	100,000	0	100,000	0	501.98	164.75	0.00	3,898	96,102	0	3,898	100,000	666.73	50,613	1.3%
(E) % FE Insured	42	100,000	0	100,000	0	511.74	181.66	0.00	4,630	95,370	0	4,630	100,000	693.40	52,637	1.3%
100%	43	100,000	0	100,000	0	522.95	198.19	0.00	5,411	94,589	0	5,411	100,000	721.13	54,743	1.3%
(F) EI	44	100,000	0	100,000	0	535.68	214.30	0.00	6,244	93,756	0	6,244	100,000	749.98	56,932	1.3%
\$40,000	45	100,000	0	100,000	0	541.15	238.82	0.00	7,124	92,876	0	7,124	100,000	779.98	59,210	1.3%
(G) Retire at Age	46	100,000	0	100,000	0	557.26	253.91	0.00	8,066	91,934	0	8,066	100,000	811.18	61,578	1.3%
65	47	100,000	0	100,000	0	566.49	277.14	0.00	9,064	90,936	0	9,064	100,000	843.62	64,041	1.3%
(H) Raises	48	100,000	0	100,000	0	594.96	282.41	0.00	10,142	89,858	0	10,142	100,000	877.37	66,603	1.3%
4.0%	49	100,000	0	100,000	0	616.79	295.68	0.00	11,296	88,704	0	11,296	100,000	912.46	69,267	1.3%
(I) % EI Insured	50	100,000	0	100,000	0	632.39	316.58	0.00	12,525	87,475	0	12,525	100,000	948.96	72,038	1.3%
0%	51	100,000	0	100,000	0	650.46	336.46	0.00	13,834	86,166	0	13,834	100,000	986.92	74,919	1.3%
(J) Prem thru Age	52	100,000	0	100,000	0	663.06	363.33	0.00	15,222	84,778	0	15,222	100,000	1,026.40	77,916	1.3%
120	53	100,000	0	100,000	0	678.70	388.75	0.00	16,696	83,304	0	16,696	100,000	1,067.45	81,033	1.3%
(K) All Prem Incr	54	100,000	0	100,000	0	681.92	428.23	0.00	18,247	81,753	0	18,247	100,000	1,110.15	84,274	1.3%
4.0%	60	100,000	0	100,000	0	739.83	664.87	0.00	29,484	70,516	0	29,484	100,000	1,404.70	106,633	1.3%
(L) Interest	61	100,000	0	100,000	0	752.36	708.52	0.00	31,748	68,252	0	31,748	100,000	1,460.88	110,899	1.3%
5.0%	62	100,000	0	100,000	0	747.59	771.73	0.00	34,120	65,880	0	34,120	100,000	1,519.32	115,335	1.3%
(M) SV	63	100,000	0	100,000	0	753.10	827.00	0.00	36,617	63,383	0	36,617	100,000	1,580.09	119,948	1.3%
\$0	64	100,000	0	100,000	0	763.87	879.43	0.00	39,250	60,750	0	39,250	100,000	1,643.30	124,746	1.3%
(N) SV at Age	65	100,000	0	100,000	0	-293.85	951.16	0.00	40,904	59,096	0	40,904	100,000	657.32	0	-
65	66	100,000	0	100,000	0	-354.42	1,011.74	0.00	42,577	57,423	0	42,577	100,000	657.32	0	-
(O) SLB	67	100,000	0	100,000	0	-409.40	1,066.71	0.00	44,276	55,724	0	44,276	100,000	657.32	0	-
\$0	68	100,000	0	100,000	0	-469.02	1,126.34	0.00	45,997	54,003	0	45,997	100,000	657.32	0	-
(P) SLB at Age	69	100,000	0	100,000	0	-516.96	1,174.28	0.00	47,754	52,246	0	47,754	100,000	657.32	0	-
65	70	100,000	0	100,000	0	-582.79	1,240.11	0.00	49,530	50,470	0	49,530	100,000	657.32	0	-
(Q) Net SP	80	100,000	0	100,000	0	-1,538.26	2,195.58	0.00	67,113	32,887	0	67,113	100,000	657.32	0	-
