Life Insurance as an Asset Class:

A Value-added Component of an Asset Allocation

Ethical Edge Insurance Solutions, LLC

Analytical Tools for Life Insurance

Richard M. Weber, MBA, CLU
Christopher Hause, FSA, MAAA

Table of Contents

Summary

- Life insurance is a unique asset for its ability to leverage a relatively low annual premium into a scheduled death benefit, delivering timely value at the death of the insured.

- The variety of life insurance products, together with the difficultly in making appropriate cost/benefit assessments, presents confusing choices to consumers.

- A cynical value proposition for the economic value of life insurance would suggest that the sooner you die after acquiring life insurance, the better the "return on investment." However, buyers of life insurance are usually *not* as interested in investment return as they are seeking to insure *human life value* – the economic value of a lifetime of work.

- For a young "breadwinner," the gross need for survivor's capital could range – at least in theory – from 40 to 100 times earnings, depending on the method used to calculate the answer to "how much life insurance do I *need?*" The gross calculation may be reduced by current resources, but even the resulting amount of additional capital needed is substantially larger than such an individual is inclined to purchase.

- The most significant factor in the "term" versus "permanent" life insurance decision is typically based on whether the need for life insurance exists for a *lifetime* or for only a limited period of time. So-called "permanent" life insurance is usually associated with lifetime needs.

- In two different analytical assessments used to answer the question "which policy should I buy" to cover a lifetime insurance need, *universal "no-lapse-guarantee"* and *participating whole life* demonstrate the best value with the least market risk. Universal "no-lapse-guarantee" addresses the need for death benefit that will not increase over time, for which there is no need for living benefits, and for which the premium budget is limited. Participating whole life addresses the need for an increasing death benefit, potentially substantial living benefits, and a higher premium structure that may lend itself to capital transfer from the policy owner's broader investment portfolio. Well-funded *variable* insurance policies have the potential to deliver significant value. However, suitability of use must be carefully measured against the policy owner's risk tolerance, substantial premium payment capacity, investment sophistication, age/life expectancy, and willingness to give up policy guarantees in favor of "upside potential" on cash value and death benefit.

- Permanent life insurance may be considered as any other major asset class and both acquired and managed according to an asset allocation for long-term value and maximization of benefits. In fact, consumers may wish to consider paying premiums from portfolio resources rather than from income resources.

- After determining the uses for lifetime insurance protection, permanent life insurance can optimize the risk/reward profile of an investment portfolio. That is, a portfolio with both fixed and equity components that includes life insurance intended for a lifetime may deliver greater legacy *and* living values in conjunction with the investment portfolio – for a given risk tolerance and reward goal – than the portfolio without the intended life insurance.

- Large amounts of life insurance should be purchased on the basis of risk and reward considerations and optimized for the purpose of crating an efficient result.

- When non-guaranteed investment performance is a key component of the policy, and the policyholder is accepting much or all of that risk, realistic expectations can only reasonably be formed by using statistically appropriate methods of calculating policy illustrations. Ongoing review will be an essential aspect of managing such policies to achieve policy owner expectations.

Introduction

Life insurance can be problematic for the typical buyer. The very consideration of life insurance implies death – a topic most people would prefer spending little time to ponder – and life insurance may be further discounted in the consumer's mind when a tangible *present* benefit cannot be perceived. An insurance industry aphorism states that no widow ever regretted that her husband had purchased life insurance – only that it should have been more. Due to the veil of confusion and complexity surrounding the many new and sophisticated product offerings of the last few years, many individuals who have an objective need for life insurance either take no action or do not completely insure their human life value.

Notwithstanding these possible barriers to acquisition, at the end of 2005, more than $18 trillion of life insurance covered the lives of American policyholders of which almost $10 trillion was individually purchased, with the balance in employer-provided group insurance and credit life insurance.[1] To put the total volume of life insurance in perspective, the U.S. economy's *gross domestic product* for 2006 was approximately $13 trillion.[2] It is estimated that $110 billion of total life insurance policy benefits (including death benefits, dividends, and surrender values) was paid to beneficiaries and policy owners in 2005, the most current year for which data is available. [3]

Insuring one's life against death may seem contrary to at least half of classic insurance wisdom suggesting insurance should be purchased only for those things for which the likelihood of loss is low, but the economic impact – in the unlikely event of occurrence – is greater than can be reasonably absorbed.[4] For example, insuring for window breakage in a high risk neighborhood is not an ideal insurable risk. While it is true that everyone will eventually die, the timing of an individual death is unknown, both to the insurer and the insured. Thus, while we will all die – belying the low frequency part of the equation – the *distribution* (i.e. timing) of deaths among a large population is amazingly predictable. When actuaries predict that 840 per million 33-year-olds will die this year (a specific subset of the U.S.'s general population of 300 million), the actual number of 33-year-old deaths might be 838 or 844 but not much less or greater. With a scientifically predictable distribution of deaths across the spectrum of ages from birth until age 121, life insurance companies can reasonably insure tens of millions of individuals for an initially affordable price that in turn follows the likelihood of death at a particular age (and health status) *this* year. Next year's price (based on probability) will be slightly higher.[5]

Life insurance is generally purchased to protect the financial well being of those who are dependent on the insured (families and businesses) in the event of premature death – either to replace income, create an estate, or provide liquidity for an estate. It is purchased to endow universities and museums and churches. It is also purchased to better assure the financial stability of pension and post-retirement health plans.

Life insurance is both a formidable economic presence and one of the most complex financial tools consumers must consider as they pursue financial well being and family or business responsibility. It is the intention of this discussion to look at life insurance objectively from the standpoint of the consumer and his/her needs in today's world, and to promote a clearer understanding of which life insurance choices may prove most suitable in a variety of circumstances. Ultimately, the use of life insurance will be best appreciated (and accepted by the client's other advisors) when it can be discussed in the context and vocabulary for which consumers already manage their investment portfolios.

Chapter 1: How much life insurance do I need?

Life insurance has been traditionally purchased to replace the loss of income needed to meet ongoing expenses of survivors in the event of premature death of "the bread winner." But just what is it that should be replaced: a multiple of annual income? The current family expenses? Should the surviving spouse's capability to earn an income be taken into account? What about family recreation; is that unseemly in the face of a parent's death? And what of the widow/widower's retirement needs? There are a number of different philosophies and formulas that can be applied, but the two most comprehensive approaches are Capital Needs Analysis (CNA) and Human Life Value (HLV).

Capital Needs Analysis essentially capitalizes the *expenses* a family will likely experience for as far into the future as the insured is willing to anticipate (and pay for). Mortgage payments, car insurance, property taxes, even income taxes are tallied into a "surviving family" budget that will likely look very much like the family's current expenses. Transportation and clothing expenses might decline on behalf of the deceased spouse, but because there won't be any more allocations to retirement plans, the survivor's budget would presumably take on this "expense." Other personal expenses will emerge. For example, health insurance may become more expensive when it is no longer provided under an employer's group plan, and the single parent may need to hire assistance for home and child care when there's no spouse to provide relief.

The typical CNA will tally current and future expenses for the family (including a factor for inflation), the single spouse for whom the children are now grown, and the retired single spouse. The total of those costs will be reduced to a present value at a "safe rate" of return, and before this is turned into a need for life insurance, will be further reduced by existing assets that can "assist" in offsetting living expenses. These assets might include an investment portfolio, group life insurance, and personal life insurance already acquired. It would typically *not* include the value of a home or a retirement plan, since these assets are or will be used for their specific purpose of a place to live and resources on which to retire. Ultimately, the CNA will produce a net number – and for a family of 4 with an income before premature death of $100,000 a year, no other financial resources, an inflation rate of 3% and an after-tax earnings rate of 4% – the capital sum could be as much as $4.2 million beginning at a deceased breadwinner's age of 33.

Human Life Value, on the other hand, does not take into account the current and future living costs of the survivors. It values the economic life of the decedent and is similar to the mathematical formulas used to calculate and claim damages under a wrongful death lawsuit. In a lawsuit claiming HLV for damages, the theory is that the family – irrevocably denied the flesh and blood mother/father and spouse – is entitled at least to the economic value of the deceased for all that he or she would have produced and accumulated in his or her lifetime.

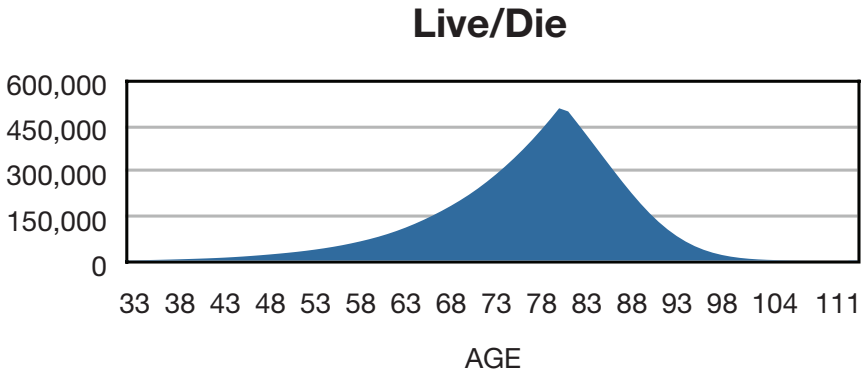
Recall that the 33-year-old currently earning $100,000 may have a calculated gross capital need (prior to offsets for existing assets and resources) for $4.2 million to cover the children's and spouse's future living expenses. Applying common HLV factors (assuming the 33-year-old would have worked until age 70 and received annual 5% raises), the result might amount to as much as $10 million *earnings potential* (not discounted for the time value of money) as the basis for calculating the life insurance need. Existing assets aren't included in the calculation of HLV, nor is the potential for the surviving spouse's future income or remarriage.

Regardless of the technical approach to calculating the appropriate amount of life insurance, current statistics reveal an enormous gap between needs and reality. A recent study conducted by LIMRA International tells a different story about the amount of life insurance in force in the U.S. Key within the data was that 22% of families with dependent children expect to have immediate trouble meeting everyday living expenses at the breadwinner's death. 28% of wives – and 15% of husbands – have no life insurance at all. Those who do have insurance own an average of just $235,000 – enough to replace their income for only 4.2 years. The typical married couple would need to double its current coverage to meet experts' *minimum* recommendations of having enough life insurance to replace income for 7 to 10 years.[6]

Chapter 2: What should life insurance cost?

The cost of life insurance – whether for a single year or a lifetime – is most immediately tied to underlying mortality probabilities. Ignoring for the moment the practical considerations of expenses and profit, it is possible to work with mortality or life expectancy tables to understand some important truths about "what does life insurance cost?" **Table 1** incorporates mortality statistics that introduce a sub-set of individuals within the general population who can qualify for life insurance on a preferential basis. This so-called "select" mortality produces dramatically lower death projections at the outset, scaling the benefit of initial good health over a 25 year time period before the group is assumed to once again take on the probability characteristics of deaths for the population at large. This revised assumption indicates that the likelihood a reasonably healthy 33-year-old male might die *this* year is a comfortingly low .027% (270 out of a hypothetical group of 1 million same-age/gender/health individuals). The following year projects another 380 deaths, leaving 999,350 survivors at the end of the second year of the analysis.

As the death probabilities gradually increase each year (and the surviving group gradually diminishes), actuarial projections 49 years into the future reveal that it is during that year in which the number of survivors for the first time is less than the number of deceased, and for this example, age 81 is what we will call "life expectancy;" half of the original group have died, and half still survive.[7]



From these statistics, the yearly probabilities of death can be used to create a hypothetical "premium" for life insurance as seen in **Table 2.** That is, an insurance company insuring these 1 million individuals for $1 million each (with a total exposure of $1 trillion) has an expectation of paying a total of $270 million in death claims *this* year. In order to cover at least that cost (again, not yet including expenses or profits), the insurer must collect at least $270 from each insured individual.

If the answer to "what does life insurance cost?" takes into account the timeframe from acquisition to life expectancy, **Table 2** also shows that an individual in this group surviving at least to the group's life expectancy will have paid $690,820 (approximately 70% of the insured death benefit) in total hypothetical premiums in order to be assured that his beneficiary will receive $1 million in death benefits, regardless of when death does occur. This will likely be perceived as a "good deal" if death occurs prematurely, and a "poor deal" if death occurs after life expectancy.

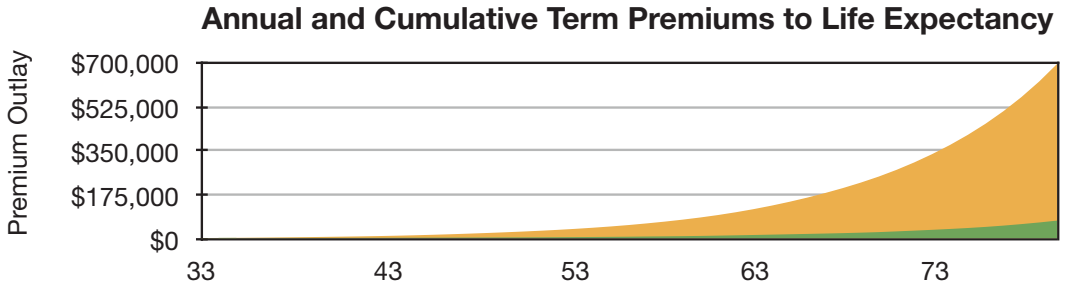


Table 3 demonstrates that a now 43-year-old who deferred purchasing life insurance for 10 years will pay somewhat more in cumulative premiums to life expectancy than the amount paid if the policy had been acquired at age 33. Similarly, in 10-year increments, we can look at the lifetime cost of providing insurance to an individual who doesn't acquire insurance until age 53 (98% of the amount paid by a 33-year-old), age 63 (100%) and age 73 (108%). Certainly between acquisition ages 33 and 53, it is noteworthy that the cumulative cash outlay for insurance to life expectancy is relatively close, and outlays beyond life expectancy are dramatic.

This accounting of cumulative hypothetical premiums to life expectancy has not yet been adjusted for the time value of money. The net present value (NPV) of these hypothetical "premiums" for lifetime coverage (measured by life expectancy) is once again relatively close, but it would be possible to infer from **Table 4** that – if the focus were purely on premium

outlay – it might make sense to delay the purchase of life insurance for as long as possible in order to achieve the modest advantage of age 73's NPV cost of $61,403 over the $108,939 NPV cost of beginning at age 33.[8] Of course, in the consideration of a current and lifelong need, postponing such purchase would make little sense in the broader consideration of appropriate protection "now." An average life expectancy of 49 years *doesn't* mean death can't occur tomorrow. It would also make little sense due to the potential for a suddenly manifested medical condition that could make it much more expensive or make it entirely unavailable.

A major consideration in determining the ultimate answer to "what does life insurance cost" will be the response to the consideration "for how long will it be needed?" As will become apparent in the next section, there are both short-term and long-term needs, with life insurance products that can be economically matched to those desired timeframes.

2001 Valuation Basic Table

Table 1 - Group of 1 million 33-year old healthy males

Life Expectancy

Age	Probability of death THIS year	Hypothetical deaths THIS year	Remaining lives
33	0.027%	270	999,730
34	0.038%	380	999,350
35	0.048%	480	998,870
36	0.058%	579	998,291
37	0.067%	669	997,622
38	0.076%	758	996,864
39	0.085%	847	996,017
40	0.091%	906	995,110
41	0.098%	975	994,135
42	0.107%	1,064	993,071
43	0.121%	1,202	991,870
44	0.142%	1,408	990,461
45	0.168%	1,664	988,797
46	0.192%	1,898	986,899
47	0.214%	2,112	984,787
48	0.234%	2,304	982,482
49	0.253%	2,486	979,997
50	0.273%	2,675	977,321
51	0.295%	2,883	974,438
52	0.323%	3,147	971,291
53	0.363%	3,526	967,765
54	0.404%	3,910	963,855
55	0.450%	4,337	959,518
56	0.504%	4,836	954,682
57	0.562%	5,365	949,317
58	0.641%	6,085	943,232
59	0.702%	6,621	936,610
60	0.776%	7,268	929,342
61	0.867%	8,057	921,285
62	0.980%	9,029	912,256
63	1.107%	10,099	902,157
64	1.240%	11,187	890,971
65	1.380%	12,295	878,675
66	1.521%	13,365	865,311
67	1.663%	14,390	850,920
68	1.816%	15,453	835,468
69	1.973%	16,484	818,984
70	2.165%	17,731	801,253
71	2.380%	19,070	782,183

2001 Valuation Basic Table

Table 1 - Group of 1 million 33-year old healthy males

Life Expectancy

Age	Probability of death THIS year	Hypothetical deaths THIS year	Remaining lives
72	2.668%	20,869	761,314
73	2.970%	22,611	738,703
74	3.286%	24,274	714,430
75	3.632%	25,948	688,482
76	4.008%	27,594	660,887
77	4.447%	29,390	631,498
78	4.961%	31,329	600,169
79	5.556%	33,345	566,824
80	6.205%	35,171	531,652
81	6.945%	36,923	494,729
82	7.712%	38,153	456,575
83	8.536%	38,973	417,602
84	9.449%	39,459	378,143
85	10.468%	39,584	338,559
86	11.599%	39,269	299,289
87	12.832%	38,405	260,885
88	14.151%	36,918	223,967
89	15.538%	34,800	189,167
90	16.981%	32,122	157,044
91	18.319%	28,769	128,275
92	19.707%	25,279	102,996
93	21.163%	21,797	81,199
94	22.696%	18,429	62,770
95	24.298%	15,252	47,518
96	25.732%	12,227	35,291
97	27.249%	9,616	25,674
98	28.855%	7,408	18,266
99	30.555%	5,581	12,685
100	32.354%	4,104	8,581
101	34.258%	2,940	5,641
102	36.274%	2,046	3,595
103	38.406%	1,381	2,214
104	40.663%	900	1,314
105	43.021%	565	749
106	45.516%	341	408
107	48.156%	196	211
108	50.949%	108	104
109	53.905%	56	48
110	57.031%	27	21
111	60.339%	12	8
112	63.838%	5	3
113	67.541%	2	1
114	71.458%	1	0

Table 2 - Group of 1 million 33-year old healthy males

"Premium"

Age	Probability of death THIS year	Hypothetical premium THIS year	Cumulative premium
33	0.027%	$ 270	270
34	0.038%	$ 380	650
35	0.048%	$ 480	1,130
36	0.058%	$ 580	1,710
37	0.067%	$ 670	2,380
38	0.076%	$ 760	3,140
39	0.085%	$ 850	3,990
40	0.091%	$ 910	4,900
41	0.098%	$ 980	5,880
42	0.107%	$ 1,070	6,950
43	0.121%	$ 1,210	8,160
44	0.142%	$ 1,420	9,580
45	0.168%	$ 1,680	11,260
46	0.192%	$ 1,920	13,180
47	0.214%	$ 2,140	15,320
48	0.234%	$ 2,340	17,660
49	0.253%	$ 2,530	20,190
50	0.273%	$ 2,730	22,920
51	0.295%	$ 2,950	25,870
52	0.323%	$ 3,230	29,100
53	0.363%	$ 3,630	32,730
54	0.404%	$ 4,040	36,770
55	0.450%	$ 4,500	41,270
56	0.504%	$ 5,040	46,310
57	0.562%	$ 5,620	51,930
58	0.641%	$ 6,410	58,340
59	0.702%	$ 7,020	65,360
60	0.776%	$ 7,760	73,120
61	0.867%	$ 8,670	81,790
62	0.980%	$ 9,800	91,590
63	1.107%	$ 11,070	102,660
64	1.240%	$ 12,400	115,060
65	1.380%	$ 13,800	128,860
66	1.521%	$ 15,210	144,070
67	1.663%	$ 16,630	160,700
68	1.816%	$ 18,160	178,860
69	1.973%	$ 19,730	198,590
70	2.165%	$ 21,650	220,240
71	2.380%	$ 23,800	244,040

Table 2 - Group of 1 million 33-year old healthy males

"Premium"

Age	Probability of death THIS year	Hypothetical premium THIS year	Cumulative premium
72	2.668%	$ 26,680	270,720
73	2.970%	$ 29,700	300,420
74	3.286%	$ 32,860	333,280
75	3.632%	$ 36,320	369,600
76	4.008%	$ 40,080	409,680
77	4.447%	$ 44,470	454,150
78	4.961%	$ 49,610	503,760
79	5.556%	$ 55,560	559,320
80	6.205%	$ 62,050	621,370
81	6.945%	$ 69,450	690,820
82	7.712%	$ 77,120	767,940
83	8.536%	$ 85,360	853,300
84	9.449%	$ 94,490	947,790
85	10.468%	$ 104,680	1,052,470
86	11.599%	$ 115,990	1,168,460
87	12.832%	$ 128,320	1,296,780
88	14.151%	$ 141,510	1,438,290
89	15.538%	$ 155,380	1,593,670
90	16.981%	$ 169,810	1,763,480
91	18.319%	$ 183,190	1,946,670
92	19.707%	$ 197,070	2,143,740
93	21.163%	$ 211,630	2,355,370
94	22.696%	$ 226,960	2,582,330
95	24.298%	$ 242,980	2,825,310
96	25.732%	$ 257,320	3,082,630
97	27.249%	$ 272,490	3,355,120
98	28.855%	$ 288,550	3,643,670
99	30.555%	$ 305,550	3,949,220
100	32.354%	$ 323,540	4,272,760
101	34.258%	$ 342,580	4,615,340
102	36.274%	$ 362,740	4,978,080
103	38.406%	$ 384,060	5,362,140
104	40.663%	$ 406,630	5,768,770
105	43.021%	$ 430,210	6,198,980
106	45.516%	$ 455,160	6,654,140
107	48.156%	$ 481,560	7,135,700
108	50.949%	$ 509,490	7,645,190
109	53.905%	$ 539,050	8,184,240
110	57.031%	$ 570,310	8,754,550
111	60.339%	$ 603,390	9,357,940
112	63.838%	$ 638,380	9,996,320
113	67.541%	$ 675,410	10,671,730
114	71.458%	$ 714,580	11,386,310