\$14,728.46	90	100,000	0	100,000	0	-2,849.04	3,506.35	0.00	80,385	19,615	0	80,385	100,000	657.32	0	-
(R) Eq OL Face	100	100,000	0	100,000	0	-3,683.29	4,340.61	0.00	87,451	12,549	0	87,451	100,000	657.32	0	-
\$100,000	116	100,000	0	100,000	0	-4,157.04	4,814.36	0.00	93,741	6,259	0	93,741	100,000	657.32	0	-
(S) Eq OL L Prem	117	100,000	0	100,000	0	-4,183.13	4,840.45	0.00	94,035	5,965	0	94,035	100,000	657.32	0	-
\$822.50	118	100,000	0	100,000	0	-4,208.13	4,865.45	0.00	94,319	5,681	0	94,319	100,000	657.32	0	-
(T) ? Prem to 65	119	100,000	0	100,000	0	-4,241.66	4,898.98	0.00	94,581	5,419	0	94,581	100,000	657.32	0	-
\$23,299.11	120	100,000	0	100,000	0	657.32	0.00	0.00	100,000	0	0	100,000	100,000	657.32	0	-

Appendix 4: Step 1 - Insuring Final Expenses

Robert E. Reuter, FSA, MAAA, CLU, FLMI

Item	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(A) Age	Age	FE	PVEI	SDB	SLB	RP	MP	SP	RV	AAR	SV	TV	TDB	TP	EI	TP/EI
35	35	7,000	0	7,000	0	112.45	7.87	0.00	118	6,882	0	118	7,000	120.31	40,000	0.3%
(B) FE	36	7,210	0	7,210	0	116.50	8.62	0.00	246	6,964	0	246	7,210	125.12	41,600	0.3%
\$7,000	37	7,426	0	7,426	0	121.41	8.72	0.00	386	7,040	0	386	7,426	130.13	43,264	0.3%
(C) Inflation	38	7,649	0	7,649	0	125.85	9.48	0.00	538	7,112	0	538	7,649	135.33	44,995	0.3%
3.0%	39	7,879	0	7,879	0	130.49	10.25	0.00	701	7,177	0	701	7,879	140.75	46,794	0.3%
(D) FE thru Age	40	8,115	0	8,115	0	134.66	11.72	0.00	878	7,237	0	878	8,115	146.38	48,666	0.3%
120	41	8,358	0	8,358	0	139.73	12.50	0.00	1,069	7,290	0	1,069	8,358	152.23	50,613	0.3%
(E) % FE Insured	42	8,609	0	8,609	0	144.35	13.97	0.00	1,274	7,336	0	1,274	8,609	158.32	52,637	0.3%
100%	43	8,867	0	8,867	0	149.20	15.45	0.00	1,494	7,374	0	1,494	8,867	164.65	54,743	0.3%
(F) EI	44	9,133	0	9,133	0	154.32	16.92	0.00	1,731	7,403	0	1,731	9,133	171.24	56,932	0.3%
\$40,000	45	9,407	0	9,407	0	159.00	19.09	0.00	1,984	7,423	0	1,984	9,407	178.09	59,210	0.3%
(G) Retire at Age	46	9,690	0	9,690	0	164.68	20.53	0.00	2,256	7,433	0	2,256	9,690	185.21	61,578	0.3%
65	47	9,980	0	9,980	0	169.97	22.65	0.00	2,547	7,433	0	2,547	9,980	192.62	64,041	0.3%
(H) Raises	48	10,280	0	10,280	0	177.01	23.32	0.00	2,861	7,419	0	2,861	10,280	200.33	66,603	0.3%
4.0%	49	10,588	0	10,588	0	183.70	24.64	0.00	3,197	7,392	0	3,197	10,588	208.34	69,267	0.3%
(I) % EI Insured	50	10,906	0	10,906	0	190.07	26.60	0.00	3,556	7,350	0	3,556	10,906	216.67	72,038	0.3%
0%	51	11,233	0	11,233	0	196.86	28.48	0.00	3,941	7,292	0	3,941	11,233	225.34	74,919	0.3%
(J) Prem thru Age	52	11,570	0	11,570	0	203.42	30.94	0.00	4,351	7,219	0	4,351	11,570	234.35	77,916	0.3%
64	53	11,917	0	11,917	0	210.47	33.26	0.00	4,790	7,127	0	4,790	11,917	243.73	81,033	0.3%