Table 3 - Group of 1 million 33-year old healthy males

Comparison of Cumulative Premiums for different start dates

Life Expectancy

Age	Non-Smoker Male Age 33 Cum Prem	Non-Smoker Male Age 43 Cum Prem	Non-Smoker Male Age 53 Cum Prem	Non-Smoker Male Age 63 Cum Prem	Non-Smoker Male Age 73 Cum Prem
33	$ 270				
34	$ 650				
35	$ 1,130				
36	$ 1,710				
37	$ 2,380				
38	$ 3,140				
39	$ 3,990				
40	$ 4,900				
41	$ 5,880				
42	$ 6,950				
43	$ 8,160	$ 510			
44	$ 9,580	$ 1,240			
45	$ 11,260	$ 2,190			
46	$ 13,180	$ 3,330			
47	$ 15,320	$ 4,680			
48	$ 17,660	$ 6,270			
49	$ 20,190	$ 8,140			
50	$ 22,920	$ 10,280			
51	$ 25,870	$ 12,720			
52	$ 29,100	$ 15,480			
53	$ 32,730	$ 18,610	$ 1,110		
54	$ 36,770	$ 22,170	$ 2,720		
55	$ 41,270	$ 26,250	$ 4,790		
56	$ 46,310	$ 30,870	$ 7,310		
57	$ 51,930	$ 36,020	$ 10,250		
58	$ 58,340	$ 41,630	$ 13,680		
59	$ 65,360	$ 47,910	$ 17,770		
60	$ 73,120	$ 54,940	$ 22,700		
61	$ 81,790	$ 62,840	$ 28,560		
62	$ 91,590	$ 71,730	$ 35,660		
63	$ 102,660	$ 81,790	$ 44,280	$ 2,300	
64	$ 115,060	$ 93,090	$ 54,570	$ 5,720	
65	$ 128,860	$ 105,680	$ 65,880	$ 10,460	
66	$ 144,070	$ 119,480	$ 78,330	$ 16,690	
67	$ 160,700	$ 134,700	$ 92,140	$ 24,550	
68	$ 178,860	$ 152,860	$ 107,390	$ 34,070	
69	$ 198,590	$ 172,590	$ 124,440	$ 45,160	
70	$ 220,240	$ 194,240	$ 143,720	$ 57,720	
71	$ 244,040	$ 218,040	$ 165,400	$ 71,790	
72	$ 270,720	$ 244,720	$ 190,230	$ 88,860	
73	$ 300,420	$ 274,420	$ 218,220	$ 109,330	$ 7,760
74	$ 333,280	$ 307,280	$ 249,590	$ 133,600	$ 19,330
75	$ 369,600	$ 343,600	$ 284,710	$ 162,220	$ 34,310
76	$ 409,680	$ 383,680	$ 324,090	$ 195,920	$ 52,340
77	$ 454,150	$ 428,150	$ 367,970	$ 235,600	$ 73,220
78	$ 503,760	$ 477,760	$ 417,580	$ 280,280	$ 97,010
79	$ 559,320	$ 533,320	$ 473,140	$ 330,490	$ 124,060
80	$ 621,370	$ 595,370	$ 535,190	$ 386,740	$ 156,900
81	$ 690,820	$ 664,820	$ 604,640	$ 450,600	$ 193,240
82	$ 767,940	$ 741,940	$ 681,760	$ 523,280	$ 237,520
83	$ 853,300	$ 827,300	$ 767,120	$ 604,640	$ 290,810
84	$ 947,790	$ 921,790	$ 861,610	$ 695,730	$ 354,540
85	$ 1,052,470	$ 1,026,470	$ 966,290	$ 797,850	$ 430,470
86	$ 1,168,460	$ 1,142,460	$ 1,082,280	$ 912,340	$ 520,510
87	$ 1,296,780	$ 1,270,780	$ 1,210,600	$ 1,039,200	$ 626,700
88	$ 1,438,290	$ 1,412,290	$ 1,352,110	$ 1,180,710	$ 751,070
89	$ 1,593,670	$ 1,567,670	$ 1,507,490	$ 1,336,090	$ 893,170
90	$ 1,763,480	$ 1,737,480	$ 1,677,300	$ 1,505,900	$ 1,048,800
91	$ 1,946,670	$ 1,920,670	$ 1,860,490	$ 1,689,090	$ 1,218,870
92	$ 2,143,740	$ 2,117,740	$ 2,057,560	$ 1,886,160	$ 1,406,150

Table 3 - Group of 1 million 33-year old healthy males

Comparison of Cumulative Premiums for different start dates

Life Expectancy

Age	Non-Smoker Male Age 33 Cum Prem	Non-Smoker Male Age 43 Cum Prem	Non-Smoker Male Age 53 Cum Prem	Non-Smoker Male Age 63 Cum Prem	Non-Smoker Male Age 73 Cum Prem
93	$ 2,355,370	$ 2,329,370	$ 2,269,190	$ 2,097,790	$ 1,617,560
94	$ 2,582,330	$ 2,556,330	$ 2,496,150	$ 2,324,750	$ 1,844,250
95	$ 2,825,310	$ 2,799,310	$ 2,739,130	$ 2,567,730	$ 2,087,050
96	$ 3,082,630	$ 3,056,630	$ 2,996,450	$ 2,825,050	$ 2,344,370
97	$ 3,355,120	$ 3,329,120	$ 3,268,940	$ 3,097,540	$ 2,616,860
98	$ 3,643,670	$ 3,617,670	$ 3,557,490	$ 3,386,090	$ 2,905,410
99	$ 3,949,220	$ 3,923,220	$ 3,863,040	$ 3,691,640	$ 3,210,960
100	$ 4,272,760	$ 4,246,760	$ 4,186,580	$ 4,015,180	$ 3,534,500
101	$ 4,615,340	$ 4,589,340	$ 4,529,160	$ 4,357,760	$ 3,877,080
102	$ 4,978,080	$ 4,952,080	$ 4,891,900	$ 4,720,500	$ 4,239,820
103	$ 5,362,140	$ 5,336,140	$ 5,275,960	$ 5,104,560	$ 4,623,880
104	$ 5,768,770	$ 5,742,770	$ 5,682,590	$ 5,511,190	$ 5,030,510
105	$ 6,198,980	$ 6,172,980	$ 6,112,800	$ 5,941,400	$ 5,460,720
106	$ 6,654,140	$ 6,628,140	$ 6,567,960	$ 6,396,560	$ 5,915,880
107	$ 7,135,700	$ 7,109,700	$ 7,049,520	$ 6,878,120	$ 6,397,440
108	$ 7,645,190	$ 7,619,190	$ 7,559,010	$ 7,387,610	$ 6,906,930
109	$ 8,184,240	$ 8,158,240	$ 8,098,060	$ 7,926,660	$ 7,445,980
110	$ 8,754,550	$ 8,728,550	$ 8,668,370	$ 8,496,970	$ 8,016,290
111	$ 9,357,940	$ 9,331,940	$ 9,271,760	$ 9,100,360	$ 8,619,680
112	$ 9,996,320	$ 9,970,320	$ 9,910,140	$ 9,738,740	$ 9,258,060
113	$ 10,671,730	$ 10,645,730	$ 10,585,550	$ 10,414,150	$ 9,933,470
114	$ 11,386,310	$ 11,360,310	$ 11,300,130	$ 11,128,730	$ 10,648,050
115	$ 12,142,340	$ 12,116,340	$ 12,056,160	$ 11,884,760	$ 11,404,080
116	$ 12,942,220	$ 12,916,220	$ 12,856,040	$ 12,684,640	$ 12,203,960
117	$ 13,788,490	$ 13,762,490	$ 13,702,310	$ 13,530,910	$ 13,050,230
118	$ 14,683,850	$ 14,657,850	$ 14,597,670	$ 14,426,270	$ 13,945,590
119	$ 15,631,140	$ 15,605,140	$ 15,544,960	$ 15,373,560	$ 14,892,880
120	$ 16,631,140	$ 16,605,140	$ 16,544,960	$ 16,373,560	$ 15,892,880

Table 4 - Group of 1 million 33-year old healthy males

Comparison of Cumulative Premiums for different start dates

Age	Non-Smoker Male Age 33 Cum Prem	Non-Smoker Male Age 43 Cum Prem	Non-Smoker Male Age 53 Cum Prem	Non-Smoker Male Age 63 Cum Prem	Non-Smoker Male Age 73 Cum Prem
33	$ 270				
34	$ 650				
35	$ 1,130				
36	$ 1,710				
37	$ 2,380				
38	$ 3,140				
39	$ 3,990				
40	$ 4,900				
41	$ 5,880				
42	$ 6,950				
43	$ 8,160	$ 510			
44	$ 9,580	$ 1,240			
45	$ 11,260	$ 2,190			
46	$ 13,180	$ 3,330			
47	$ 15,320	$ 4,680			
48	$ 17,660	$ 6,270			
49	$ 20,190	$ 8,140			
50	$ 22,920	$ 10,280			
51	$ 25,870	$ 12,720			
52	$ 29,100	$ 15,480			
53	$ 32,730	$ 18,610	$ 1,110		
54	$ 36,770	$ 22,170	$ 2,720		
55	$ 41,270	$ 26,250	$ 4,790		
56	$ 46,310	$ 30,870	$ 7,310		
57	$ 51,930	$ 36,020	$ 10,250		
58	$ 58,340	$ 41,630	$ 13,680		
59	$ 65,360	$ 47,910	$ 17,770		
60	$ 73,120	$ 54,940	$ 22,700		
61	$ 81,790	$ 62,840	$ 28,560		
62	$ 91,590	$ 71,730	$ 35,660		
63	$ 102,660	$ 81,790	$ 44,280	$ 2,300	
64	$ 115,060	$ 93,090	$ 54,570	$ 5,720	
65	$ 128,860	$ 105,680	$ 65,880	$ 10,460	
66	$ 144,070	$ 119,480	$ 78,330	$ 16,690	
67	$ 160,700	$ 134,700	$ 92,140	$ 24,550	
68	$ 178,860	$ 152,860	$ 107,390	$ 34,070	
69	$ 198,590	$ 172,590	$ 124,440	$ 45,160	
70	$ 220,240	$ 194,240	$ 143,720	$ 57,720	
71	$ 244,040	$ 218,040	$ 165,400	$ 71,790	
72	$ 270,720	$ 244,720	$ 190,230	$ 88,860	
73	$ 300,420	$ 274,420	$ 218,220	$ 109,330	$ 7,760
74	$ 333,280	$ 307,280	$ 249,590	$ 133,600	$ 19,330
75	$ 369,600	$ 343,600	$ 284,710	$ 162,220	$ 34,310
76	$ 409,680	$ 383,680	$ 324,090	$ 195,920	$ 52,340
77	$ 454,150	$ 428,150	$ 367,970	$ 235,600	$ 73,220
78	$ 503,760	$ 477,760	$ 417,580	$ 280,280	$ 97,010
79	$ 559,320	$ 533,320	$ 473,140	$ 330,490	$ 124,060
80	$ 621,370	$ 595,370	$ 535,190	$ 386,740	$ 156,900
81	$ 690,820	$ 664,820	$ 604,640	$ 450,600	$ 193,240
82		$ 741,940	$ 681,760	$ 523,280	$ 237,520
83				$ 604,640	$ 290,810
84				$ 695,730	$ 354,540
85					$ 430,470
86					$ 520,510
87					$ 626,700
88					$ 751,070
NPV	$ 108,939	$ 104,383	$ 87,607	$ 73,862	$ 61,403

Chapter 3: Modern life insurance product options

A. Term life insurance

The simplest form of life insurance has always been term insurance. As its name implies, it is purchased for a term of years generally extending from one-year (yearly renewable) term to 30-year term. The cost of the yearly renewable variety is most directly tied to the underlying probability of death *this* year and is, as discussed in the previous section, perhaps the purest form of life insurance. Next year's price will be slightly higher, and the progression will continue until some advanced age when it is generally no longer renewable at the insured's option.

The modern term insurance policy purchased for a specified period of years is almost always priced with an initial premium that is guaranteed and level. That level premium is simply a mathematical "smoothing" of what this year might be $270 for a $1 million policy to what 20 years from now would be $3,230 for the risk of death for someone who is then 20 years older. It should be noted that once the initial premium period has passed, the policy can generally be renewed annually at the discretion of the policy owner without further medical evaluation – but at the premium demanded by the insurance company (subject to certain contractual guarantees). These post-guarantee renewal premiums will typically start out at a significant multiple of the original, level premium. Actual premium structures for a multi-year level guaranteed premium may follow the model as described in the previous section, or may heavily discount the premium for the initial period and make it almost immediately unaffordable for renewal once the initial guarantee period has expired.

There are a number of considerations that, in practice, will affect the use of the hypothetical premium calculation before loading:

- Insurers generally add 15-30% to the pure mortality cost for the consideration of expenses, reserves, cost of capital and profit margins to determine their gross premiums.

- Insurers stratify and underwrite their risks in different ways. Insurers with considerably more underwriting classes offer their most favorable rates to the extremely healthy, and "basically" healthy individuals will pay more than they might with policies offering fewer "preferred" classes.

- Term insurance today is commonly sold as a "term to 95" with an initial, level guaranteed premium period. After that, because of the effects of anti-selection after the initial period, the Standard Non-forfeiture Law and the Model Life Insurance Reserves Regulation (Triple-X), a common practice is to have attained age Yearly Renewable Term rates that are a multiple (200-400%) of the valuation (reserving) mortality table. **Table 5** demonstrates the initial premiums (and subsequent guaranteed premiums once the initial guarantee has expired) representative of term policies offered for sale in 2007 with durations from 1 year to 30 years. Clearly, it is very expensive to continue to pay these high renewal premiums and most insureds would be well-advised to look for alternate sources of coverage. A universal "no-lapse" example (see discussion below) has been included for comparison.

Specific uses of life insurance should be matched to the longest possible duration of need and acquired for that time period, as implied by **Table 5.** Short-term needs include securing term loans (personal or business), divorce or alimony agreements, and business arrangements with an expectation of short-term obligations. Longer term needs include providing for family welfare while there are children at home or in college, life insurance that allows a retired couple to spend more of their resources while healthy (in anticipation that insurance proceeds on the first to die will replenish those resources), equalizing estates among family members who are and are not active in a family business, and of course, to assist in the payment of estate taxes and other liquidity needs at death.

For example, a 33-year-old male purchasing life insurance to cover – among other needs – the 30-year period of his newly acquired mortgage would be significantly better off with a guaranteed premium of $939 for each of those years than purchasing a shorter duration policy and subject to the possibility he might not qualify for a less expensive policy when the initial guarantee expires. Yet in the face of a much shorter need – perhaps to fulfill a lenders requirement for a 10-year loan to establish a business – the purchase of a 10-year term policy with a $355 annual premium is all that is necessary.

B. Transforming needs

Many individuals and families find that they have a number of different needs for life insurance, transforming as their lives and financial and family circumstances evolve. Such needs include income (or human life value) replacement, estate liquidity, estate creation, special needs, and charitable giving. The 33-year-old with a new family and a new mortgage is most likely not thinking about the retirement and estate planning uses for life insurance, yet many such individuals will find themselves ultimately confronting such issues.

It's possible to imagine, for example, a couple with two high-paying professional occupations facing a well-defined budgetary crisis if one were to die prematurely – yet at that time having no particular problems with estate taxes, special needs, or motivation to bequeath a wing to the local hospital. Assuming neither dies young, and their careers mature, retirement will become a planning focus. At some point, assets will begin taking over the job of paying for the desired retirement lifestyle. The replacement of earned income is no longer a concern, but estate preservation, liquidity, access to cash values, special needs, and charitable concerns may now, to one extent or another, become part of financial planning in their maturity. The death benefit of a large term policy purchased to handle the contingency of premature death will now be needed for other long-term purposes, but the policy may – due to age, deteriorating health or risky avocations – become unaffordable (or unconvertible) to continue for any practical period. Transforming needs should ideally be anticipated—at least in concept—at the time of policy selection.

In fact, as will become clearer in this paper, the major financial decision about purchasing life insurance is the decision of whether the individual and cumulative needs for life insurance exist for a lifetime or for just a certain duration of time. So-called "permanent" life insurance is best suited for lifetime needs.

C. Life insurance with cash value

Just as the premium for a 20-year term policy can be expressed as a 20-year *level* premium on the basis of a mathematical leveling, a simple explanation for the "permanent" (or cash value) forms of life insurance is that the increasing risk cost is mathematically leveled out for an entire lifetime. One essential difference between a term life insurance policy purchased with more than a 5-year guarantee period and a "permanent" life insurance policy is that while there is an implied reserve underlying the leveling of the term insurance policy, that reserve is typically not accessible to the policy owner. In a permanent policy, the reserve is represented by the policy cash value and must, as dictated by insurance regulation, be accessible to the policy owner. The longer the guarantee period (i.e. 20 or 30-year term), the more comparable the funding premiums (or at least their lifetime net present value) become, yet the term policy will not reflect the underlying reserve in the form of cash value. See **Table 6.**

There are a number of life insurance products that have evolved to meet the various needs and considerations consumers might have for their long-term (typically lifelong) life insurance purchases.

Whole Life is the oldest form of lifetime, level-premium life insurance, dating back to at least 1759 with the formation of the first life insurance company in the United States called the "Corporation for Relief of Poor and Distressed Presbyterian Ministers.[9]" Whole life insurance is entirely guaranteed by the issuing carrier, and the payment of a death benefit is subject only to the policyholder's timely payment of a fixed and guaranteed premium and the solvency of the insurance company. Premiums are set, reserves are created, and death benefits are paid based on actuarially conservative expectations. Because of the guaranteed nature of the contracted death benefit obligation which may span decades, an insurer needs to carefully "price" its product to deliver a reasonable return to the company's shareholders, be competitive in the marketplace, *and* be fiscally sustainable through "boom and bust" economic cycles.

Participating Whole Life (PWL) is a variation on the whole life concept wherein the insurance company – typically beneficially owned by its policyholders rather than outside shareholders – hedges the pricing of a long-term commitment by charging (and guaranteeing) a somewhat higher premium, and returning to its policyholders their pro-rata share of gains[10] through investment returns, mortality experience, and expenses that are more favorable than those incorporated in the pricing of the guaranteed premium. Historically, dividend-paying policies have generally provided greater long-term value than those policies that did not pay dividends. Since the focus of this paper is on lifetime insurance needs, any discussion of whole life policies will be focused on PWL.

Current Assumption Whole Life is essentially a hybrid of whole life and universal life policy design. The modern non-participating whole life policy has fixed premiums and guaranteed cash values based on the policy's underlying structure of guarantees, but death benefits, cash value, and/or premium payment periods can be improved when the carrier credits a rate higher than that guaranteed (and/or assesses a lower insurance charge than that guaranteed).

Universal Life (UL) was first introduced in the late 1970s at a time when interest rates in the U.S. were approaching unprecedented high levels in the economy. The first insurers selling such policies were able to segregate new investment portfolios earning as much as 15% in federally guaranteed bonds, resulting in "current assumption" policies initially crediting as much as 14% to its cash value account after deductions for insurance, expense charges and profits. In fact, a key feature of such policies was the "unbundling" or "transparency" of the various components of crediting rates, cost of insurance, and other expenses. Additional characteristics distinguishing UL policies from their whole life forebearers was there were no guaranteed premiums or benefits and the policy owner had only to pay enough into the policy to maintain a positive balance in the cash value account so that the policy could be sufficient

for another 30 days until the next policy accounting. With 14% initial crediting rates and the ability to "calculate" a premium based on the current assumptions (which, in turn, were based on current market returns), projected premiums were often a fraction of the equivalent whole life policy. Not as transparent, at least initially, was that the universal life policy design essentially transferred to the policy owner the *sufficiency risk* that the policy – based on the requirement there be at all times a positive balance of paid premiums, credited interest, and debited expenses – would be in force when the insured died.

Adjustable Life insurance policies are essentially whole life policies that within limits have the premium and death benefit flexibilities of UL. Unlike UL, these policies are not "transparent" and contain non-forfeiture values. Policy premiums and death benefits can be adjusted along a continuum ranging from limited pay policies on a guaranteed basis to term insurance for limited durations. These policies have had a rather limited distribution, as they were sold by only a small number of insurance companies.[11]

Variable Life (VL and VUL) policies are a unique variation on whole life and universal life design in that the policy owner has the opportunity *and* responsibility to allocate and invest her premiums in designated sub-accounts for the support of the underlying policy and death benefit. Variable whole life policies still contain death benefit sufficiency guarantees, but the more popular variable universal life policies only guarantee certain expense elements and an upper limit to the scale of insurance charges that can be assessed against the policy from year to year. A variable universal life policy typically provides a variety of proprietary and non-proprietary mutual fund-like sub-accounts across a spectrum of fixed and equity accounts. The long-term viability of the policy becomes a function of the funding premiums paid and the market returns of the chosen sub-accounts.[12]

Equity Indexed (EI) insurance policies are still another variation on universal life, the key difference being that the policy's crediting rate is not subject to the insurance company's own investment experience and the subsequent decisions of a Board of Directors. EI policies employ an elaborate formula and matrix of criteria to determine how much of the gains in a broad index of stocks (such as a S&P500™ index) will be credited to the cash value. Additionally, the typical Equity Indexed policy will never post a "negative" return as will occur from time to time in variable universal life. Equity Indexed products have a number of investment attributes, but under current regulation can be sold both by agents with and without securities licensing.

No-Lapse-Guarantee (NLG) universal life is a major subset of universal/variable universal life design in which – in exchange for the prompt payment of a stipulated (and guaranteed) premium – the policy will not lapse *regardless* of the fact that the cash value may decline to $0, a condition that would normally cause a universal life insurance policy to lapse. This is a significant departure from the principles of universal policy design and is the one type of universal-style policy that falls within the "guaranteed premium" category of term and whole life insurance products. There are, however, substantial restrictions on NLG universal Life policies, including limited cash value. Such policies are often considered "term to age 100" to reflect the reality of the lifetime guarantee but without the typical cash value that would accompany a lifetime policy. Because of the significant guarantee of sufficiency, owners should not anticipate accruing substantial cash values; in fact, the relatively nominal guaranteed cash value is all that should be expected. While the guarantees of NLG universal Life are especially appealing in times of low credited interest rates, they could lose their appeal vis a vis non-guaranteed UL competitors when crediting rates in the marketplace exceed 5 or 6%.

Joint Lives (more commonly known as "second to die") life insurance is generally available in all permanent forms of life insurance. Its most useful application is in estate planning for which the policy's proceeds are used to pay estate taxes and other costs (and where proceeds are generally not needed until the second death of a husband and wife). These policies are usually owned by a Trust or other third-party owner (avoiding estate taxes levies on the very asset that is used to fund tax payments). Joint lives policies can be very effective for their specific niche of estate planning, but should not be considered if the surviving spouse is likely to need additional financial resources at the death of the first spouse. It is not the intention in this treatise on life insurance to address the value of insuring two lives versus one for lifetime needs; hence, joint lives policies will not specifically be referenced as a qualifier within the range of policies available for permanent life insurance.

D. Life Settlements

Not all life insurance policies become death claims. It's been anecdotally observed within the life insurance industry that fewer than 5 percent (and possibly fewer than 3%) of term policies are in force at the time of the insured's death, primarily because of replacement with other policies, elimination of need, or the inexorable increase in the cost of maintaining non-guaranteed premium policies at older ages. By definition, there is no cash value in a term policy; when it is dropped or terminated, there is no further value to the policy owner. This was the case until a "secondary market" for life insurance, commonly known as *life settlements,* emerged in the late 1990s. A term life insurance policy about to lapse for non-renewal could be worth as much as 25 percent of the policy's *death benefit* on the life of someone over age 70 – with impaired but not immediately life-threatening health issues – who no longer needed the policy. As a result of life settlements, a whole new industry has emerged, introducing "fair market value" as a term of art into policy terminology.

Because of the emerging secondary market in life insurance policies, life settlements have literally breathed new life and value into about-to-lapse policies. In the typical life settlement, the ideal candidate is over age 65, has experienced a deterioration of health but is not terminally ill, has a life insurance policy with a death benefit of at least $250,000, *and no longer needs or can afford the policy.*[13] The University of Pennsylvania's Wharton School estimated that in 2002 policy owners received $242 million *more* in sales proceeds than would have been forfeited to insurers.[14]

The subject policy can be either term or permanent. Only 10 percent of issued universal Life policies have turned into death claims in the 25 years that this policy form has existed), and Conning & Company found "...that more than 20 percent of the policies owned by seniors have life settlement values in excess of their cash surrender values.[15]" While it is not within the scope of this paper to further discuss life settlements, it is important to note a study conducted by Deloitte Consulting LLP and The University of Connecticut (2005) in which it asserts that "... the intrinsic economic value [of a policy held until death] always exceeds the life settlement value.[16]"

Table 5 - 33-year old healthy male

Term Life Insurance - Calculated ART to 30-year Term

Age	YRT	10-YR	15-YR	20-YR	25-YR	30-YR	Lifetime No-Lapse Guarantee UL
33	$ 385	$ 355	$ 440	$ 590	$ 910	$ 939	$ 4,478
34	$ 415	$ 355	$ 440	$ 590	$ 910	$ 939	$ 4,478
35	$ 425	$ 355	$ 440	$ 590	$ 910	$ 939	$ 4,478
36	$ 445	$ 355	$ 440	$ 590	$ 910	$ 939	$ 4,478
37	$ 475	$ 355	$ 440	$ 590	$ 910	$ 939	$ 4,478
38	$ 2,655	$ 355	$ 440	$ 590	$ 910	$ 939	$ 4,478
39	$ 2,815	$ 355	$ 440	$ 590	$ 910	$ 939	$ 4,478
40	$ 2,995	$ 355	$ 440	$ 590	$ 910	$ 939	$ 4,478
41	$ 3,235	$ 355	$ 440	$ 590	$ 910	$ 939	$ 4,478
42	$ 3,525	$ 355	$ 440	$ 590	$ 910	$ 939	$ 4,478
43	$ 3,795	$ 3,865	$ 440	$ 590	$ 910	$ 939	$ 4,478
44	$ 4,065	$ 4,265	$ 440	$ 590	$ 910	$ 939	$ 4,478
45	$ 4,395	$ 4,725	$ 440	$ 590	$ 910	$ 939	$ 4,478
46	$ 4,745	$ 5,165	$ 440	$ 590	$ 910	$ 939	$ 4,478
47	$ 5,115	$ 5,645	$ 440	$ 590	$ 910	$ 939	$ 4,478
48	$ 5,525	$ 5,925	$ 6,340	$ 590	$ 910	$ 939	$ 4,478
49	$ 5,975	$ 6,245	$ 6,860	$ 590	$ 910	$ 939	$ 4,478
50	$ 6,455	$ 9,705	$ 7,480	$ 590	$ 910	$ 939	$ 4,478
51	$ 7,035	$ 7,245	$ 8,080	$ 590	$ 910	$ 939	$ 4,478
52	$ 7,695	$ 7,985	$ 8,840	$ 590	$ 910	$ 939	$ 4,478
53	$ 8,435	$ 8,785	$ 9,700	$ 9,700	$ 910	$ 939	$ 4,478
54	$ 9,295	$ 9,805	$ 10,690	$ 10,690	$ 910	$ 939	$ 4,478
55	$ 10,245	$ 11,065	$ 11,780	$ 11,780	$ 910	$ 939	$ 4,478
56	$ 11,295	$ 12,345	$ 13,000	$ 13,000	$ 910	$ 939	$ 4,478
57	$ 12,415	$ 13,725	$ 14,290	$ 14,290	$ 910	$ 939	$ 4,478
58	$ 13,625	$ 14,905	$ 15,680	$ 15,680	$ 20,900	$ 939	$ 4,478
59	$ 14,985	$ 16,265	$ 17,260	$ 17,260	$ 20,900	$ 939	$ 4,478
60	$ 16,505	$ 17,905	$ 19,010	$ 19,010	$ 20,900	$ 939	$ 4,478
61	$ 18,195	$ 19,505	$ 21,660	$ 21,660	$ 20,900	$ 939	$ 4,478
62	$ 20,125	$ 22,345	$ 24,720	$ 24,720	$ 20,900	$ 939	$ 4,478
63	$ 22,315	$ 25,085	$ 28,280	$ 28,280	$ 34,280	$ 29,589	$ 4,478
64	$ 24,805	$ 27,965	$ 32,380	$ 32,380	$ 38,100	$ 32,989	$ 4,478
65	$ 27,545	$ 31,005	$ 37,030	$ 37,030	$ 42,320	$ 36,579	$ 4,478
66	$ 30,495	$ 34,085	$ 42,170	$ 42,170	$ 46,860	$ 40,209	$ 4,478
67	$ 33,695	$ 37,205	$ 47,890	$ 47,890	$ 51,780	$ 43,899	$ 4,478
68	$ 37,125	$ 40,565	$ 54,200	$ 54,200	$ 57,060	$ 47,859	$ 4,478
69	$ 40,865	$ 44,045	$ 62,810	$ 62,810	$ 62,820	$ 51,969	$ 4,478
70	$ 45,095	$ 48,265	$ 71,040	$ 71,040	$ 69,320	$ 56,949	$ 4,478
71	$ 49,875	$ 52,985	$ 81,760	$ 81,760	$ 76,930	$ 62,519	$ 4,478
72	$ 55,405	$ 59,185	$ 91,550	$ 91,550	$ 85,180	$ 69,829	$ 4,478
73	$ 61,745	$ 65,725	$ 104,420	$ 104,420	$ 94,940	$ 77,549	$ 4,478
74	$ 68,875	$ 72,605	$ 119,120	$ 119,120	$ 105,900	$ 85,669	$ 4,478
75	$ 76,515	$ 80,125	$ 135,290	$ 135,290	$ 116,920	$ 94,539	$ 4,478
76	$ 84,655	$ 88,325	$ 152,940	$ 152,940	$ 127,730	$ 104,219	$ 4,478
77	$ 93,205	$ 97,845	$ 171,990	$ 171,990	$ 140,240	$ 115,449	$ 4,478
78	$ 102,085	$ 108,965	$ 192,300	$ 192,300	$ 154,790	$ 128,569	$ 4,478
79	$ 111,515	$ 121,805	$ 214,350	$ 214,350	$ 171,500	$ 143,719	$ 4,478
80	$ 121,845	$ 135,805	$ 238,910	$ 238,910	$ 184,880	$ 160,239	$ 4,478
81	$ 133,355	$ 151,745	$ 266,600	$ 266,600	$ 204,740	$ 179,049	$ 4,478
NPV	$ 231,050	$ 240,594	$ 329,827	$ 317,077	$ 278,084	$ 213,866	$ 81,360

Table 6 - 33-year old healthy male

Term Life Insurance - Calculated Multi-Year Premiums

Year	5-yr	10-yr	15-yr	20-yr	25-yr	30-yr	Universal Life	U. L. Cash Value
1	$ 465	$ 660	$ 915	$ 1,220	$ 1,600	$ 2,120	$ 2,675	$356
2	$ 465	$ 660	$ 915	$ 1,220	$ 1,600	$ 2,120	$ 2,675	$1,633
3	$ 465	$ 660	$ 915	$ 1,220	$ 1,600	$ 2,120	$ 2,675	$2,890
4	$ 465	$ 660	$ 915	$ 1,220	$ 1,600	$ 2,120	$ 2,675	$4,150
5	$ 465	$ 660	$ 915	$ 1,220	$ 1,600	$ 2,120	$ 2,675	$5,402
6	$ 760	$ 660	$ 915	$ 1,220	$ 1,600	$ 2,120	$ 2,675	$6,633
7	$ 850	$ 660	$ 915	$ 1,220	$ 1,600	$ 2,120	$ 2,675	$7,842
8	$ 910	$ 660	$ 915	$ 1,220	$ 1,600	$ 2,120	$ 2,675	$9,016
9	$ 980	$ 660	$ 915	$ 1,220	$ 1,600	$ 2,120	$ 2,675	$10,142
10	$ 1,070	$ 660	$ 915	$ 1,220	$ 1,600	$ 2,120	$ 2,675	$11,217
11	$ 1,210	$ 1,210	$ 915	$ 1,220	$ 1,600	$ 2,120	$ 2,675	$12,226
12	$ 1,420	$ 1,420	$ 915	$ 1,220	$ 1,600	$ 2,120	$ 2,675	$13,179
13	$ 1,680	$ 1,680	$ 915	$ 1,220	$ 1,600	$ 2,120	$ 2,675	$14,024
14	$ 1,920	$ 1,920	$ 915	$ 1,220	$ 1,600	$ 2,120	$ 2,675	$14,696
15	$ 2,140	$ 2,140	$ 915	$ 1,220	$ 1,600	$ 2,120	$ 2,675	$15,210
16	$ 2,340	$ 2,340	$ 2,340	$ 1,220	$ 1,600	$ 2,120	$ 2,675	$15,557
17	$ 2,530	$ 2,530	$ 2,530	$ 1,220	$ 1,600	$ 2,120	$ 2,675	$15,765
18	$ 2,730	$ 2,730	$ 2,730	$ 1,220	$ 1,600	$ 2,120	$ 2,675	$15,888
19	$ 2,950	$ 2,950	$ 2,950	$ 1,220	$ 1,600	$ 2,120	$ 2,675	$15,848
20	$ 3,230	$ 3,230	$ 3,230	$ 1,220	$ 1,600	$ 2,120	$ 2,675	$15,600
21	$ 3,630	$ 3,630	$ 3,630	$ 3,630	$ 1,600	$ 2,120	$ 2,675	$15,266
22	$ 4,040	$ 4,040	$ 4,040	$ 4,040	$ 1,600	$ 2,120	$ 2,675	$14,781
23	$ 4,500	$ 4,500	$ 4,500	$ 4,500	$ 1,600	$ 2,120	$ 2,675	$14,064
24	$ 5,040	$ 5,040	$ 5,040	$ 5,040	$ 1,600	$ 2,120	$ 2,675	$13,030
25	$ 5,620	$ 5,620	$ 5,620	$ 5,620	$ 1,600	$ 2,120	$ 2,675	$11,611
26	$ 6,410	$ 6,410	$ 6,410	$ 6,410	$ 6,410	$ 2,120	$ 2,675	$9,761
27	$ 7,020	$ 7,020	$ 7,020	$ 7,020	$ 7,020	$ 2,120	$ 2,675	$7,408
28	$ 7,760	$ 7,760	$ 7,760	$ 7,760	$ 7,760	$ 2,120	$ 2,675	$4,495
29	$ 8,670	$ 8,670	$ 8,670	$ 8,670	$ 8,670	$ 2,120	$ 2,675	$953
30	$ 9,800	$ 9,800	$ 9,800	$ 9,800	$ 9,800	$ 2,120	$ 2,675	$0
31	$ 11,070	$ 11,070	$ 11,070	$ 11,070	$ 11,070	$ 11,070	$ 20,821	$5,535
32	$ 12,400	$ 12,400	$ 12,400	$ 12,400	$ 12,400	$ 12,400	$ 20,821	$18,416
33	$ 13,800	$ 13,800	$ 13,800	$ 13,800	$ 13,800	$ 13,800	$ 20,821	$31,547
34	$ 15,210	$ 15,210	$ 15,210	$ 15,210	$ 15,210	$ 15,210	$ 20,821	$44,675
35	$ 16,630	$ 16,630	$ 16,630	$ 16,630	$ 16,630	$ 16,630	$ 20,821	$57,718
36	$ 18,160	$ 18,160	$ 18,160	$ 18,160	$ 18,160	$ 18,160	$ 20,821	$70,625
37	$ 19,730	$ 19,730	$ 19,730	$ 19,730	$ 19,730	$ 19,730	$ 20,821	$83,314
38	$ 21,650	$ 21,650	$ 21,650	$ 21,650	$ 21,650	$ 21,650	$ 20,821	$95,564
39	$ 23,800	$ 23,800	$ 23,800	$ 23,800	$ 23,800	$ 23,800	$ 20,821	$107,557
40	$ 26,680	$ 26,680	$ 26,680	$ 26,680	$ 26,680	$ 26,680	$ 20,821	$119,175
41	$ 29,700	$ 29,700	$ 29,700	$ 29,700	$ 29,700	$ 29,700	$ 20,821	$130,262
42	$ 32,860	$ 32,860	$ 32,860	$ 32,860	$ 32,860	$ 32,860	$ 20,821	$140,627
43	$ 36,320	$ 36,320	$ 36,320	$ 36,320	$ 36,320	$ 36,320	$ 20,821	$150,222
44	$ 40,080	$ 40,080	$ 40,080	$ 40,080	$ 40,080	$ 40,080	$ 20,821	$158,540
45	$ 44,470	$ 44,470	$ 44,470	$ 44,470	$ 44,470	$ 44,470	$ 20,821	$165,309
46	$ 49,610	$ 49,610	$ 49,610	$ 49,610	$ 49,610	$ 49,610	$ 20,821	$170,222
47	$ 55,560	$ 55,560	$ 55,560	$ 55,560	$ 55,560	$ 55,560	$ 20,821	$172,933
48	$ 62,050	$ 62,050	$ 62,050	$ 62,050	$ 62,050	$ 62,050	$ 20,821	$173,085
49	$ 69,450	$ 69,450	$ 69,450	$ 69,450	$ 69,450	$ 69,450	$ 20,821	$170,262
50	$ 77,120	$ 77,120	$ 77,120	$ 77,120	$ 77,120	$ 77,120	$ 20,821	$163,978
51	$ 85,360	$ 85,360	$ 85,360	$ 85,360	$ 85,360	$ 85,360	$ 20,821	$153,587
52	$ 94,490	$ 94,490	$ 94,490	$ 94,490	$ 94,490	$ 94,490	$ 20,821	$138,296
53	$ 104,680	$ 104,680	$ 104,680	$ 104,680	$ 104,680	$ 104,680	$ 20,821	$116,785
NPV	$138,107	$138,114	$138,127	$138,139	$138,114	$138,117	$106,103	

Insurance Product Matrix

Policy Type	Yearly Renewable Term	Level Premium Term Life	Universal Life	Variable Universal Life	No-Lapse Guar. Universal Life	Participating Whole Life
Best for	Very short-term needs such as securing a 1-year term loan	Longer-term needs that are clearly not lifetime needs	Lifetime coverage with considerations of budgetary restrictions or the need for flexible payments	Lifetime coverage with little or no budgetary restrictions *and* a high tolerance for short-term volatility	Lifetime coverage at the lowest possible cost - with no need for flexible premium arrangements or the possibility of an increasing death benefit	Lifetime coverage in which cost is less of a factor than long-term benefits including increasing death benefit and access to cash value
Not best for	Any uncertainty as to how long coverage will be needed	Any uncertainty as to how long coverage will be needed.	When flexible payment opportunity may lead to failure to pay needed premiums	Those with anxiety over volatile market activity	Need for cash value and/or death benefit growth	Need for large amounts of coverage and limited resources to pay premiums. High initial premiums may restrict death benefits in Trusts with few Crummey beneficiaries.
Issues	Presumably a conversion option will not be needed; can be "shopped" on the basis of premium; A M Best rating no less than "A"	Pay for a conversion option in the event the need later becomes lifetime. Can be "shopped" on the basis of premium; A M Best rating no less than "A"	Dilemma: carrier has transferred all the sufficiency risk but retains all the control to make the in-force block of policies "profitable." Do NOT shop on basis of premium; A M Best rating no less than "A"	Illustrations do not reflect effects of volatility. First determine asset allocation and historic rates of return, and then ask for a "Monte Carlo" estimate of a premium that will sustain the policy at least to age 100.	Make certain to understand the conditions under which the guarantee can be lost - and reinstated. A M Best rating no less than "A++"	Purchase from mutual insurance company; consider "paid up additions" for dividend election. A M Best rating no less than "A"
Risk Index	**0**	**0**	**3**	**15**	**0**	**1.8**
Sample Premium - 33-M-Preferred	$385 first year	$590 level - 20 yrs	$6,304/year	$4,824/year	$4,478/year	$13,895/year
Death Benefit at Life Expectancy	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 3,665,327
NPV @ 5% of all cash flows	$ (21,729)	$ (21,761)	$ (27,332)	$ (442)	$ 5,844	$ 67,176

Chapter 4: Policy illustrations are an imperfect proxy for the life insurance policies they presume to represent

The process of evaluating and resolving the question "what type of policy is in *my* best interest (and how much will I have to pay for it?)" will almost always involve reviewing a *policy illustration.* Policy illustrations are generally used to numerically project guaranteed and non-guaranteed policy values over the lifespan of the insured. The *illustration,* however, is not the *policy.* While the policy is the legal contract between the insurance company and the policy owner, the illustration is an attempt to explain *how the policy works.* An illustration inherently projects the insurance company's current experience in death claims, general expenses, and investment return as those elements might affect the long-term financial outcome of a policy. The illustration suggests to the buyer a view of how the policy's values *might* look in the future through economic enhancements that exceed its guaranteed pricing elements. The illustration may also be used to demonstrate the policy's flexibility (i.e. the ability to suspend premium payments and/or withdraw cash values from the policy) in the event the insurance company continues to be able to enhance policy values in excess of the underlying guarantees contained in the policy. Policy illustrations, however, are merely projections far into the future of a current set of assumptions (and which assumptions will almost assuredly vary from those that are projected). By comparison, it would be as if an investor were considering the purchase of two different mutual funds, each of which takes the average return it achieved over the last twenty or thirty years and projects that rate of return – along with its current, changeable fund management fees – to suggest a specific outcome far into the future. In fact, such an "illustration" of projected values for a mutual fund – or any related use of marketing material – is specifically prohibited by securities regulations; life insurance illustrations (even those representing policies that are deemed securities) are exempt from such regulation.