(K) All Prem Incr	54	12,275	0	12,275	0	216.72	36.76	0.00	5,257	7,018	0	5,257	12,275	253.48	84,274	0.3%
4.0%	60	14,656	0	14,656	0	265.24	55.49	0.00	8,771	5,886	0	8,771	14,656	320.73	106,633	0.3%
(L) Interest	61	15,096	0	15,096	0	275.45	58.11	0.00	9,499	5,597	0	9,499	15,096	333.56	110,899	0.3%
5.0%	62	15,549	0	15,549	0	285.09	61.81	0.00	10,273	5,276	0	10,273	15,549	346.90	115,335	0.3%
(M) SV	63	16,015	0	16,015	0	296.61	64.16	0.00	11,098	4,917	0	11,098	16,015	360.78	119,948	0.3%
\$0	64	16,496	0	16,496	0	309.81	65.40	0.00	11,978	4,518	0	11,978	16,496	375.21	124,746	0.3%
(N) SV at Age	65	16,991	0	16,991	0	-72.26	72.26	0.00	12,501	4,490	0	12,501	16,991	-0.00	0	-
65	66	17,501	0	17,501	0	-78.52	78.52	0.00	13,044	4,457	0	13,044	17,501	0.00	0	-
(O) SLB	67	18,026	0	18,026	0	-84.58	84.58	0.00	13,607	4,418	0	13,607	18,026	-0.00	0	-
\$0	68	18,566	0	18,566	0	-91.24	91.24	0.00	14,192	4,375	0	14,192	18,566	0.00	0	-
(P) SLB at Age	69	19,123	0	19,123	0	-97.19	97.19	0.00	14,799	4,324	0	14,799	19,123	-0.00	0	-
65	70	19,697	0	19,697	0	-104.87	104.87	0.00	15,429	4,268	0	15,429	19,697	0.00	0	-
(Q) Net SP	80	26,471	0	26,471	0	-231.51	231.51	0.00	23,004	3,468	0	23,004	26,471	0.00	0	-
3,080.19	90	35,575	0	35,575	0	-470.12	470.12	0.00	32,945	2,630	0	32,945	35,575	0.00	0	-
(R) Eq OL Face	100	47,810	0	47,810	0	-756.79	756.79	0.00	45,622	2,188	0	45,622	47,810	0.00	0	-
20,913	116	76,721	0	76,721	0	-1,303.99	1,303.99	0.00	75,025	1,695	0	75,025	76,721	-0.00	0	-
(S) Eq OL Prem	117	79,022	0	79,022	0	-1,348.30	1,348.30	0.00	77,361	1,661	0	77,361	79,022	0.00	0	-
172.01	118	81,393	0	81,393	0	-1,393.85	1,393.85	0.00	79,766	1,628	0	79,766	81,393	0.00	0	-
(T) ? Prem to 65	119	83,835	0	83,835	0	-1,443.56	1,443.56	0.00	82,238	1,597	0	82,238	83,835	-0.00	0	-
5,319.78	120	86,350	0	86,350	0	0.00	0.00	0.00	86,350	0	0	86,350	86,350	0.00	0	-

Appendix 5: Step 2 - Add Insured Earned Income

Robert E. Reuter, FSA, MAAA, CLU, FLMI

Item	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(A) Age	Age	FE	PVEI	SDB	SLB	RP	MP	SP	RV	AAR	SV	TV	TDB	TP	EI	TP/EI
35	35	7,000	1,048,114	1,055,114	0	638.21	1,205.08	0.00	670	1,054,444	0	670	1,055,114	1,843.29	40,000	4.6%
(B) FE	36	7,210	1,058,520	1,065,730	0	599.19	1,317.82	0.00	1,333	1,064,397	0	1,333	1,065,730	1,917.02	41,600	4.6%
\$7,000	37	7,426	1,067,766	1,075,192	0	665.10	1,328.59	0.00	2,098	1,073,094	0	2,098	1,075,192	1,993.70	43,264	4.6%
(C) Inflation	38	7,649	1,075,727	1,083,376	0	632.77	1,440.68	0.00	2,867	1,080,509	0	2,867	1,083,376	2,073.44	44,995	4.6%
3.0%	39	7,879	1,082,269	1,090,147	0	604.24	1,552.15	0.00	3,645	1,086,503	0	3,645	1,090,147	2,156.38	46,794	4.6%
(D) FE thru Age	40	8,115	1,087,248	1,095,363	0	476.20	1,766.44	0.00	4,327	1,091,036	0	4,327	1,095,363	2,242.64	48,666	4.6%