The use of policy illustrations

The use and flexibility of a policy illustration can be manifested in a number of ways. One method of utilizing the potential excess earning power of the policy is to let the enhancements take over the payment of premiums at some future time. The term "premium vanish," "disappearing premium," or "premium offset" is most often associated with this type of illustration. But the policy itself is not designed to "vanish" the premiums; the illustration simply calculates the current point in the future where non-guaranteed, projected enhancements give the policy owner the option of paying premiums out of excess policy values if those values in fact materialize due to favorable expense and investment experience.

Another popular illustration – not an inherent policy design – is that of "cash flow." This type of illustration shows paying premiums for a period of time, and then withdrawing and/or borrowing cash from the policy – typically to supplement retirement income. Policy owners need to understand that most of the benefits from such an illustration come from the assumption of substantial non-guaranteed dividends or, in the case of universal-style policies, non-guaranteed elements; the amount of cash that can ultimately be taken from the policy – and for how many years – without causing the policy to lapse (and create a potential income tax liability) can only be determined over time.

In 1992 The Society of Actuaries published an extensive examination of illustrations and illustration practices associated with the purchase of life insurance. Its conclusion: " ... (when) illustrations are used to show the client how the policy works; (it is) a valid purpose of policy illustrations. Illustrations which are typically used, however, to portray the *numbers* based on certain fixed assumptions – and/or are likely to be used to compare one policy to another – are an *improper* use of the policy illustration.[17]" Furthermore, the Executive Summary of the Society's report concluded: " ... How credible are any non-guaranteed numbers projected twenty years in the future, even if constructed with integrity? How does the consumer evaluate the credibility of two illustrations if they are from different companies? Or even if they are from the same company if different products with different guarantees are being considered? *Most illustration problems arise because the illustrations create the illusion that the insurance company knows what will happen in the future and that this knowledge has been used to create the illustration.*[18]" (emphasis added)

These cautionary words from the Society of Actuaries help to summarize the reasons policy illustrations cannot effectively facilitate a cost/benefit analysis or other comparisons within multiple policy possibilities. Illustrations are representations of assumptions made in policy design. These assumptions have to do with the building blocks of carrier expense and

earnings: mortality costs, overhead expenses, investment income, the length of time a policy "persists" with the carrier, and the percentage of policyholders who drop out of the pool of insureds for reasons other than death. By regulation, the assumptions manifested in the policy illustration should reflect only the current and actual experience of the carrier. The dilemma, however, is that even though the policy illustration being reviewed has assumptions incorporating only those based on current experience, those assumptions are nonetheless being projected into an unknown future; the future will only reveal itself one year at a time.

Variable universal life exemplifies the policy illustration dilemma

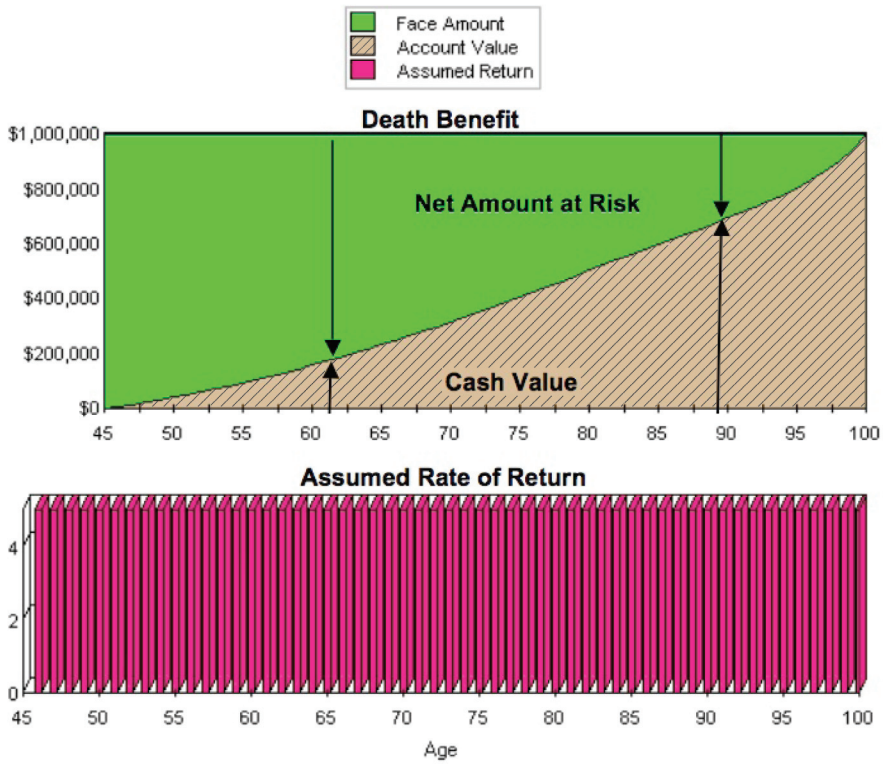
Variable universal life illustrations represent a special subset of concerns, and because of the inherent volatility in underlying sub-accounts, these policies exacerbate the problem that constant rate projections deprive the buyer of the opportunity to "show the client *how* the policy works." Variable universal is the first type of life insurance for which it is not only possible to have fluctuations – but where fluctuations are expected.

As interest rates began their long decline from the early 1980s through the early 2000s, the need for higher premiums to compensate for lower crediting rates began to have a negative effect on universal life sales. Just in time for the significant bull market from 1991 through 2000[19], variable universal life allowed the policy owner not only to choose a "premium," but to also control account value investments. Assuming that the need for life insurance was reasonably lifelong and purchased by an individual (or Trustee) who was investment savvy and tolerant of investment risk, there was an opportunity to capitalize on equity returns, which had in the past significantly out-performed the fixed returns underlying participating whole life and universal life policies.[20]

For all the benefits that could accrue to variable universal life in the "rising tide lifts all ships" stock market environment of the 1990s, one more technical issue had not been well considered. In any life insurance policy with underlying cash value, the death benefit is made up of two components: the accumulating cash value and the commensurately declining "net amount at risk" – at least for policies with level death benefits. The formula is simple: Net Amount at Risk = Stipulated Death Benefit minus Cash Value for any point along the continuum from policy purchase until death. This fundamental design for level premium, lifelong insurance is centuries old and was conceived to affordably manage the disastrously high risk charges at older ages.[21]

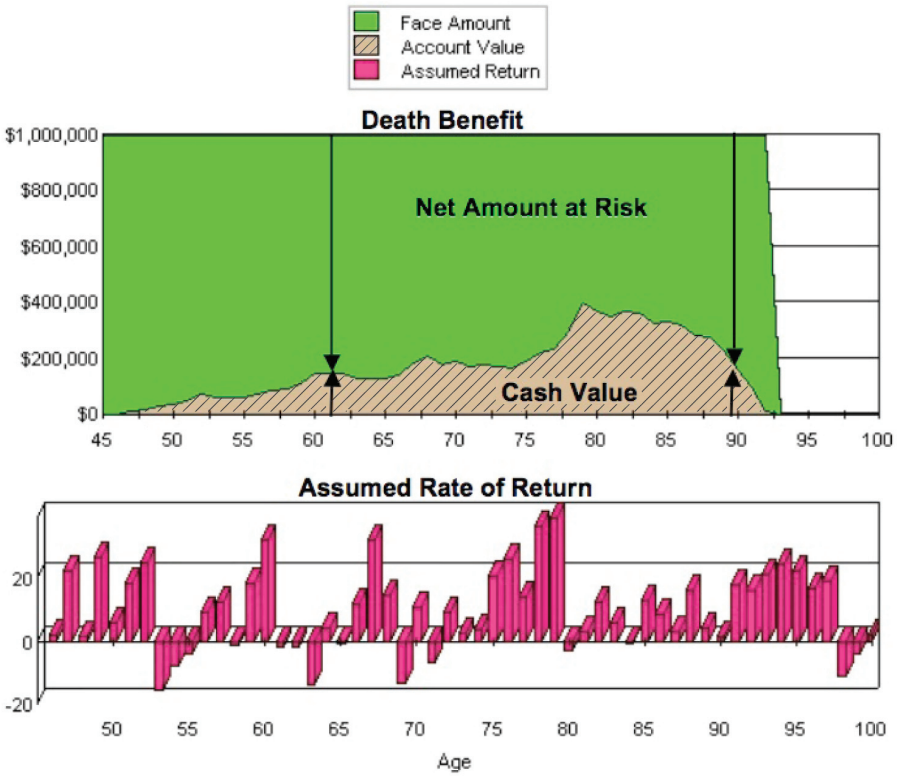
Appendix A provides a tutorial for understanding the long-term sustainability of a cash value policy when the underlying growth parameters are subject to volatility. An average 10% return will produce different results – especially at older ages – depending on the order of returns that make up the average. The underlying technical issue involves "net amount at risk." While the whole life ancestor of variable universal had constantly increasing cash values (and thus constantly decreasing net amounts at risk), variable policies – reflecting the inherent volatility of the equity sub-accounts typically selected in these policies – will periodically have declining cash values, requiring simultaneous increases in net amounts at risk.[22]

Graph 1



Graph 1 portrays a perfect progression of increasing cash value and correspondingly decreasing net amount at risk, the guaranteed result of which is unique to whole life insurance. When adapted to the universal life design, there was at least the assurance that increases were protected with a guaranteed low-end return. But variable universal life introduced a heretofore unforeseen practical result of cash value "growth" – that of *negative* growth in the form of the occasional "downs" of the stock market. **Graph 2** demonstrates the challenges the life insurance industry – and its policy owners – hadn't previously directly addressed.

Graph 2



By the 10th year of the variable universal life example suggested by Graph 2, and in spite of some extremely good return years, the vacillations in returns along with monthly withdrawals to pay for the *net amount at risk* has produced an account value slightly below the originally projected 10th year value for the more aggressively assumed illustrations, and somewhat better than projected for the less aggressive illustrations. **Table 8** suggests that the higher premium (based on more conservative illustration assumptions) is likely to be sufficient – possibly even more than sufficient – on the basis of a typical illustration. More on this shortly.

Table 8 - Traditional Illustration

$1 Million Universal Life purchased in 1985 and reassesed in 1995 (33-M-Preferred)

	Initial Crediting Rate			
	12%	10%	8%	6%
Initial Premium Calculation	$ 2,543	$ 3,028	$ 3,870	$ 5,380
Illustrated Account Value - Yr 10	$ 15,429	$ 21,135	$ 30,501	$ 46,121
Actual Account Value - Yr 10	$ 11,816	$ 17,509	$ 28,732	$ 46,121
Revised Premium for current 6% crediting rate	$ 8,160	$ 7,759	$ 6,969	$ 5,380

Universal and variable universal life product development and subsequent enhancements would not have been possible to design – or sell – without the personal computer. In turn, it was the development of the variable universal life policy that finally demonstrated what can be an enormous difference between policy illustrations and actual policy performance.

It's easy to see the dilemma technology has created for modern life insurance policies. Our mainframes can account for the daily investment fluctuations and monthly accounting of policy debits and credits, but our policy illustrations – indeed even in-force illustrations – are woefully constrained by tradition and regulation to project a constant return assumption (not to exceed 12%) as far into the future as the client's age 100 or 120. Similarly, scales of anticipated future insurance charges are projected into a distant future that may not, in fact, support the mortality and profit experience of the previously sold policies, necessitating insurance charge increases not earlier anticipated.[23] Thus, when policy illustration systems are used to calculate non-guaranteed premiums, the illustration of average rates of return (and scales of future insurance charges) disguises the potentially destructive reality of fluctuating account and net amount at risk values. This is not a fundamental flaw in policy design, but simply the result of calculating too low a funding premium.

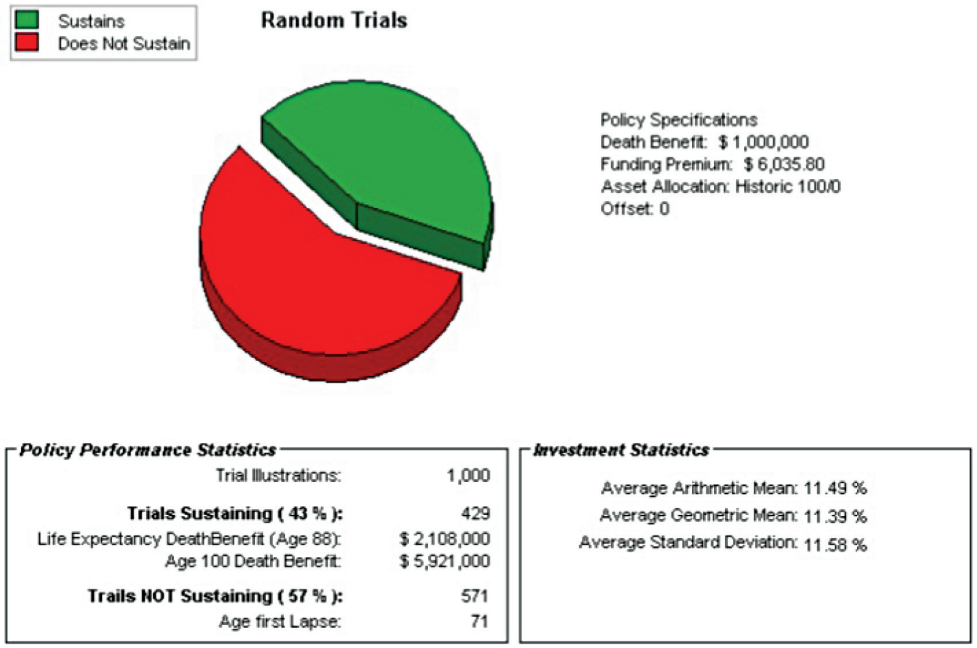
Fortunately, there's a better way to visualize how variable policies work and to establish an initial premium funding level that – while not suggesting will be more "accurate" than that calculated by a conventional illustration system – allows for a more realistic beginning point to which the advisor and client can then manage over the many years the policy is likely to remain in force.

Statistical Analysis

Statistical analysis facilitates an understanding of whether an "illustrated" but non-guaranteed VUL premium has a reasonable chance to fulfill the expectations of clients willing to take risk – and potential opportunity – in their life insurance policies. In a new example using this approach, we can assess the $6,036 annual premium suggested by an illustration system which assumes the 11.5% long-term average rate of return of an all equity asset allocation (in fact the S&P500™) for a 45-year-old seeking $1 million of coverage. Departing from the illustration's simplistic calculation process, we'll randomize ("Monte Carlo")[24] the actual, volatile monthly returns of the *last* 55 years as a way of understanding the probabilities an aggressive investor might face in an uncertain future 55 years. Implicit in this line of reasoning is that we can't reasonably forecast the future based on a linear repetition of the past.

A simple example of Monte Carlo works like this: imagine taking the 660 monthly returns underlying the last 55 years in the chosen asset allocation and inscribe them on individual bingo cubes and then spin them in a cage. Take out the first cube and note its return. That's the return we'll use to calculate month 1 of year 1 of a 55-year illustration for the 45-year-old. Put the cube back in the cage; spin again; randomly pull another cube. Do this 660 times and you've calculated an entire illustration. Note whether the illustration sustained to age 100 with the $6,036 premium. Do this 1000 times. Only today's computing power makes this practical, accomplishing the calculation of sustain vs. non-sustain in less than 20 seconds. And the tally: 429 randomly calculated illustrations sustained to age 100; the remaining 571 randomly calculated illustrations did not sustain to age 100. The implied 43% success ratio then begs the question: is 43% acceptable for this particular client? The answer for most insurance buyers is of course "no" – so then we must discover what success ratio is acceptable. Even investors who aggressively manage their portfolio may require as high as a 90% success ratio to feel comfortable; after all, it's life insurance. **Graph 3.**

Graph 3



The final piece of this more sophisticated approach is to compute an initial funding premium using a 90% success requirement. The calculated premium is $8,240. This is not the lowest possible premium; in fact it's roughly 35% more than that calculated by the illustration system. But we've already seen that lower premiums have a lower likelihood of sustaining the policy to age 100.

Additional and unique information is also available using this analytical approach: amongst the 1000 random trials illustrations using the higher $8,240 premium, just 93 illustrations failed to reach age 100 before lapse. The earliest lapse in that group 93 occurred at age 82. On the other hand, of the 907 illustrations that did sustain to age 100, the average death benefit at life expectancy for healthy 45 year-old males (approximately age 88) is over $3.5 million and the death benefit at age 100 is more than $10.1 million. It's also possible to capture arithmetic and geometric mean return calculations, as well as the standard deviation of the randomized process. **Graph 4.**

Graph 4

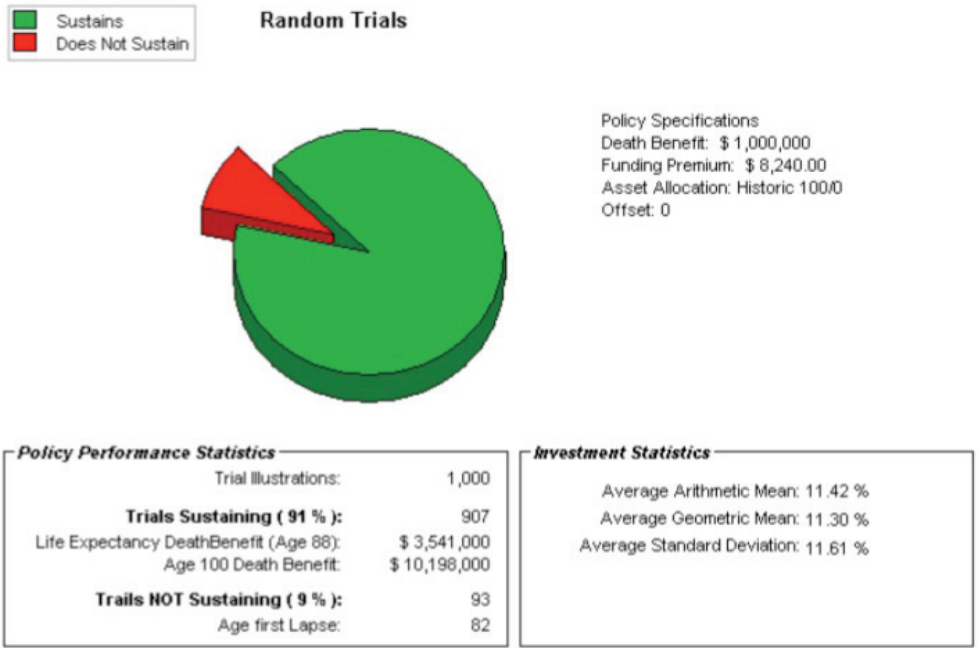


Table 9 takes the in-force funding premium recommendations of Table 8 and performs additional statistical analysis. The $3,653 funding premium "recommended" by a 12% constant calculation has an unacceptably low 41% chance of success. The 80% probability of success of the 10% funding premium calculation is at least in the range of what truly risk tolerant individuals might accept. Both the $5,063 and $6,827 funding premiums should be completely sufficient for most risk tolerant buyers of variable life insurance, but note that only the $6,827 premium eliminates the rare possibility of an early lapse amongst the 1000 trial illustrations.

Table 9 - Traditional Illustration

$1 Million Variable Universal Life purchased in 1995 and reassesed in 2005 (33-M-Preferred)

	Initial Crediting Rate			
	12%	10%	8%	6%
Initial Premium Calculation	$ 2,891	$ 3,592	$ 4,838	$ 7,088
Illustrated Account Value - Yr 10	$ 18,632	$ 26,488	$ 39,531	$ 61,215
Actual Account Value - Yr 10	$ 15,739	$ 25,823	$ 43,747	$ 76,113
Revised Premium with assumed rate	$ 3,653	$ 4,139	$ 5,063	$ 6,827

With a better understanding of the effect that volatility and net amount at risk have on variable life insurance policies, is there any applicability to universal life polices supported by the carrier's fixed return portfolio? While interest rates are not volatile in the same way that stocks (and even bond prices) can be, a view of the ups and downs of interest rates in the U.S. economy over the last 75 years suggests that these rates undulate. Thus, a modification of Monte Carlo can be created to simulate the undulations of universal life's interest crediting rates based on known, historic patterns and probabilities of rates rising, remaining the same, or falling from one period to the next within the trial illustration.

Table 10 demonstrates the undulation study conducted on the underlying characteristics of the $1,000,000 policy in Table 1: noting that the extremely optimistic 12% universal life illustration from the early 1980s suggested a premium of just $2,543, the reassessment 10 years later required a revised premium of $8,160. While the policy owner might expect the significant recalculated increase in premium to handle "the problem," an interest rate undulation study suggests that there's still less than a 50% probability the policy will sustain to age 100. It is even more interesting to note that the premium based on a conservative 6% (when other illustrations were momentarily paying 12%) in fact also has less than a 50% probability of sustaining to age 100.

Table 10 - Outcome Probability Analysis

$1 Million Variable Universal Life purchased in 1995 and reassesed in 2005 (33-M-Preferred)

	Initial Crediting Rate			
	12%	10%	8%	6%
Revised Premium	$ 3,653	$ 4,139	$ 5,063	$ 6,827
Trial Illustrations SUSTAINING	411	798	969	1000
FAILING	589	202	31	0
Life Expectancy	87	87	87	87
Earliest lapse	62	70	79	100
Average Death Benefit @ Age 87	$2.5 million	$4 million	$7 million	$12.9 million
@ Age 100	$8.1 million	$13.6 million	$23.9 million	$42.9 million
OPA Revised Premium	$ 5,750	$ 4,750	N/A	N/A
Average Death Benefit @ Age 87	$4.3 million	$4.9 million		
@ Age 100	$13.9 million	$15.7 million		

As seen in **Table 11**, the premium reassessment 10 years after the policy was purchased suggests future annual "premiums" should be in the range of $9,750 to $11,750, depending on the 10th year account value. Statistical (i.e. Monte Carlo) in-force evaluations should be conducted every 3-5 years.

Table 11 - Outcome Probability Analysis

$1 Million Universal Life purchased in 1985 and reassesed in 1995

	Initial Crediting Rate			
	12%	10%	8%	6%
Revised Premium for current 6% crediting rate	$ 8,160	$ 7,759	$ 6,969	$ 5,380
Trial Illustrations SUSTAINING	459	513	431	450
FAILING	541	487	569	550
Life Expectancy	87	87	87	87
Earliest lapse	84	83	83	81
Average Death Benefit @ Age 87	$1.8 million	$1.9 million	$2.0 million	$1.9 million
@ Age 100	$4.4 million	$4.8 million	$4.9 million	$4.7 million
OPA Revised Premium	$ 11,750	$ 11,500	$ 11,000	$ 9,750
Average Death Benefit @ Age 87	$2.3 million	$2.4 million	$2.5 million	$2.6 million
@ Age 100	$5.4 million	$5.6 million	$5.6 million	$6.0 million

All illustrations are inaccurate; some illustrations can be useful

Without the benefit of stochastic analysis, the one arena in which traditional policy illustrations can be useful is to extend the concept of explaining how the policy works under a number of alternative scenarios – or to select a range of possible outcomes from "best to worst" in order to appreciate the long-term financial implications of a policy for which only certain elements are guaranteed and the balance is based on macro economic forces that have yet to occur. If purchasing a participating whole life policy, a prospective buyer would request several different dividend assumptions to model a "premium vanish" or a "policy blended with term elements" or of taking a series of withdrawals and loans to supplement retirement income – all on the assumption of dividends which are 100 and 200 basis points below the current dividend scale. While improbable as a long-term result, it would also be useful to view policy results with the assumption of no dividends paid in the future (a worst-case result). Similarly, universal and variable universal life policy "premiums" should be calculated within a range of the current policy assumptions all the way to the extreme of guarantees of the policy. In this way, while experience and results cannot be known at the time of illustration, prospective buyers can bracket their expectations from conservative to current – and have a better understanding of how the policy will respond to different economic results.

A further consideration for the way in which an illustration can lead to unrealizable expectations is that while insurance regulations restrict universal life policy illustrations to a projection of values utilizing no greater than the current interest crediting rate of the insurance company, variable illustrations – reflecting the nature of the underlying cash value assets – allow a projection at any rate not to exceed 12%. And, once the illustration rate is selected, that rate will underlie the lifetime projection of values (or calculation of a funding premium). If a policy is purchased with an expectation of paying as little as possible in lifetime premiums, a variable universal life illustration will suggest a significantly more favorable result that *cannot possibly be realized*. It is imperative that the appropriate policy type is matched with the client's needs, and that a variable policy not be considered simply because it can "illustrate a better premium solution" at 12% than a universal life policy's crediting rate of 6%.[25] At a minimum, the purchase process should start with the completion of suitability and risk tolerance assessments, followed by the use of an asset allocation profile to at least determine an appropriate projection rate. Yet as will shortly be seen, even qualifying the projection rate can still lead to an unfulfilled expectation due to investment volatility.

Chapter 5: The "Illustration Beauty Contest" – the attractive impossibility versus the less attractive probability.

Given the propensity to use a policy illustration highlighting the most favorable non-guaranteed benefits of the underlying policy, it is not surprising that illustrations are often used to suggest the superiority of one policy over another, especially if there are two or more agents competing for the attention of a prospective insured. To paraphrase Aristotle: "...we are drawn to the attractive impossibility versus the less attractive probability ...[26]" and nowhere is that more apparent than in the use of policy illustrations.

The best example of what in some circles has been called the "illustration beauty contest" is a financial planning situation calling for $1 million of lifetime death benefit, and for which an insurance agent has presented a policy illustration characterizing $1 million of variable universal life with an annual premium of $12,000. The prospective buyer has been conditioned to shop for the best deal rather than accepting the first offer that comes along, and seeks out another agent's quote. The second illustration ostensibly demonstrates the same death benefit for an illustrated outlay of just $6,000 per year.

Few consumers would hesitate in the face of such a difference to choose the $6,000 annual premium solution rather than one that costs twice as much. The conceptual error here, however, is that neither of those amounts are, in fact, *premiums*. In reality, they're *educated guesses* based on different assumptions. The $6,000 funding premium "solution" is derived from an assumption of a constant investment return of 12% (which is admittedly not much higher than the long-term average of the S&P500™). The funding premium "solution" of $12,000 takes into account the inherent volatility of the S&P500™ and the need for the higher funding premium to compensate for times when "the market" may be down 10 – 20% in a given period and the possibility that the market is unlikely to perform consistently at that level for the period the policy is held. However, these considerations are rarely apparent in a variable universal life policy illustration.

Earlier in this section it was suggested that the "... attractive impossibility" can be characterized by policy illustrations as well as explaining the popularity of lotteries. Life insurance is sometimes described as a "gamble between you and the insurance company," a concept rejected by insurance professionals but which nonetheless deserves an objective examination: is the purchase of life insurance a gamble? And if so, is it true in just some instances or with respect to all types of life insurance?

Certainly from an actuarial standpoint, there is no element of "gamble." Such a contention would imply that at least some people would never die. Clearly all will die whether or not they own life insurance. As indicated in a previous section, it's the predictable progression of deaths from age 0 to 121 that allows life insurance to be economically viable for both the insurer and the insured.

Further, an early study by Penn State University of in-force term policies concluded that only 1% of all term insurance actually resulted in a death claim[27]. More recent anecdotal evidence would suggest it is unlikely this statistic would have improved in the increasingly competitive term marketplace that has emerged since the 1980s. Even when adjusting for the large portion of in-force term policies that are converted to permanent policies[28] (and whose ultimate death claim status is attributed to the converted policy and not the original term policy), a recalculation under this assumption still leaves only 2.5% of term policies resulting in a death claim.[29] Only the purchase of a lottery ticket produces a lower probability of payoff.

In a practical version of portfolio assessment, Robert T. Kiyosaki's popular book "Rich Dad, Poor Dad" offers the consideration that *assets* are "something that can be used, either now or in the future, to generate income.[30]" With this definition, life insurance may be considered a *potential* asset, with the caveat that it needs to be "in force" at the time of death – or usable during life – to qualify as an asset.

There is a demonstrably low probability that term life insurance will become an asset in this context. Permanent forms of life insurance, on the other hand, have cash values and/or dividend accounts that may provide both "living" benefits to supplement retirement income as well as the intended death benefit that can retire a debt or produce an income. This can be achieved with a permanent, level-premium policy with relative certainty, as contrasted to the financial disincentives of geometrically increasing term insurance premiums as the insured approaches life expectancy. Permanent life insurance should qualify as an asset in Kiyosaki's classification system rather than as a wager at the betting desk.

Chapter 6: For lifelong needs: what underlying factors should be considered when choosing one style of life insurance over another?

In the context of exploring a lifelong need for life insurance, it is appropriate to create an analytical process addressing the use of all forms of "permanent" life insurance while at the same time taking into consideration that there may be certain subjective issues such as assumed policy sufficiency risk that would be less attractive to some insurance buyers.

The high interest rates of the late 1970s and early-to-mid 1980s – with the underlying high inflation – had an especially negative effect on traditional life insurance policies. The guaranteed reserve rate of whole life policies had been 4% since the mid-1960s; during those years that bank savings interest rates were reasonably comparable[31], these policies could make sense when considered a combination of life insurance protection and long-term savings should death not come prematurely. But as interest rates began to spike in the late 1970s[32], the superior total returns on the relatively short "new money" portfolios of universal life and the much slower moving increases in longer "old money" portfolios backing whole life began to have a dramatically negative effect on the sale of whole life. In 1976, whole life policies represented 88% of all permanent life insurance sales (measured by annualized premium); by 1985, universal life had peaked at 38% of new permanent sales and whole life had declined to 47%.[33]

This is not to say that whole life policies had suddenly become a bad "deal," but that new money insurance products such as universal life put whole life at a disadvantage in a marketplace in which buyers became increasingly focused on paying as little for life insurance as possible and/or seeking the highest possible interest rate returns. Note that the relatively short-term escalation in interest rates occurred primarily in the five years between 1976 and 1981. The subsequent decline in interest rates took significantly longer, from 1981 through 2003.

There has been little change over the decades in the composition of an insurance company's investments held in reserve to fulfill the death benefit promise to its customers. While the mix of investments is not strictly regulated, "risk-based capital" ratios tend not only to keep carriers mostly on the fixed return side (typically 90% or more of carrier assets are invested in U.S. Government and high-grade corporate bonds, high grade commercial mortgages, and policy loans[34]), but market competition also inspires a general lock-step with its peers. Peer

companies are generally those with similar size, market, and financial ratings.[35] Investment portfolios backing "blocks" of insurance (similar policies sold within a 2-5 year period) may be somewhat shorter for universal-type policies than those held for whole life policies. Bonds and mortgages held for both types of insurance will tend to be held to maturity.

Universal style (i.e. indeterminate premium) policies are enhanced by Board of Director authorized action after consideration of portfolio returns, expenses, profit expectations, and current and anticipated death claims. Enhancements are typically in the form of interest rate credits in excess of that which is guaranteed in the policy and/or charges for the net amount at risk (Cost of Insurance – or "COI") that are less than those guaranteed in the policy. Participating whole life policies (today sold almost exclusively by mutual life insurance companies) use dividends that are declared by the Board of Directors to enhance policies according to the *contribution principle*. It is not unusual that annual dividends might grow in size from year to year so that the dividend is equal to the guaranteed premium itself in as few as 20 years. Dividends take into consideration improvements in mortality, expenses and investments over those assumptions guaranteed in the policy.

The inevitable *lag* between interest rates in the economy and the effect on the portfolio returns of an insurance company's assets – followed by their reflection in life insurance policy dividend scales – obviates against life insurance policies used as money market accounts. An extreme example of the *lag* effect occurred between 1981 and 1987 as money market rates began dropping in the U.S. economy but the investment return component of participating whole life dividends continued to rise until the lag effect was fully run out; inevitably dividend scales began to fall as a result of interest rate activity in the general economy.

The data analysis portion of this article attempts to assess reasonable comparisons as to similarities and differences between whole life, universal life, and variable universal life policies purchased for lifetime needs. Since it is more desirable to deal with actual results that hypothetical possibilities, it was important to go back far enough in time to view the macro dynamics of these policies types. To minimize differences that might materialize from one insurance company to another – at least in the short term – we have introduced the concept of *policy standards* (a more complete discussion follows) to serve as a proxy for actual policies that might have existed in 1975 in each of the major types of policy. Each policy type can then be divorced from illustrations and marketing "hype" and viewed as realistically as possible for their reasonable similarities and differences.

Chapter 7: Policy standards analysis

From the perspective of the insurance company, the lifelong cost of providing a death benefit through the vehicle of a life insurance policy is subject to two major factors: the actual (but not yet known) date of death of the insured, and the *law of large numbers*. Since insurance companies deal in the underwriting and management of millions of policies, the law of large numbers[36] dictates that in the long term, peer life insurance companies will experience very similar mortality (death claim) experience. If the distribution and policy service systems are similar, it is expected that those long-term costs will be more similar than not. The law of large numbers is behind the actuarial science that indicates 270 out of 1,000,000 33-year-olds qualifying for preferred rate life insurance will die this year, even though no actuary could tell you *which* of such insureds will die.

Thus, the law of large numbers and its applicability to life insurance lends itself to the creation – at least for analysis purposes – of *policy standards* as a way of bypassing the problematic and controversial review of one insurer's policy as being representative of the industry. There *are* differences in projected expenses, mortality, and investment return at the outset; it's just that the expected future result is expected to migrate to the mean expectation.

A *policy standard* is derived by looking at industry resources such as actuarial tables, general levels of investment returns, and the average of other expenses incurred by insurance companies in the management and maintenance of blocks of life insurance policies. The result is the projection of an industry average to produce an actuarially certified, hypothetical "policy" that cannot be purchased, but that nonetheless reasonably represents what would have been available in the examined timeframe. Because scales of COI (term insurance rates projected into the future for increasing age) and other expense assumptions may be somewhat different between universal life, variable universal life, and whole life, three separate Policy Standards policies have been created for this study. In the case of universal and variable universal life – not generally available as early as 1975 – reasonable simulations of likely pricing have been modeled.[37]

Assessment #1 – a 45 year-old healthy male seeking to determine the "best" policy for his need of $250,000 of life insurance. The Policy Standard for participating whole life policy, purchased in 1974, had the following results in a 30-year time period:

Participating Whole Life Issued 1974 $250,000 Death Benefit Dividends purchase Paid-Up Additions	$6,813 Premium	45-Male
		Results
30-year Total Death Benefit		$ 805,307
30-year Total Cash Value		$ 630,635

While universal life policies were not available for purchase in 1974, it is possible for our analysis to build a model for such a policy.[38] With the noted assumptions, a universal life policy, purchased in 1974, would reasonably have had the following results when applying our Policy Standards for universal life:

Universal Life Issued 1974 $250,000 Death Benefit Death Benefit = Scheduled Benefit + Cash Value	$6,813 Premium	45-Male
		Results
30-year Total Death Benefit		$ 782,558
30-year Total Cash Value		$ 532,558

The result is noticeably worse than the participating whole life performance, but is not entirely unanticipated when considering that slightly lower interest and slightly higher mortality costs are being passed through to the contract holder after deduction for company expenses and profit.

The third possible policy choice was a variable universal Life. VUL benefits are closely tied to the long-term experience of the investment component of the policy. This, in turn, is dependent upon both the timing and amount of funding premium payments as well as the portfolio asset allocation. Once again, and most importantly with variable policy illustrations that will distort long-term benefits or disadvantages for the use of constant return assumptions, actual historic rates of return from 1975 through 2004 are utilized in values calculations for four different asset mixes (also called investment allocations). Below are the results based on these investment mix possibilities, starting with the most conservative and ending with the most aggressive results as applied to the Policy Standards. (For example, a "20-80" Asset Mix indicates that 20% of the policy assets are in equities and 80% of policy assets are in fixed returns (bonds).)

Variable Universal Life	**$6,813 Premium**	**45-Male**	**$250,000 Death Benefit**
Issued 1974		**Death Benefit = Scheduled Benefit + Cash Value**	

	20-80 Mix	**60-40 Mix**	**80-20 Mix**	**100-0 Mix**
30-year Total Death Benefit	**$ 692,490**	**$ 980,863**	**$ 1,165,717**	**$ 1,377,395**
30-year Total Cash Value	**$ 442,490**	**$ 730,863**	**$ 915,717**	**$ 1,127,395**

Our examples above use actual returns from 1975 through 2004 related to the asset allocation assumptions and are assumed to be re-balanced each year to the target investment mix. By contrast, all illustrations available to the prospective buyer erroneously assume a constant rate of return for the entire policy period. Further, illustration rates are almost always chosen to reflect the buyer's assumption of a "possible" long-term average rate of return without much attention to the underlying asset allocation.

However, one of the significant issues to be examined is the likelihood a policy owner purchasing such an insurance policy at age 45 is likely to maintain an aggressive allocation throughout his or her life. Hence, a final Asset Mix matrix is necessary, in this case to assume an initial aggressive portfolio of 80% equities and 20% fixed returns, graded linearly over the 30-year period (age 75) to a more conservative 20-80 mix. Note that this performance, which may be what many advisors would tend to advise in practice, exhibits slightly poorer performance over the time period than the par whole life. The final example represents the VUL Policy Standard with progressively conservative asset allocations beginning with the 80-20 allocation:

Variable Universal Life Issued 1974	$6,813 Premium	45-Male
$250,000 Death Benefit Death Benefit = Scheduled Benefit + Cash Value	80-20 GRADED to 20-80 Mix	

	Results
30-year Total Death Benefit	$ 820,449
30-year Total Cash Value	$ 570,449

In order to determine that the results for a 45-Male are not somehow unique, a second set of calculations has been performed in the same manner as those above, in this case for a 60-year-old female.

Assessment #2 – a 60 year-old healthy female seeking to determine the "best" policy for her need of $250,000 of life insurance: The Policy Standard for a participating whole life policy, purchased in 1974, had the following results in a 30-year time period:

Participating Whole Life Issued 1974	$11,900 Premium	60-Female
$250,000 Death Benefit Dividends purchase Paid-Up Additions		

	Results
30-year Total Death Benefit	$ 986,065
30-year Total Cash Value	$ 876,966

Alternatively, a universal life would have experienced these results:

Universal Life Issued 1974	$11,900 Premium	60-Female
$250,000 Death Benefit Death Benefit = Scheduled Benefit + Cash Value		

	Results
30-year Total Death Benefit	$ 1,048,757
30-year Total Cash Value	$ 798,757

Following are the results based on the previously described investment mix possibilities for VUL, starting with the most conservative and ending with the most aggressive:

Variable Universal Life	$11,900 Premium	60-Female	$250,000 Death Benefit
Issued 1974		Death Benefit = Scheduled Benefit + Cash Value	

	20-80 Mix	60-40 Mix	80-20 Mix	100-0 Mix
30-year Total Death Benefit	$ 918,165	$ 1,415,625	$ 1,736,515	$ 2,105,192
30-year Total Cash Value	$ 668,165	$ 1,165,625	$ 1,486,515	$ 1,855,192

To complete the comparison, a final Asset Mix matrix is necessary to assume grading back the asset allocation over a period of years. In respect of the 60-year-old's fewer years to life expectancy and the inherent tendency to be more conservative with investments at age 60, we will assume an initial 60-40 asset allocation grading linearly over 20 years until a 20-80 mix is achieved, and then held at that mix until maturity:

Variable Universal Life Issued 1974	$11,900 Premium	60-Female
	60-40 GRADED to 20-80 Mix	
$250,000 Death Benefit Death Benefit = Scheduled Benefit + Cash Value		

	Results
30-year Total Death Benefit	$ 944,452
30-year Total Cash Value	$ 694,452

Revisiting the Product matrix: Is there one type of life insurance that delivers more "value" than another?

One of the most asked questions regarding policy selection is "which policy should I buy?" Perhaps the question is better framed as: "for my specific budget, timeframe of need, and tolerance for risk and overall financial situation and resources, what type of life insurance will best meet my needs?"

When life insurance premiums are paid from current income, budget becomes a primary consideration. **Tables 7A – 7C** demonstrate the annual premiums and lifetime costs of the major types of life insurance and the assumption that the death benefit will be paid at life expectancy. For the Age 33 Male example and the underlying life expectancy factors, the no-lapse-guarantee and participating whole life policies generally had the best price/benefit ratio. The consideration of insurance benefits paid for out of capital accounts will be addressed in the latter part of this paper.