120	41	8,358	1,090,511	1,098,870	0	457.18	1,875.16	0.00	5,024	1,093,846	0	5,024	1,098,870	2,332.34	50,613	4.6%
(E) % FE Insured	42	8,609	1,091,893	1,100,503	0	340.17	2,085.47	0.00	5,632	1,094,871	0	5,632	1,100,503	2,425.64	52,637	4.6%
100%	43	8,867	1,091,219	1,100,086	0	230.62	2,292.05	0.00	6,156	1,093,931	0	6,156	1,100,086	2,522.66	54,743	4.6%
(F) EI	44	9,133	1,088,300	1,097,433	0	130.24	2,493.33	0.00	6,600	1,090,833	0	6,600	1,097,433	2,623.57	56,932	4.6%
\$40,000	45	9,407	1,082,936	1,092,343	0	-62.72	2,791.23	0.00	6,864	1,085,479	0	6,864	1,092,343	2,728.51	59,210	4.6%
(G) Retire at Age	46	9,690	1,074,912	1,084,602	0	-138.41	2,976.06	0.00	7,062	1,077,540	0	7,062	1,084,602	2,837.65	61,578	4.6%
65	47	9,980	1,064,001	1,073,981	0	-300.29	3,251.45	0.00	7,100	1,066,881	0	7,100	1,073,981	2,951.16	64,041	4.6%
(H) Raises	48	10,280	1,049,958	1,060,237	0	-240.33	3,309.54	0.00	7,203	1,053,035	0	7,203	1,060,237	3,069.21	66,603	4.6%
4.0%	49	10,588	1,032,522	1,043,111	0	-260.77	3,452.74	0.00	7,289	1,035,822	0	7,289	1,043,111	3,191.97	69,267	4.6%
(I) % EI Insured	50	10,906	1,011,418	1,022,324	0	-353.83	3,673.49	0.00	7,282	1,015,042	0	7,282	1,022,324	3,319.65	72,038	4.6%
100%	51	11,233	986,349	997,582	0	-414.73	3,867.17	0.00	7,211	990,372	0	7,211	997,582	3,452.44	74,919	4.6%
(J) Prens thru Age	52	11,570	957,002	968,572	0	-530.43	4,120.96	0.00	7,014	961,558	0	7,014	968,572	3,590.54	77,916	4.6%
64	53	11,917	923,040	934,957	0	-597.53	4,331.69	0.00	6,737	928,220	0	6,737	934,957	3,734.16	81,033	4.6%
(K) All Prens Incr	54	12,275	884,108	896,382	0	-779.04	4,662.56	0.00	6,256	890,126	0	6,256	896,382	3,883.52	84,274	4.6%
4.0%	60	14,656	523,108	537,764	0	-129.60	5,043.49	0.00	2,848	534,916	0	2,848	537,764	4,913.90	106,633	4.6%
(L) Interest	61	15,096	437,298	452,394	0	450.12	4,660.33	0.00	3,463	448,931	0	3,463	452,394	5,110.45	110,899	4.6%
5.0%	62	15,549	342,719	358,268	0	1,175.06	4,139.81	0.00	4,870	353,398	0	4,870	358,268	5,314.87	115,335	4.6%
(M) SV	63	16,015	238,754	254,769	0	2,301.59	3,225.88	0.00	7,531	247,239	0	7,531	254,769	5,527.46	119,948	4.6%
\$0	64	16,496	124,746	141,242	0	3,877.32	1,871.25	0.00	11,978	129,264	0	11,978	141,242	5,748.56	124,746	4.6%
(N) SV at Age	65	16,991	0	16,991	0	-72.26	72.26	0.00	12,501	4,490	0	12,501	16,991	-0.00	0	-
65	66	17,501	0	17,501	0	-78.52	78.52	0.00	13,044	4,457	0	13,044	17,501	0.00	0	-
(O) SLB	67	18,026	0	18,026	0	-84.58	84.58	0.00	13,607	4,418	0	13,607	18,026	-0.00	0	-
\$0	68	18,566	0	18,566	0	-91.24	91.24	0.00	14,192	4,375	0	14,192	18,566	0.00	0	-
(P) SLB at Age	69	19,123	0	19,123	0	-97.19	97.19	0.00	14,799	4,324	0	14,799	19,123	-0.00	0	-