Table 7A - 33-year old healthy male - $1,000,000 death benefit

Life Insurance Premiums / Death Benefits to Life Expectancy

Year	5-yr Term	10-yr Term	20-yr Term	30-yr Term	No-Lapse Guarantee UL	Universal Life	8% Variable Univ. Life	Whole Life
1	$ 385	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
2	$ 415	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
3	$ 425	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
4	$ 445	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
5	$ 475	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
6	$ 2,655	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
7	$ 2,815	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
8	$ 2,995	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
9	$ 3,235	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
10	$ 3,525	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
11	$ 3,795	$ 3,865	$ 590	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
12	$ 4,065	$ 4,265	$ 590	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
13	$ 4,395	$ 4,725	$ 590	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
14	$ 4,745	$ 5,165	$ 590	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
15	$ 5,115	$ 5,645	$ 590	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
16	$ 5,525	$ 5,925	$ 590	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
17	$ 5,975	$ 6,245	$ 590	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
18	$ 6,455	$ 9,705	$ 590	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
19	$ 7,035	$ 7,245	$ 590	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
20	$ 7,695	$ 7,985	$ 590	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
21	$ 8,435	$ 8,785	$ 9,700	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
22	$ 9,295	$ 9,805	$ 10,690	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
23	$ 10,245	$ 11,065	$ 11,780	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
24	$ 11,295	$ 12,345	$ 13,000	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
25	$ 12,415	$ 13,725	$ 14,290	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
26	$ 13,625	$ 14,905	$ 15,680	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
27	$ 14,985	$ 16,265	$ 17,260	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
28	$ 16,505	$ 17,905	$ 19,010	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
29	$ 18,195	$ 19,505	$ 21,660	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
30	$ 20,125	$ 22,345	$ 24,720	$ 939	$ 4,478	$ 6,304	$ 4,824	$ 11,290
31	$ 22,315	$ 25,085	$ 28,280	$ 29,589	$ 4,478	$ 6,304	$ 4,824	$ 11,290
32	$ 24,805	$ 27,965	$ 32,380	$ 32,989	$ 4,478	$ 6,304	$ 4,824	$ 11,290
33	$ 27,545	$ 31,005	$ 37,030	$ 36,579	$ 4,478	$ 6,304	$ 4,824	$ 11,290
34	$ 30,495	$ 34,085	$ 42,170	$ 40,209	$ 4,478	$ 6,304	$ 4,824	$ 11,290
35	$ 33,695	$ 37,205	$ 47,890	$ 43,899	$ 4,478	$ 6,304	$ 4,824	$ 11,290
36	$ 37,125	$ 40,565	$ 54,200	$ 47,859	$ 4,478	$ 6,304	$ 4,824	$ 11,290
37	$ 40,865	$ 44,045	$ 62,810	$ 51,969	$ 4,478	$ 6,304	$ 4,824	$ 11,290
38	$ 45,095	$ 48,265	$ 71,040	$ 56,949	$ 4,478	$ 6,304	$ 4,824	$ 11,290
39	$ 49,875	$ 52,985	$ 81,760	$ 62,519	$ 4,478	$ 6,304	$ 4,824	$ 11,290
40	$ 55,405	$ 59,185	$ 91,550	$ 69,829	$ 4,478	$ 6,304	$ 4,824	$ 11,290
41	$ 61,745	$ 65,725	$ 104,420	$ 77,549	$ 4,478	$ 6,304	$ 4,824	$ 11,290
42	$ 68,875	$ 72,605	$ 119,120	$ 85,669	$ 4,478	$ 6,304	$ 4,824	$ 11,290
43	$ 76,515	$ 80,125	$ 135,290	$ 94,539	$ 4,478	$ 6,304	$ 4,824	$ 11,290
44	$ 84,655	$ 88,325	$ 152,940	$ 104,219	$ 4,478	$ 6,304	$ 4,824	$ 11,290
45	$ 93,205	$ 97,845	$ 171,990	$ 115,449	$ 4,478	$ 6,304	$ 4,824	$ 11,290
46	$ 102,085	$ 108,965	$ 192,300	$ 128,569	$ 4,478	$ 6,304	$ 4,824	$ 11,290
47	$ 111,515	$ 121,805	$ 214,350	$ 143,719	$ 4,478	$ 6,304	$ 4,824	$ 11,290
48	$ 121,845	$ 135,805	$ 238,910	$ 160,239	$ 4,478	$ 6,304	$ 4,824	$ 11,290
49	$ 133,355	$ 151,745	$ 266,600	$ 179,049	$ 4,478	$ 6,304	$ 4,824	$ 11,290
Death benefit	($1,000,000)	($1,000,000)	($1,000,000)	($1,000,000)	($1,000,000)	($1,000,000)	($1,000,000)	($3,567,605)
NPV	$143,847	$153,391	$229,874	$126,662	($5,844)	$27,332	$442	($105,984)

Table 7B - 33-year old healthy male - $1,000,000 death benefit

Life Insurance Premiums / Death Benefits to Life Expectancy

Year	5-yr Term	10-yr Term	20-yr Term	30-yr Term	No-Lapse Guarantee UL	Universal Life	8% Variable Univ. Life	Whole Life
1	$ 385	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
2	$ 415	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
3	$ 425	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
4	$ 445	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
5	$ 475	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
6	$ 2,655	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
7	$ 2,815	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
8	$ 2,995	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
9	$ 3,235	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
10	$ 3,525	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
11	$ 3,795	$ 3,865	$ 590	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
12	$ 4,065	$ 4,265	$ 590	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
13	$ 4,395	$ 4,725	$ 590	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
14	$ 4,745	$ 5,165	$ 590	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
15	$ 5,115	$ 5,645	$ 590	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
16	$ 5,525	$ 5,925	$ 590	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
17	$ 5,975	$ 6,245	$ 590	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
18	$ 6,455	$ 9,705	$ 590	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
19	$ 7,035	$ 7,245	$ 590	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
20	$ 7,695	$ 7,985	$ 590	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
21	$ 8,435	$ 8,785	$ 9,700	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
22	$ 9,295	$ 9,805	$ 10,690	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
23	$ 10,245	$ 11,065	$ 11,780	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
24	$ 11,295	$ 12,345	$ 13,000	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
25	$ 12,415	$ 13,725	$ 14,290	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
26	$ 13,625	$ 14,905	$ 15,680	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
27	$ 14,985	$ 16,265	$ 17,260	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
28	$ 16,505	$ 17,905	$ 19,010	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
29	$ 18,195	$ 19,505	$ 21,660	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
30	$ 20,125	$ 22,345	$ 24,720	$ 939	$ 4,478	$ 6,304	$ 6,304	$ 11,290
31	$ 22,315	$ 25,085	$ 28,280	$ 29,589	$ 4,478	$ 6,304	$ 6,304	$ 11,290
32	$ 24,805	$ 27,965	$ 32,380	$ 32,989	$ 4,478	$ 6,304	$ 6,304	$ 11,290
33	$ 27,545	$ 31,005	$ 37,030	$ 36,579	$ 4,478	$ 6,304	$ 6,304	$ 11,290
34	$ 30,495	$ 34,085	$ 42,170	$ 40,209	$ 4,478	$ 6,304	$ 6,304	$ 11,290
35	$ 33,695	$ 37,205	$ 47,890	$ 43,899	$ 4,478	$ 6,304	$ 6,304	$ 11,290
36	$ 37,125	$ 40,565	$ 54,200	$ 47,859	$ 4,478	$ 6,304	$ 6,304	$ 11,290
37	$ 40,865	$ 44,045	$ 62,810	$ 51,969	$ 4,478	$ 6,304	$ 6,304	$ 11,290
38	$ 45,095	$ 48,265	$ 71,040	$ 56,949	$ 4,478	$ 6,304	$ 6,304	$ 11,290
39	$ 49,875	$ 52,985	$ 81,760	$ 62,519	$ 4,478	$ 6,304	$ 6,304	$ 11,290
40	$ 55,405	$ 59,185	$ 91,550	$ 69,829	$ 4,478	$ 6,304	$ 6,304	$ 11,290
41	$ 61,745	$ 65,725	$ 104,420	$ 77,549	$ 4,478	$ 6,304	$ 6,304	$ 11,290
42	$ 68,875	$ 72,605	$ 119,120	$ 85,669	$ 4,478	$ 6,304	$ 6,304	$ 11,290
43	$ 76,515	$ 80,125	$ 135,290	$ 94,539	$ 4,478	$ 6,304	$ 6,304	$ 11,290
44	$ 84,655	$ 88,325	$ 152,940	$ 104,219	$ 4,478	$ 6,304	$ 6,304	$ 11,290
45	$ 93,205	$ 97,845	$ 171,990	$ 115,449	$ 4,478	$ 6,304	$ 6,304	$ 11,290
46	$ 102,085	$ 108,965	$ 192,300	$ 128,569	$ 4,478	$ 6,304	$ 6,304	$ 11,290
47	$ 111,515	$ 121,805	$ 214,350	$ 143,719	$ 4,478	$ 6,304	$ 6,304	$ 11,290
48	$ 121,845	$ 135,805	$ 238,910	$ 160,239	$ 4,478	$ 6,304	$ 6,304	$ 11,290
49	$ 133,355	$ 151,745	$ 266,600	$ 179,049	$ 4,478	$ 6,304	$ 6,304	$ 11,290
Death benefit	($1,000,000)	($1,000,000)	($1,000,000)	($1,000,000)	($1,000,000)	($1,000,000)	($1,064,157)	($3,567,605)
NPV	$143,847	$153,391	$229,874	$126,662	($5,844)	$27,332	$21,737	($105,984)

Table 7C - 33-year old healthy male - $1,000,000 death benefit

Life Insurance Premiums / Death Benefits to Life Expectancy

Year	5-yr Term	10-yr Term	20-yr Term	30-yr Term	No-Lapse Guarantee UL	Universal Life	8% Variable Univ. Life	Whole Life
1	$ 385	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
2	$ 415	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
3	$ 425	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
4	$ 445	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
5	$ 475	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
6	$ 2,655	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
7	$ 2,815	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
8	$ 2,995	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
9	$ 3,235	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
10	$ 3,525	$ 355	$ 590	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
11	$ 3,795	$ 3,865	$ 590	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
12	$ 4,065	$ 4,265	$ 590	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
13	$ 4,395	$ 4,725	$ 590	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
14	$ 4,745	$ 5,165	$ 590	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
15	$ 5,115	$ 5,645	$ 590	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
16	$ 5,525	$ 5,925	$ 590	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
17	$ 5,975	$ 6,245	$ 590	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
18	$ 6,455	$ 9,705	$ 590	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
19	$ 7,035	$ 7,245	$ 590	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
20	$ 7,695	$ 7,985	$ 590	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
21	$ 8,435	$ 8,785	$ 9,700	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
22	$ 9,295	$ 9,805	$ 10,690	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
23	$ 10,245	$ 11,065	$ 11,780	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
24	$ 11,295	$ 12,345	$ 13,000	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
25	$ 12,415	$ 13,725	$ 14,290	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
26	$ 13,625	$ 14,905	$ 15,680	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
27	$ 14,985	$ 16,265	$ 17,260	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
28	$ 16,505	$ 17,905	$ 19,010	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
29	$ 18,195	$ 19,505	$ 21,660	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
30	$ 20,125	$ 22,345	$ 24,720	$ 939	$ 4,478	$ 6,304	$ 11,290	$ 11,290
31	$ 22,315	$ 25,085	$ 28,280	$ 29,589	$ 4,478	$ 6,304	$ 11,290	$ 11,290
32	$ 24,805	$ 27,965	$ 32,380	$ 32,989	$ 4,478	$ 6,304	$ 11,290	$ 11,290
33	$ 27,545	$ 31,005	$ 37,030	$ 36,579	$ 4,478	$ 6,304	$ 11,290	$ 11,290
34	$ 30,495	$ 34,085	$ 42,170	$ 40,209	$ 4,478	$ 6,304	$ 11,290	$ 11,290
35	$ 33,695	$ 37,205	$ 47,890	$ 43,899	$ 4,478	$ 6,304	$ 11,290	$ 11,290
36	$ 37,125	$ 40,565	$ 54,200	$ 47,859	$ 4,478	$ 6,304	$ 11,290	$ 11,290
37	$ 40,865	$ 44,045	$ 62,810	$ 51,969	$ 4,478	$ 6,304	$ 11,290	$ 11,290
38	$ 45,095	$ 48,265	$ 71,040	$ 56,949	$ 4,478	$ 6,304	$ 11,290	$ 11,290
39	$ 49,875	$ 52,985	$ 81,760	$ 62,519	$ 4,478	$ 6,304	$ 11,290	$ 11,290
40	$ 55,405	$ 59,185	$ 91,550	$ 69,829	$ 4,478	$ 6,304	$ 11,290	$ 11,290
41	$ 61,745	$ 65,725	$ 104,420	$ 77,549	$ 4,478	$ 6,304	$ 11,290	$ 11,290
42	$ 68,875	$ 72,605	$ 119,120	$ 85,669	$ 4,478	$ 6,304	$ 11,290	$ 11,290
43	$ 76,515	$ 80,125	$ 135,290	$ 94,539	$ 4,478	$ 6,304	$ 11,290	$ 11,290
44	$ 84,655	$ 88,325	$ 152,940	$ 104,219	$ 4,478	$ 6,304	$ 11,290	$ 11,290
45	$ 93,205	$ 97,845	$ 171,990	$ 115,449	$ 4,478	$ 6,304	$ 11,290	$ 11,290
46	$ 102,085	$ 108,965	$ 192,300	$ 128,569	$ 4,478	$ 6,304	$ 11,290	$ 11,290
47	$ 111,515	$ 121,805	$ 214,350	$ 143,719	$ 4,478	$ 6,304	$ 11,290	$ 11,290
48	$ 121,845	$ 135,805	$ 238,910	$ 160,239	$ 4,478	$ 6,304	$ 11,290	$ 11,290
49	$ 133,355	$ 151,745	$ 266,600	$ 179,049	$ 4,478	$ 6,304	$ 11,290	$ 11,290
Death benefit	($1,000,000)	($1,000,000)	($1,000,000)	($1,000,000)	($1,000,000)	($1,000,000)	($3,446,223)	($3,567,605)
NPV	$143,847	$153,391	$229,874	$126,662	($5,844)	$27,332	($95,399)	($105,984)

Chapter 8: Buy term and invest the difference (BTID) – 3 different views

Concept:

Life insurance companies invest in conservative, investment-grade bonds and mortgages in order to meet their long-term liabilities; it's the underlying conservative "returns" that make up a substantial portion of a whole life's dividend or a UL's non-guaranteed crediting rate. An individual with a risk tolerance higher than that suggested by bonds should acquire cheap term insurance and "invest the difference" between the cost of term and a whole life policy. At the end of the term period (typically but certainly not longer than 30 years), the BTID concept suggests he or she will have *no further use for life insurance* and will have accumulated more investment value through this strategy than would have developed through the surrender value of a "permanent" plan of life insurance.

BTID strategies may make sense under the following conditions:

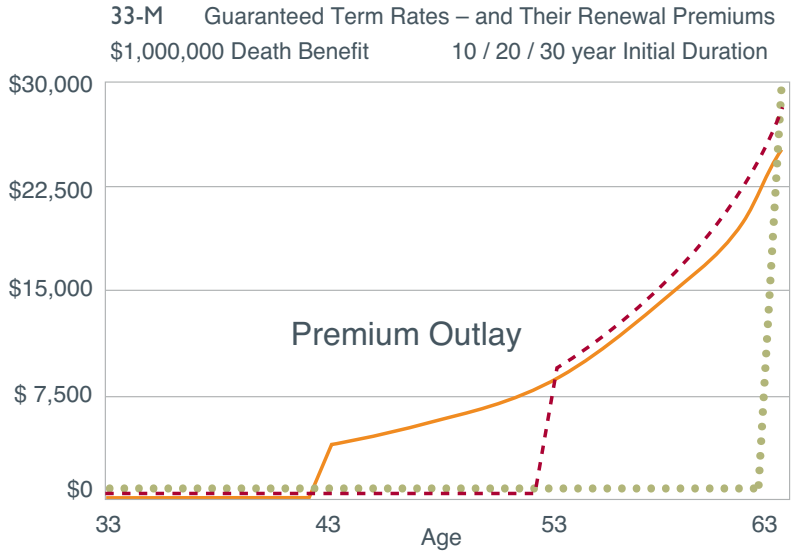
- There is a quantifiable period of time for which life insurance is needed or desired, with a near-certainty that life insurance will not be required *beyond* that period ... even if for just a few years beyond;
- The "period of time" is 30 or fewer years;
- The insurance buyer is age 45 or younger, allowing sufficient years to achieve an aggressive investment potential before a more conservative asset allocation is adopted *and* in an age range in which term insurance is relatively inexpensive.
- The "difference" will, in fact, be invested with a reasonable amount of discipline both as to making the investment, as well as managing the allocation through the early "risk taking" years as well as the later "risk averse" years;
- There *is* a budgetable difference. Term insurance fulfills an important role in providing needed or desired death benefit at low initial cost. If there are insufficient resources to provide lifetime insurance coverage with the appropriate lifetime (i.e. "permanent") insurance product, then maintaining a suitable level of term insurance is the appropriate strategy (and presumably without a "difference" to invest).

Analysis

We offer three approaches or "views" to assess the efficacy of BTID. All views assume lifetime uses for life insurance and the expectation that the consumer wants to optimize retirement income from investment assets as well as desiring to leave a legacy to his family. Should he or she "buy term and invest the difference" ... or buy permanent life insurance to achieve the same objectives? The Policy Standard developed in Chapter 7 will be used for participating whole life values.

Analytic View #1 – with a focus on price

Tables 3 and 5 demonstrate that while term insurance is very affordable (in this example for a 33-M "best class") during the primary premium guarantee period (5 to 30 years), annual premiums become very unaffordable once the premium reverts to the post-period guarantee for policy renewal. This "fact" is the basis for the BTID approach, but it is based on the assumption that the consumer knows he/she won't want to have coverage beyond the original term of the policy and/or won't be disturbed by the absence of the coverage once the premium begins its escalation. Lifetime insurance coverage cannot practically or affordably be maintained with term insurance.[39]



Rule of thumb: The increase in the typical guaranteed continuation premium (following the expiration of the initial guarantee period) is more than 10-fold. That is, the 33-M's $355 premium in Table 5 may be continued for a "renewal" premium $3,865 in the 11th year. Subsequent premiums are increased annually. Increases of similar magnitudes apply to other ages.[40]

Analytic View #2 – with a focus on legacy value

Once again using the 33-M example and $1 million of coverage, the $10,351 yearly difference between a 30-year term premium of $939 and the $11,290 participating whole life premium is invested in a portfolio with a net after-tax return assumed as a constant 5.19%[41]. After 30 years, the investment account is worth $746,997 and the term policy reverts to its underlying guarantee of annually renewable term premiums. The investor continues to invest the full $11,290 into the account *and* to pay the escalating term costs out of the investment account. The account is exhausted at life expectancy, with a total legacy value of the term policy's $1 million death benefit. See **Table 12.**

Alternatively, the $11,290 paid into a whole life policy might have grown (current dividend scale for the Policy Standard) to a death benefit of $3.2 million by life expectancy. By the 22nd year of the comparison, the cash value (including the cash value of paid up additions at the current dividend scale) exceeds the investment value (accumulating at 5.19% after tax) of the BTID. The investor would have to achieve a constant after-tax return of 5.99% (8.55% before tax in the tax scenario described in footnote 7) to achieve an age 65 portfolio value greater than the cash value of the participating whole life policy (current dividend scale). At this higher assumed constant rate of return for BTID, the legacy value at life expectancy would be $535,718 remaining in the portfolio plus the $1 million term policy death benefit. See **Table 13.**

If the investor desired to have a legacy value at life expectancy equal to the participating whole life death benefit (current dividend scale), he would need to achieve a constant after-tax return of 7.49% (10.7% before tax) throughout his lifetime to accumulate $2,194,868 in portfolio value after paying all term insurance premiums for the $1 million policy for a total legacy of $3,194,868. See **Table 14.**

Rule of thumb: The S&P500™ has averaged a compounded rate of return of approximately 10.5% since 1925. The volatility of that average has ranged from years achieving returns in excess of 47.85% in 1954 – as well as returns as low as -25.99% in 1974.[42] Unless an investor seeking lifetime life insurance is confident of his or her ability to achieve *constant* and historically *high* returns over long periods of time, BTID may not be as effective a strategy as the synergy of buying permanent forms of life insurance in conjunction with an investment portfolio.

Analytic View #3 – with a focus on retirement income

In this view, a somewhat older 45-year-old consumer wants to invest for retirement and desires to maintain a $500,000 life insurance policy. He seeks an analysis determining whether he's better off with the BTID approach, or if a permanent (i.e. participating whole life policy) would better suit his needs with a total outlay of $15,000 a year.[43]

Buy Term and Invest the Difference (Table 15)

Accumulated after-tax value @ 65:	$1,260,578
Interest only after-tax income beginning @ 65:	$ 44,120
Portfolio Legacy Value @ LE (Age 89)	$1,260,578
Life insurance Death Benefit	$ 0
Total Legacy Value @ LE (Age 89)	**$1,260,578**

Buy Whole Life and Invest the Difference (Table 16 & 17)

Accumulated cash value and side fund @ 65:	$1,200,640
After-tax, lifetime income based on immediate annuity:	$ 61,281[44]
Portfolio Legacy Value @ LE (Age 89)	$ 0
Policy Cash Value @ LE (Age 89)	$1,437,165
Life insurance Death Benefit	$1,681,628
Total Legacy Value @ LE (Age 89)	**$1,681,628**

Investment amounts are reduced to *net after tax* values to be consistent with the tax free accumulation and untaxed policy loan features of participating whole life.