65	70	19,697	0	19,697	0	-104.87	104.87	0.00	15,429	4,268	0	15,429	19,697	0.00	0	-
(Q) Net SP	80	26,471	0	26,471	0	-231.51	231.51	0.00	23,004	3,468	0	23,004	26,471	0.00	0	-
46,851.08	90	35,575	0	35,575	0	-470.12	470.12	0.00	32,945	2,630	0	32,945	35,575	0.00	0	-
(R) Eq OL Face	100	47,810	0	47,810	0	-756.79	756.79	0.00	45,622	2,188	0	45,622	47,810	0.00	0	-
318,099	116	76,721	0	76,721	0	-1,303.99	1,303.99	0.00	75,025	1,695	0	75,025	76,721	-0.00	0	-
(S) Eq OL Prem	117	79,022	0	79,022	0	-1,348.30	1,348.30	0.00	77,361	1,661	0	77,361	79,022	0.00	0	-
2,616.35	118	81,393	0	81,393	0	-1,393.85	1,393.85	0.00	79,766	1,628	0	79,766	81,393	0.00	0	-
(T) Sum Prens	119	83,835	0	83,835	0	-1,443.56	1,443.56	0.00	82,238	1,597	0	82,238	83,835	-0.00	0	-
17,030.57	120	86,350	0	86,350	0	0.00	0.00	0.00	86,350	0	0	86,350	86,350	0.00	0	-

Appendix 6: Step 3 - Add Insured Retirement Income Purchasing Power

Robert E. Reuter, FSA, MAAA, CLU, FLMI/M

Item	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(A) Age	Age	FE	PVEI	SDB	SLB	RP	MP	SP	RV	AAR	SV	TV	TDB	TP	EI	TP/EI
35	35	7,000	1,048,114	1,055,114	0	1,031.78	1,204.61	0.00	1,083	1,054,031	0	1,083	1,055,114	2,236.39	40,000	5.6%
(B) FE	36	7,210	1,058,520	1,065,730	0	1,009.09	1,316.75	0.00	2,197	1,063,533	0	2,197	1,065,730	2,325.84	41,600	5.6%
\$7,000	37	7,426	1,067,766	1,075,192	0	1,091.96	1,326.91	0.00	3,453	1,071,739	0	3,453	1,075,192	2,418.88	43,264	5.6%
(C) Inflation	38	7,649	1,075,727	1,083,376	0	1,077.47	1,438.16	0.00	4,758	1,078,618	0	4,758	1,083,376	2,515.63	44,995	5.6%
3.0%	39	7,879	1,082,269	1,090,147	0	1,067.64	1,548.62	0.00	6,116	1,084,031	0	6,116	1,090,147	2,616.26	46,794	5.6%
(D) FE thru Age	40	8,115	1,087,248	1,095,363	0	959.49	1,761.42	0.00	7,430	1,087,933	0	7,430	1,095,363	2,720.91	48,666	5.6%
120	41	8,358	1,090,511	1,098,870	0	961.07	1,868.67	0.00	8,810	1,090,059	0	8,810	1,098,870	2,829.74	50,613	5.6%
(E) % FE Insured	42	8,609	1,091,893	1,100,503	0	866.09	2,076.84	0.00	10,160	1,090,342	0	10,160	1,100,503	2,942.93	52,637	5.6%
100%	43	8,867	1,091,219	1,100,086	0	779.77	2,280.87	0.00	11,487	1,088,599	0	11,487	1,100,086	3,060.65	54,743	5.6%
(F) EI	44	9,133	1,088,300	1,097,433	0	703.91	2,479.16	0.00	12,800	1,084,633	0	12,800	1,097,433	3,183.07	56,932	5.6%
\$40,000	45	9,407	1,082,936	1,092,343	0	537.53	2,772.87	0.00	14,005	1,078,338	0	14,005	1,092,343	3,310.40	59,210	5.6%
(G) Retire at Age	46	9,690	1,074,912	1,084,602	0	489.28	2,953.53	0.00	15,219	1,069,383	0	15,219	1,084,602	3,442.81	61,578	5.6%
65	47	9,980	1,064,001	1,073,981	0	357.28	3,223.24	0.00	16,355	1,057,626	0	16,355	1,073,981	3,580.53	64,041	5.6%
(H) Raises	48	10,280	1,049,958	1,060,237	0	447.02	3,276.73	0.00	17,642	1,042,595	0	17,642	1,060,237	3,723.75	66,603	5.6%
4.0%	49	10,588	1,032,522	1,043,111	0	459.02	3,413.68	0.00	19,006	1,024,104	0	19,006	1,043,111	3,872.70	69,267	5.6%
(I) % EI Insured	50	10,906	1,011,418	1,022,324	0	401.52	3,626.09	0.00	20,378	1,001,946	0	20,378	1,022,324	4,027.61	72,038	5.6%
100%	51	11,233	986,349	997,582	0	378.49	3,810.22	0.00	21,794	975,788	0	21,794	997,582	4,188.71	74,919	5.6%
(J) Prem thru Age	52	11,570	957,002	968,572	0	304.68	4,051.58	0.00	23,204	945,368	0	23,204	968,572	4,356.26	77,916	5.6%
64	53	11,917	923,040	934,957	0	282.46	4,248.05	0.00	24,661	910,296	0	24,661	934,957	4,530.51	81,033	5.6%
(K) All Prem Incr	54	12,275	884,108	896,382	0	152.87	4,558.86	0.00	26,054	870,328	0	26,054	896,382	4,711.73	84,274	5.6%
4.0%	60	14,656	523,108	537,764	0	1,246.56	4,715.28	0.00	37,659	500,105	0	37,659	537,764	5,961.84	106,633	5.6%
(L) Interest	61	15,096	437,298	452,394	0	1,935.61	4,264.70	0.00	41,574	410,820	0	41,574	452,394	6,200.31	110,899	5.6%
5.0%	62	15,549	342,719	358,268	0	2,797.24	3,651.09	0.00	46,590	311,678	0	46,590	358,268	6,448.33	115,335	5.6%
(M) SV	63	16,015	238,754	254,769	0	4,076.26	2,630.00	0.00	53,200	201,570	0	53,200	254,769	6,706.26	119,948	5.6%
\$0	64	16,496	124,746	141,242	0	5,827.07	1,147.44	0.00	61,978	79,264	0	61,978	141,242	6,974.51	124,746	5.6%
(N) SV at Age	65	16,991	0	16,991	50,000	-50,072.26	72.26	0.00	12,501	4,490	0	12,501	16,991	-50,000.00	0	-
65	66	17,501	0	17,501	0	-78.52	78.52	0.00	13,044	4,457	0	13,044	17,501	0.00	0	-
(O) SLB	67	18,026	0	18,026	0	-84.58	84.58	0.00	13,607	4,418	0	13,607	18,026	0.00	0	-
\$50,000	68	18,566	0	18,566	0	-91.24	91.24	0.00	14,192	4,375	0	14,192	18,566	0.00	0	-
(P) SLB at Age	69	19,123	0	19,123	0	-97.19	97.19	0.00	14,799	4,324	0	14,799	19,123	0.00	0	-
65	70	19,697	0	19,697	0	-104.87	104.87	0.00	15,429	4,268	0	15,429	19,697	0.00	0	-
(Q) Net SP	80	26,471	0	26,471	0	-231.51	231.51	0.00	23,004	3,468	0	23,004	26,471	0.00	0	-
56,750.55	90	35,575	0	35,575	0	-470.12	470.12	0.00	32,945	2,630	0	32,945	35,575	0.00	0	-
(R) Eq OL Face	100	47,810	0	47,810	0	-756.79	756.79	0.00	45,622	2,188	0	45,622	47,810	0.00	0	-
385,312	116	76,721	0	76,721	0	-1,303.99	1,303.99	0.00	75,025	1,695	0	75,025	76,721	0.00	0	-
(S) Eq OL Prem	117	79,022	0	79,022	0	-1,348.30	1,348.30	0.00	77,361	1,661	0	77,361	79,022	0.00	0	-
3,169.18	118	81,393	0	81,393	0	-1,393.85	1,393.85	0.00	79,766	1,628	0	79,766	81,393	0.00	0	-
(T) ∑ Prem to 65	119	83,835	0	83,835	0	-1,443.56	1,443.56	0.00	82,238	1,597	0	82,238	83,835	0.00	0	-
48,886.53	120	86,350	0	86,350	0	0.00	0.00	0.00	86,350	0	0	86,350	86,350	0.00	0	-