It should be noted that the legacy value at life expectancy was produced with a Risk Index of 1.8 versus the typical mutual fund risk exposure (here estimated at 4 – 7 on a scale of 0 to 15).[45]

Rule of thumb: Once again, uses of lifetime life insurance synergized with portfolio investments can provide a higher net-after tax retirement income *and* provide a higher legacy value – while reducing volatility – than using an investment portfolio by itself. An investor seeking lifetime life insurance would need to achieve constant and historically high returns of at least 11% over long periods of time in order to produce a more favorable result than portfolio + permanent life insurance.

Table 12

Calculate equivalent interest rate for BTID

			Calculated rate	5.19%
Age	**Whole Life**	**30-Year term**	**Difference**	**Accumulated Difference**
33	$ 11,290	$ 939	$ 10,351	$ 10,888
34	$ 11,290	$ 939	$ 10,351	$22,340
35	$ 11,290	$ 939	$ 10,351	$34,387
36	$ 11,290	$ 939	$ 10,351	$47,058
37	$ 11,290	$ 939	$ 10,351	$60,387
38	$ 11,290	$ 939	$ 10,351	$74,407
39	$ 11,290	$ 939	$ 10,351	$89,154
40	$ 11,290	$ 939	$ 10,351	$104,666
41	$ 11,290	$ 939	$ 10,351	$120,983
42	$ 11,290	$ 939	$ 10,351	$138,145
43	$ 11,290	$ 939	$ 10,351	$156,198
44	$ 11,290	$ 939	$ 10,351	$175,188
45	$ 11,290	$ 939	$ 10,351	$195,162
46	$ 11,290	$ 939	$ 10,351	$216,172
47	$ 11,290	$ 939	$ 10,351	$238,272
48	$ 11,290	$ 939	$ 10,351	$261,518
49	$ 11,290	$ 939	$ 10,351	$285,970
50	$ 11,290	$ 939	$ 10,351	$311,691
51	$ 11,290	$ 939	$ 10,351	$338,745
52	$ 11,290	$ 939	$ 10,351	$367,202
53	$ 11,290	$ 939	$ 10,351	$397,135
54	$ 11,290	$ 939	$ 10,351	$428,621
55	$ 11,290	$ 939	$ 10,351	$461,740
56	$ 11,290	$ 939	$ 10,351	$496,577
57	$ 11,290	$ 939	$ 10,351	$533,221
58	$ 11,290	$ 939	$ 10,351	$571,765
59	$ 11,290	$ 939	$ 10,351	$612,308
60	$ 11,290	$ 939	$ 10,351	$654,954
61	$ 11,290	$ 939	$ 10,351	$699,812
62	$ 11,290	$ 939	$ 10,351	$746,997
63	$ 11,290	$ 29,589	$ (18,299)	$766,493
64	$ 11,290	$ 32,989	$ (21,699)	$783,424
65	$ 11,290	$ 36,579	$ (25,289)	$797,457
66	$ 11,290	$ 40,209	$ (28,919)	$808,399
67	$ 11,290	$ 43,899	$ (32,609)	$816,027
68	$ 11,290	$ 47,859	$ (36,569)	$819,886
69	$ 11,290	$ 51,969	$ (40,679)	$819,622
70	$ 11,290	$ 56,949	$ (45,659)	$814,106
71	$ 11,290	$ 62,519	$ (51,229)	$802,444
72	$ 11,290	$ 69,829	$ (58,539)	$782,489
73	$ 11,290	$ 77,549	$ (66,259)	$753,379
74	$ 11,290	$ 85,669	$ (74,379)	$714,217
75	$ 11,290	$ 94,539	$ (83,249)	$663,694
76	$ 11,290	$ 104,219	$ (92,929)	$600,369
77	$ 11,290	$ 115,449	$ (104,159)	$521,946
78	$ 11,290	$ 128,569	$ (117,279)	$425,656
79	$ 11,290	$ 143,719	$ (132,429)	$308,436
80	$ 11,290	$ 160,239	$ (148,949)	$167,759
81	$ 11,290	$ 179,049	$ (167,759)	($0)

Table 13

Calculate equivalent interest rate for BTID

			Calculated rate	5.99%
Age	**Whole Life**	**30-Year term**	**Difference**	**Accumulated Difference**
33	$ 11,290	$ 939	$ 10,351	$ 10,971
34	$ 11,290	$ 939	$ 10,351	$22,598
35	$ 11,290	$ 939	$ 10,351	$34,922
36	$ 11,290	$ 939	$ 10,351	$47,983
37	$ 11,290	$ 939	$ 10,351	$61,826
38	$ 11,290	$ 939	$ 10,351	$76,499
39	$ 11,290	$ 939	$ 10,351	$92,049
40	$ 11,290	$ 939	$ 10,351	$108,530
41	$ 11,290	$ 939	$ 10,351	$125,999
42	$ 11,290	$ 939	$ 10,351	$144,512
43	$ 11,290	$ 939	$ 10,351	$164,135
44	$ 11,290	$ 939	$ 10,351	$184,932
45	$ 11,290	$ 939	$ 10,351	$206,974
46	$ 11,290	$ 939	$ 10,351	$230,336
47	$ 11,290	$ 939	$ 10,351	$255,096
48	$ 11,290	$ 939	$ 10,351	$281,338
49	$ 11,290	$ 939	$ 10,351	$309,152
50	$ 11,290	$ 939	$ 10,351	$338,631
51	$ 11,290	$ 939	$ 10,351	$369,875
52	$ 11,290	$ 939	$ 10,351	$402,989
53	$ 11,290	$ 939	$ 10,351	$438,086
54	$ 11,290	$ 939	$ 10,351	$475,283
55	$ 11,290	$ 939	$ 10,351	$514,708
56	$ 11,290	$ 939	$ 10,351	$556,493
57	$ 11,290	$ 939	$ 10,351	$600,780
58	$ 11,290	$ 939	$ 10,351	$647,717
59	$ 11,290	$ 939	$ 10,351	$697,465
60	$ 11,290	$ 939	$ 10,351	$750,191
61	$ 11,290	$ 939	$ 10,351	$806,074
62	$ 11,290	$ 939	$ 10,351	$865,303
63	$ 11,290	$ 29,589	$ (18,299)	$897,712
64	$ 11,290	$ 32,989	$ (21,699)	$928,457
65	$ 11,290	$ 36,579	$ (25,289)	$957,239
66	$ 11,290	$ 40,209	$ (28,919)	$983,896
67	$ 11,290	$ 43,899	$ (32,609)	$1,008,238
68	$ 11,290	$ 47,859	$ (36,569)	$1,029,840
69	$ 11,290	$ 51,969	$ (40,679)	$1,048,380
70	$ 11,290	$ 56,949	$ (45,659)	$1,062,751
71	$ 11,290	$ 62,519	$ (51,229)	$1,072,080
72	$ 11,290	$ 69,829	$ (58,539)	$1,074,219
73	$ 11,290	$ 77,549	$ (66,259)	$1,068,304
74	$ 11,290	$ 85,669	$ (74,379)	$1,053,429
75	$ 11,290	$ 94,539	$ (83,249)	$1,028,262
76	$ 11,290	$ 104,219	$ (92,929)	$991,329
77	$ 11,290	$ 115,449	$ (104,159)	$940,283
78	$ 11,290	$ 128,569	$ (117,279)	$872,275
79	$ 11,290	$ 143,719	$ (132,429)	$784,139
80	$ 11,290	$ 160,239	$ (148,949)	$673,217
81	$ 11,290	$ 179,049	$ (167,759)	$535,718

Table 14

Calculate equivalent interest rate for BTID

			Calculated rate	7.49%
Age	**Whole Life**	**30-Year term**	**Difference**	**Accumulated Difference**
33	$ 11,290	$ 939	$ 10,351	$ 11,126
34	$ 11,290	$ 939	$ 10,351	$23,086
35	$ 11,290	$ 939	$ 10,351	$35,942
36	$ 11,290	$ 939	$ 10,351	$49,762
37	$ 11,290	$ 939	$ 10,351	$64,616
38	$ 11,290	$ 939	$ 10,351	$80,583
39	$ 11,290	$ 939	$ 10,351	$97,747
40	$ 11,290	$ 939	$ 10,351	$116,196
41	$ 11,290	$ 939	$ 10,351	$136,027
42	$ 11,290	$ 939	$ 10,351	$157,344
43	$ 11,290	$ 939	$ 10,351	$180,258
44	$ 11,290	$ 939	$ 10,351	$204,889
45	$ 11,290	$ 939	$ 10,351	$231,365
46	$ 11,290	$ 939	$ 10,351	$259,824
47	$ 11,290	$ 939	$ 10,351	$290,416
48	$ 11,290	$ 939	$ 10,351	$323,299
49	$ 11,290	$ 939	$ 10,351	$358,645
50	$ 11,290	$ 939	$ 10,351	$396,640
51	$ 11,290	$ 939	$ 10,351	$437,481
52	$ 11,290	$ 939	$ 10,351	$481,382
53	$ 11,290	$ 939	$ 10,351	$528,572
54	$ 11,290	$ 939	$ 10,351	$579,297
55	$ 11,290	$ 939	$ 10,351	$633,822
56	$ 11,290	$ 939	$ 10,351	$692,431
57	$ 11,290	$ 939	$ 10,351	$755,432
58	$ 11,290	$ 939	$ 10,351	$823,152
59	$ 11,290	$ 939	$ 10,351	$895,946
60	$ 11,290	$ 939	$ 10,351	$974,193
61	$ 11,290	$ 939	$ 10,351	$1,058,302
62	$ 11,290	$ 939	$ 10,351	$1,148,712
63	$ 11,290	$ 29,589	$ (18,299)	$1,215,099
64	$ 11,290	$ 32,989	$ (21,699)	$1,282,805
65	$ 11,290	$ 36,579	$ (25,289)	$1,351,723
66	$ 11,290	$ 40,209	$ (28,919)	$1,421,904
67	$ 11,290	$ 43,899	$ (32,609)	$1,493,375
68	$ 11,290	$ 47,859	$ (36,569)	$1,565,944
69	$ 11,290	$ 51,969	$ (40,679)	$1,639,531
70	$ 11,290	$ 56,949	$ (45,659)	$1,713,279
71	$ 11,290	$ 62,519	$ (51,229)	$1,786,564
72	$ 11,290	$ 69,829	$ (58,539)	$1,857,481
73	$ 11,290	$ 77,549	$ (66,259)	$1,925,413
74	$ 11,290	$ 85,669	$ (74,379)	$1,989,706
75	$ 11,290	$ 94,539	$ (83,249)	$2,049,281
76	$ 11,290	$ 104,219	$ (92,929)	$2,102,914
77	$ 11,290	$ 115,449	$ (104,159)	$2,148,493
78	$ 11,290	$ 128,569	$ (117,279)	$2,183,385
79	$ 11,290	$ 143,719	$ (132,429)	$2,204,605
80	$ 11,290	$ 160,239	$ (148,949)	$2,209,657
81	$ 11,290	$ 179,049	$ (167,759)	$2,194,869

Table 15 **Buy Term and Invest the Difference**

Investment	$	15,000
Gross Return		8%

BTID

Year	Term	BOY Inv Value	EOY Inv Value > Term Prem	Year's Gain	Ordinary Tax	Gains Tax	Total Current Tax	Deferred Tax	Cash Flow
		$ 200,000							
1	865	$ 214,135	$ 231,266	$ 17,131	$ 2,570	$ 964	$ 3,533	$ 321	10,602
2	865	$ 241,868	$ 261,217	$ 19,349	$ 2,902	$ 1,088	$ 3,991	$ 363	10,144
3	865	$ 271,361	$ 293,070	$ 21,709	$ 3,256	$ 1,221	$ 4,477	$ 407	9,658
4	865	$ 302,728	$ 326,946	$ 24,218	$ 3,633	$ 1,362	$ 4,995	$ 454	9,140
5	865	$ 336,086	$ 362,973	$ 26,887	$ 4,033	$ 1,512	$ 5,545	$ 504	8,590
6	865	$ 371,562	$ 401,287	$ 29,725	$ 4,459	$ 1,672	$ 6,131	$ 557	8,004
7	865	$ 409,291	$ 442,035	$ 32,743	$ 4,911	$ 1,842	$ 6,753	$ 614	7,382
8	865	$ 449,416	$ 485,370	$ 35,953	$ 5,393	$ 2,022	$ 7,415	$ 674	6,720
9	865	$ 492,089	$ 531,457	$ 39,367	$ 5,905	$ 2,214	$ 8,119	$ 738	6,016
10	865	$ 537,472	$ 580,470	$ 42,998	$ 6,450	$ 2,419	$ 8,868	$ 806	5,267
11	865	$ 585,737	$ 632,595	$ 46,859	$ 7,029	$ 2,636	$ 9,665	$ 879	4,470
12	865	$ 637,066	$ 688,031	$ 50,965	$ 7,645	$ 2,867	$ 10,512	$ 956	3,623
13	865	$ 691,655	$ 746,987	$ 55,332	$ 8,300	$ 3,112	$ 11,412	$ 1,037	2,723
14	865	$ 749,710	$ 809,686	$ 59,977	$ 8,997	$ 3,374	$ 12,370	$ 1,125	1,765
15	865	$ 811,451	$ 876,367	$ 64,916	$ 9,737	$ 3,652	$ 13,389	$ 1,217	746
16	865	$ 877,113	$ 947,282	$ 70,169	$ 10,525	$ 3,947	$ 14,472	$ 1,316	(337)
17	865	$ 946,945	$ 1,022,701	$ 75,756	$ 11,363	$ 4,261	$ 15,625	$ 1,420	(1,490)
18	865	$ 1,021,211	$ 1,102,908	$ 81,697	$ 12,255	$ 4,595	$ 16,850	$ 1,532	(2,715)
19	865	$ 1,100,193	$ 1,188,208	$ 88,015	$ 13,202	$ 4,951	$ 18,153	$ 1,650	(4,018)
20	865	$ 1,184,190	$ 1,278,925	$ 94,735	$ 14,210	$ 5,329	$ 19,539	$ 1,776	(5,404)
	Total							$ 18,347	80,884

Table 16 **Buy whole Life and Invest the Difference**

Investment	$ 5,615.00		WL premum =	$ 9,385.00	
Gross Return	8%				

BWLID

Year	Term	BOY Inv Value	EOY Inv Value	Year's	Ordinary	Gains	Total	Deferred
		$ 200,000	> Term Prem	Gain	Tax	Tax	Tax	Tax
1	865	$ 205,615	$ 222,064	$ 16,449	$ 2,467	$ 925	$ 3,393	$ 308
2	865	$ 224,287	$ 242,229	$ 17,943	$ 2,691	$ 1,009	$ 3,701	$ 336
3	865	$ 244,144	$ 263,675	$ 19,531	$ 2,930	$ 1,099	$ 4,028	$ 366
4	865	$ 265,262	$ 286,483	$ 21,221	$ 3,183	$ 1,194	$ 4,377	$ 398
5	865	$ 287,721	$ 310,739	$ 23,018	$ 3,453	$ 1,295	$ 4,747	$ 432
6	865	$ 311,606	$ 336,535	$ 24,929	$ 3,739	$ 1,402	$ 5,142	$ 467
7	865	$ 337,008	$ 363,969	$ 26,961	$ 4,044	$ 1,517	$ 5,561	$ 506
8	865	$ 364,023	$ 393,145	$ 29,122	$ 4,368	$ 1,638	$ 6,006	$ 546
9	865	$ 392,754	$ 424,174	$ 31,420	$ 4,713	$ 1,767	$ 6,480	$ 589
10	865	$ 423,309	$ 457,173	$ 33,865	$ 5,080	$ 1,905	$ 6,985	$ 635
11	865	$ 455,804	$ 492,268	$ 36,464	$ 5,470	$ 2,051	$ 7,521	$ 684
12	865	$ 490,362	$ 529,591	$ 39,229	$ 5,884	$ 2,207	$ 8,091	$ 736
13	865	$ 527,115	$ 569,285	$ 42,169	$ 6,325	$ 2,372	$ 8,697	$ 791
14	865	$ 566,202	$ 611,498	$ 45,296	$ 6,794	$ 2,548	$ 9,342	$ 849
15	865	$ 607,771	$ 656,393	$ 48,622	$ 7,293	$ 2,735	$ 10,028	$ 912
16	865	$ 651,979	$ 704,138	$ 52,158	$ 7,824	$ 2,934	$ 10,758	$ 978
17	865	$ 698,995	$ 754,915	$ 55,920	$ 8,388	$ 3,145	$ 11,533	$ 1,048
18	865	$ 748,996	$ 808,916	$ 59,920	$ 8,988	$ 3,370	$ 12,358	$ 1,123
19	865	$ 802,173	$ 866,346	$ 64,174	$ 9,626	$ 3,610	$ 13,236	$ 1,203
20	865	$ 858,726	$ 927,424	$ 68,698	$ 10,305	$ 3,864	$ 14,169	$ 1,288
		Total						$ 14,196

Table 17 Buy Term and Invest the Difference - Summary

	BTID	BWLID	Policy	Total
Accumulated AT value @ 65	**1,260,578**	**913,228**	**287,412**	**1,200,640**
5% gross income beginning @ 65	**63,029**	**71,889**		
Net AT yearly income	**44,120**	**61,281**		
Legacy Value at age 89	**1,260,578**	**-**	**-**	
Life Insurance Death Benefit	**0**		**1,681,628**	
Total Legacy Value @ age 89	**1,260,578**		**1,681,628**	

Chapter 9: Modern portfolio theory, asset classes, and life insurance

Introduction

Stock values rise and fall on a daily basis, giving rise to short-term risk and market value volatility for which some investors experience substantial anxiety. If an investor has a reasonable time horizon, the long-term growth statistics tell a more satisfying story. For example, from 1977 through 2006, total equity returns of Large Cap stocks (comparable to the S&P500™) reflected a 12.27% compound annual rate of return.[46] However, this historic observation of significant long-term equity returns (and the underlying volatility) is only part of the story. Inflation, taxes, and fees can significantly reduce the real *real* return of any investment. In fact, of the 12.27% nominal return for large cap equities in this 30-year period, more than 1/3 of that return was taken away by the 4.45% compound rate of inflation. Taxes and investment fees of another 2.63% reduce the apparent double-digit return to a *real* compounded return of 5.19%.

In contrast to the investor willing to incur risk, there was a shockingly low reward for those at the beginning of this 30-year period seeking an investment strategy with less short term risk and volatility. A portfolio comprised of completely safe U.S. Treasury Bonds had a 30-year compound rate of return (after accounting for inflation, taxes and fees) of just .04%. Municipal bonds, long a mainstay of conservative portfolios seeking income, produced a compound rate of return of 1.8% in that same period. (It's noteworthy that with a shorter timeframe, the results were quite different. In the five years leading up to 12/31/2006, the real return of Large Cap stocks was 2.02% while International Stocks were up a real 10.01%[47]). In investing as well as life, "timing is everything."

It is intuitively obvious that diversifying one's investments might avoid the worst effects of a market "crash." Stocks and Bonds have historically been the main ingredients of diversification. Worried about volatility risk? Buy bonds. Worried about securing adequate long-term returns? Buy stocks. But just how to diversify? Diversify when? Only from the perspective of the end of the year can it be determined which of these major types of investments would have produced the better return if acquired at the beginning of the year. The lack of a workable method to diversify an portfolio with the objective of maximizing returns in the context of a known level of risk-taking gave rise to the development of Modern Portfolio Theory (MPT). This paradigm shifting approach to investment methodology

(utilizing an "efficient frontier") was introduced by Harry Markowitz in 1982. In 1990, he shared a Nobel Prize with Merton Miller and William Sharpe for what has become one of the best known approaches to portfolio selection.[48]

An inherent part of MPT is to assess an existing portfolio into its component "asset classes." Most advisors agree that the primary asset classes include Equities (common stocks), Fixed Income (bonds and mortgages), and Money Market (cash). Some experts extend the list to include Guaranteed (annuities), and Real Estate. Each of the primary asset classes have sub-categories; for example, equities can be further categorized as Large Cap, Small Cap, International, etc. As a matter of caution, a portfolio would consist of assets that are diversified amongst these asset classes. The *type* of diversification, however, can have a significant effect on portfolio performance. Diversification can be quantified, ranging from "+1.0" for assets that have similar volatility/return characteristics and are perfectly and positively correlated (market forces will "pull" asset values in the same direction and are in "lock-step") to "– 1.0" for those assets that have similar volatility/return characteristics and are perfectly negatively correlated (market forces will "push" asset values in different directions). Assets that neither "push" nor "pull" will be close to a correlation rating of "0.0" and are considered un-correlated. While perfectly negatively correlated assets don't really exist, asset combinations that have "negative tendency" will generally produce a better long-term return/risk relationship than will more positively correlated assets. The return of a portfolio consisting of such assets will be the weighted average of the returns of each asset, but the volatility of the portfolio will be less than the weighted volatility of the individual assets.[49]

Life insurance as an asset class

For this brief explanation of MPT and the categorization of asset classes, we believe that life insurance meets the important criteria of this designation:

- The death benefit is cash (itself a major asset class) at the precise time it is needed and *without* valuation adjustment based on up or down phases of the equity or bond markets;

- The living benefits – the cash value – take on the asset class attributes of the policy itself. A universal life or whole life policy's cash value has the dominant characteristic of a fixed account with a minimum guaranteed return. A variable universal life policy's cash value is itself a portfolio with the opportunity to reflect the asset allocation of the policy owner;

- The unique characteristics of life insurance – income tax deferred accumulation of cash value, income tax-free and possibly estate tax-free death proceeds, the ability to make

policy proceeds free from the reach of creditors, the possibility of drawing upon policy cash values to produce significant retirement income, and the inherent leverage of relatively low periodic payments into a capital sum – are attributes that allow a life insurance policy the tendency to be at least uncorrelated against virtually any other asset class;

- The death benefit is based on the event of death – not a market event which in turn can cause a change in value.

- Individuals with sufficient assets to retain portfolio managers are most often buyers of significant amounts of life insurance that are funded with capital rather than budgeted income. Determining from which "pockets" of portfolio investments the premiums should be paid is inherently an activity of asset allocation and re-allocation.

- Permanent life insurance intended for a lifetime can produce at least as favorable a long-term return with less risk within a portfolio of equity and fixed components than a portfolio without life insurance (a favorable efficient frontier result).

Life Insurance and Efficient Asset Allocations: Building an Efficient Investment Portfolio by including Life Insurance

When it comes to planning for retirement, many people depend on a combination of employer-sponsored retirement plans and personal savings and investments to provide retirement income above and beyond that provided by Social Security. A retirement income-focused portfolio will typically have equity components ranging from 50 – 85% when there is at least 20 years before retirement; as the timeframe gets closer to retirement, many investors will begin to scale back on the more risky equity components and increase the perceived safety and stability of fixed components.[50]

Many of the individuals who are building their retirement portfolio also recognize the value of lifetime uses for life insurance. This section will explore whether there is a synergy of investment *plus* life insurance that can serve at least as well – and with less volatility and market valuation risk – as a legacy-focused and/or retirement-focused portfolio that does not contain life insurance. To avoid getting mired in too much jargon and statistical complication, the following analytical discussion will simply compare an existing portfolio of fixed and equity elements *with* and *without* permanent life insurance intended to last a lifetime.

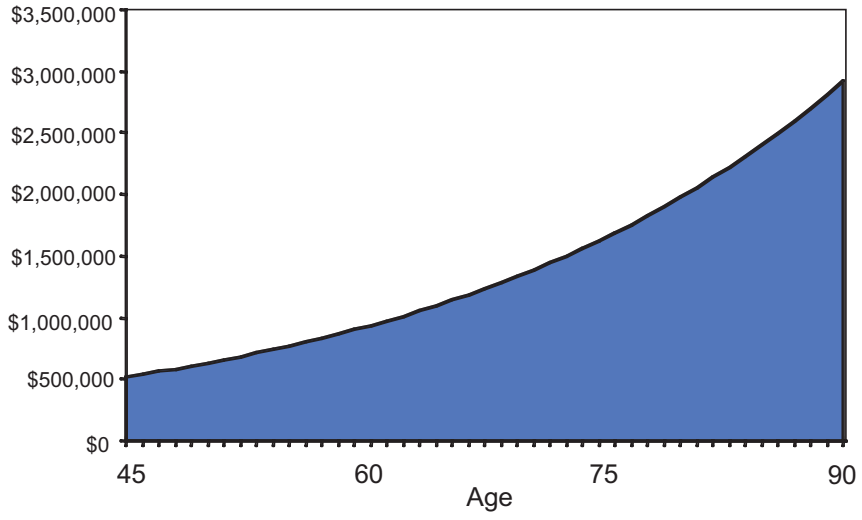
Analysis

1. Assess the life expectancy value of a bond portfolio with and without life insurance

We will use the example of a 45-year-old male in good health (and in a relatively high income tax bracket) whose investment portfolio includes $500,000 of municipal bonds as a portion of the portfolio's fixed asset class component. The current yield of 4% produces a non-taxable cash flow of $20,000. While it is unrealistic to assume level interest rates over the next 40+ years of this investor's life expectancy for this asset class (which would produce fluctuations in the value of the bonds), the income from the initial bond acquisition will remain constant over the life of the bonds. We note that with respect to the life insurance policy alternative, neither the guaranteed cash value, the guaranteed value of paid-up additions cash value (once created), nor the total death benefit (once created) is subject to market value adjustments.

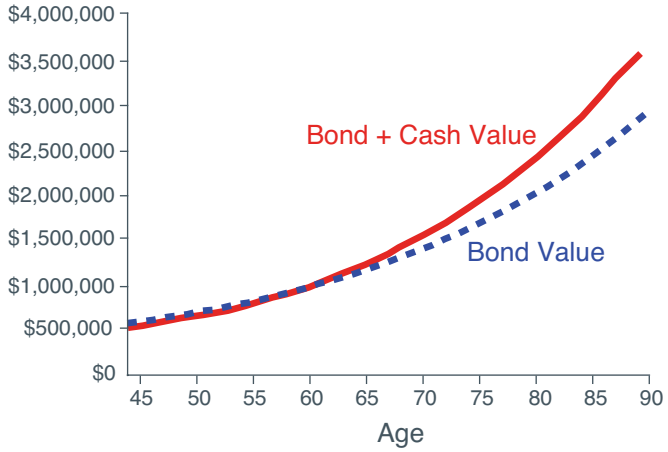
A projection of portfolio growth over the investor's lifetime (life expectancy + 5 years is age 89) suggests that the bond portfolio would accumulate to an asset value of $2,920,588 if simply left to accumulate at the nominal assumed return of 4%.

Value of bond component with income purchasing more bonds



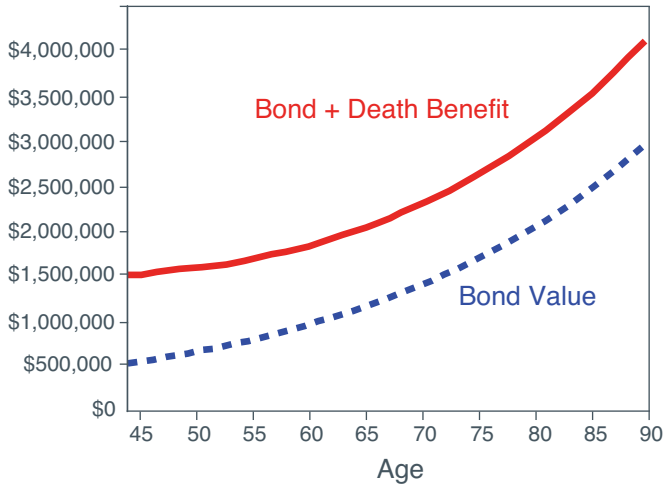
Alternatively, the $20,000 of initial bond income could be used to purchase a participating whole life policy.[51] This next graph reveals that the all-bond option produces slightly more asset value than the bond+cash value alternative for the first 19 years.

Asset values of bond with and without Life Insurance

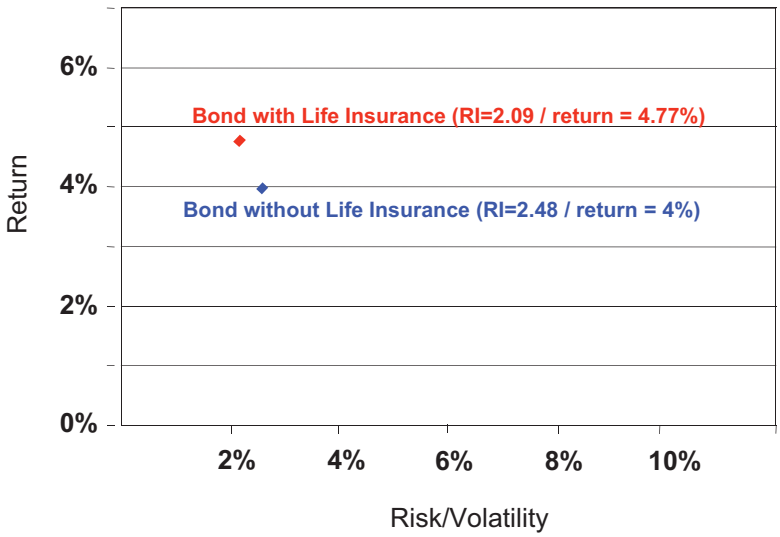


Further, the legacy value produces a significantly greater result in every year:

Legacy value of Bond + Death Benefit of Life Insurance



As the next graph demonstrates, there is synergy in funding a life insurance policy from the income stream of a component of the fixed portfolio. It produces a more favorable result than if the policy weren't part of the portfolio: the return is higher and the risk is lower for the existence of needed life insurance. In a classic view of an efficient asset allocation (in this case the Municipal Bonds+Life Insurance vs. Municipal Bonds alone) based on legacy value at life expectancy + 5 years:



2. Assess the retirement distribution value (and subsequent legacy value) of a bond portfolio with and without life insurance

In this variation of the 45-year-old insured's $500,000 municipal bond/fixed component of the investment portfolio, we will evaluate the ability to maximize retirement distributions as well as the legacy value of the component at life expectancy.

Strategy #1: Bond Component = $500,000; convert to income @65 (Table 18)

Accumulated value @ 65	$	1,095,562
Interest-only AT income beginning @ 65	$	42,137
Portfolio legacy value @ LE+5	$	1,095,562
Risk Index		2.48
Net after-tax return		4.00%

Strategy #2: Use bond income to pay $20,000/year premium on $1,064,171 PWL policy for 20 years; amortize income from age 65 - 89 (Table 19)

Bond accumulated value @ 65	$	476,178
Policy cash value @ 65	$	611,711
Total cash @ 65	$	1,087,889
Interest/principal AT income beginning @ 65	$	49,308
Portfolio legacy value @ LE+5	$	0
Life insurance death benefit @ LE+5	$	1,357,789
Risk Index - accumulation phase		2.10
Risk Index - distribution phase		2.43
Imputed net after-tax return		4.52%

Observations:

1. Volatility cannot easily be accounted for in the comparisons made in this section, and there is something of an "apple and orange" comparison when introducing life insurance as an asset class with fewer of the risk elements than a similarly classed bond component. But of course, this is the point of employing uncorrelated assets and the inclusion of needed life insurance in an investment portfolio. The ability of an insurance company to declare a dividend from year to year is subject in large part to returns in *its* investment portfolio (mostly consisting of investment-grade bonds and mortgages). Over time, the insurer's portfolio will respond to market-driven fluctuations in interest rates, but once a dividend is declared and paid, it becomes part of the guaranteed portion of the underlying whole life policy.

2. With an average Risk Index of "3.0" assigned to 10-year U. S. Bonds for the historic fluctuations in market value (which is most closely correlated to the type of investments backing a participating whole life policy's dividend scale), we assign a Risk Index of "1.8" to the combined guaranteed + non-guaranteed components of a participating whole life policy. Similarly, an average Risk Index of "2.48" is assigned to a single municipal bond that will be held to maturity; a municipal bond *fund* has a Risk Index of "6.0."

3. The Fidelity Investments' "Target Asset Mixes"[SM] implies an important but subjective component of risk: the degree to which fluctuations in the market value of portfolio investments will keep the investor from "sleeping well at night." While this may be more emotional than real in terms of the historic increase in long-term portfolios, it is an issue that keeps investors on a more conservative investment path.

4. This discussion is not about portfolio investments *or* life insurance, but rather describes a synergy of assets that can produce more legacy value, potentially more net income, and less market value adjustment risk.

Table 18 Bond Strategy #1

		4.00%	
Year	Beg Bal	Income	End Bal
1	$ 500,000	$ 20,000	$ 520,000
2	$ 520,000	$ 20,800	$ 540,800
3	$ 540,800	$ 21,632	$ 562,432
4	$ 562,432	$ 22,497	$ 584,929
5	$ 584,929	$ 23,397	$ 608,326
6	$ 608,326	$ 24,333	$ 632,660
7	$ 632,660	$ 25,306	$ 657,966
8	$ 657,966	$ 26,319	$ 684,285
9	$ 684,285	$ 27,371	$ 711,656
10	$ 711,656	$ 28,466	$ 740,122
11	$ 740,122	$ 29,605	$ 769,727
12	$ 769,727	$ 30,789	$ 800,516
13	$ 800,516	$ 32,021	$ 832,537
14	$ 832,537	$ 33,301	$ 865,838
15	$ 865,838	$ 34,634	$ 900,472
16	$ 900,472	$ 36,019	$ 936,491
17	$ 936,491	$ 37,460	$ 973,950
18	$ 973,950	$ 38,958	$ 1,012,908
19	$ 1,012,908	$ 40,516	$ 1,053,425
20	$ 1,053,425	$ 42,137	$ 1,095,562
21	$ 1,095,562	$ 42,137	$ 1,095,562
22	$ 1,095,562	$ 42,137	$ 1,095,562
23	$ 1,095,562	$ 42,137	$ 1,095,562
24	$ 1,095,562	$ 42,137	$ 1,095,562
25	$ 1,095,562	$ 42,137	$ 1,095,562
26	$ 1,095,562	$ 42,137	$ 1,095,562
27	$ 1,095,562	$ 42,137	$ 1,095,562
28	$ 1,095,562	$ 42,137	$ 1,095,562
29	$ 1,095,562	$ 42,137	$ 1,095,562
30	$ 1,095,562	$ 42,137	$ 1,095,562
31	$ 1,095,562	$ 42,137	$ 1,095,562
32	$ 1,095,562	$ 42,137	$ 1,095,562
33	$ 1,095,562	$ 42,137	$ 1,095,562
34	$ 1,095,562	$ 42,137	$ 1,095,562
35	$ 1,095,562	$ 42,137	$ 1,095,562
36	$ 1,095,562	$ 42,137	$ 1,095,562
37	$ 1,095,562	$ 42,137	$ 1,095,562
38	$ 1,095,562	$ 42,137	$ 1,095,562
39	$ 1,095,562	$ 42,137	$ 1,095,562
40	$ 1,095,562	$ 42,137	$ 1,095,562
41	$ 1,095,562	$ 42,137	$ 1,095,562
42	$ 1,095,562	$ 42,137	$ 1,095,562
43	$ 1,095,562	$ 42,137	$ 1,095,562
44	$ 1,095,562	$ 42,137	$ 1,095,562
45	$ 1,095,562	$ 42,137	$ 1,095,562

Table 19 Bond Strategy #2

4.00%

Year	Beg Bal	BOY Withdraw	End Bal
1	$ 500,000	$ 20,000	$ 499,200
2	$ 499,200	$ 20,000	$ 498,368
3	$ 498,368	$ 20,000	$ 497,503
4	$ 497,503	$ 20,000	$ 496,603
5	$ 496,603	$ 20,000	$ 495,667
6	$ 495,667	$ 20,000	$ 494,694
7	$ 494,694	$ 20,000	$ 493,681
8	$ 493,681	$ 20,000	$ 492,629
9	$ 492,629	$ 20,000	$ 491,534
10	$ 491,534	$ 20,000	$ 490,395
11	$ 490,395	$ 20,000	$ 489,211
12	$ 489,211	$ 20,000	$ 487,979
13	$ 487,979	$ 20,000	$ 486,699
14	$ 486,699	$ 20,000	$ 485,366
15	$ 485,366	$ 20,000	$ 483,981
16	$ 483,981	$ 20,000	$ 482,540
17	$ 482,540	$ 20,000	$ 481,042
18	$ 481,042	$ 20,000	$ 479,484
19	$ 479,484	$ 20,000	$ 477,863
20	$ 477,863	$ 20,000	$ 476,178
21	$ 476,178	$ 29,308	$ 464,744
22	$ 464,744	$ 29,308	$ 452,854
23	$ 452,854	$ 29,308	$ 440,488
24	$ 440,488	$ 29,308	$ 427,627
25	$ 427,627	$ 29,308	$ 414,252
26	$ 414,252	$ 29,308	$ 400,341
27	$ 400,341	$ 29,308	$ 385,875
28	$ 385,875	$ 29,308	$ 370,829
29	$ 370,829	$ 29,308	$ 355,182
30	$ 355,182	$ 29,308	$ 338,909
31	$ 338,909	$ 29,308	$ 321,985
32	$ 321,985	$ 29,308	$ 304,384
33	$ 304,384	$ 29,308	$ 286,079
34	$ 286,079	$ 29,308	$ 267,042
35	$ 267,042	$ 29,308	$ 247,243
36	$ 247,243	$ 29,308	$ 226,653
37	$ 226,653	$ 29,308	$ 205,239
38	$ 205,239	$ 29,308	$ 182,968
39	$ 182,968	$ 29,308	$ 159,806
40	$ 159,806	$ 29,308	$ 135,718
41	$ 135,718	$ 29,308	$ 110,667
42	$ 110,667	$ 29,308	$ 84,613
43	$ 84,613	$ 29,308	$ 57,517
44	$ 57,517	$ 29,308	$ 29,338
45	$ 29,338	$ 29,338	$ (0)

Note: Beginning at age 65, $29,308 interest and principal is drawn from the Bond each year in addition to a $20,000 withdrawal from the policy's dividend account for a total of $49,308

Chapter 10: Building a life insurance portfolio with efficient choices

Introduction

As previously noted, when constructing an investment portfolio, it's a well-established principle of Modern Portfolio Theory that appropriate (or "optimal") diversification is how investors maximize returns for a given amount of risk. Modern Portfolio Theory "...stresses that it is wise to invest in a broad array of diverse investments.[52]" A sophisticated form of this type of diversification is called "Efficient Frontier" analysis in which assets with different correlations are used to produce expected rates of return with lower volatility than that which could be expected from just one of those assets. A similar process of diversification can be applied to the efficient selection of life insurance policies intended for lifetime uses, especially (from a practical standpoint) when acquiring total life insurance in excess of $3 - $5 million.

A life insurance policy has 4 dominant attributes: 1) its "price" (premium outlay); 2) its "cost" – (the net of the premium outlay and resulting cash value); 3) its likely death benefit (as generated by dividends or the cash value "pushes" the IRC Sec. 7702 "corridor"); and 4) any risk (to the policy owner) associated with the investments used to support the policy reserves. The specific mixture of these attributes result in a "style" of policy.

Table 7 demonstrated that NLG, universal, variable universal, and participating whole life are styles of permanent insurance that produce a "better buy" than term insurance for lifetime needs. But which style is "best?"

It should be obvious that no *one* style of insurance could be "best" for all circumstances or situations. Rather, the type(s) of insurance should be tailored to the insurance buyer's unique mix of considerations about these attributes.

Each of the 4 dominant forms of life insurance presents different combinations of these attributes. Quantitatively they might be considered[53]:

	Price (Premium Outlay)	Cost (NPV (Premium/CV)	Potential for Increasing DB @ LE	Investment Risk
No Lapse Guarantee Universal Life				
Life Expect.	Lowest	Highest	None	Lowest
Age 100	Lowest	2nd Highest	None	Lowest
Universal Life (minimally funded)				
Life Expect.	2nd Lowest	2nd Highest	Some	Low
Age 100	2nd Lowest	Highest	Some	Low
Variable Universal Life				
Life Expect.	2nd Highest	2nd Best	Good	High
Age 100	2nd Highest	Best	Good	High
Par Whole Life				
Life Expect.	Highest	Best	Excellent	Very Low
Age 100	Highest	2nd Best	Excellent	Very Low

If an insurance buyer's focus is on lowest actual outlay, the healthy male non-smoker might acquire NLG, yet for best cost, he might consider WL or VUL. Similarly, if his risk tolerance is relatively low, consideration of the amount of inherent risk might dictate NLG – yet this style can produce the highest cost. No one style contains elements that will satisfy the various combinations of considerations.

The starting point for selecting amongst a range of policy styles is to determine the appropriate amount of policy investment "risk" the buyer is willing to take. (It is assumed that carrier selection will depend heavily on financial stability, therefore we will focus solely on the investment risk underlying the selection of a policy style):

- As suggested in the above table, NLG has no investment risk (that is to say, the investment risk is the insurance company's and *not* the policy owner's – unless of course the adverse investment experience is so severe that the carrier becomes insolvent). Assuming the selection of a financially superior insurance company, we would assign NLG a "Risk Index" of 0.

- At the other end of the spectrum, a VUL entirely utilizing an S&P500™ Index sub account typically has a standard deviation (a measurement of risk) of 15%; we would assign such a VUL allocation a "Risk Index" of 15.

- Participating whole life is comprised of two components: the underlying guaranteed policy which, as with NLG, has no explicit investment risk, and a non-guaranteed dividend whose risk of meeting dividend projections is most closely associated with an investment in investment-grade bonds. As indicated in the last section, we assign a "Risk Index" of "1.8" to participating whole life (blending the underlying guarantees of the base whole life policy with the bond-like portfolio returns of the non-guaranteed dividend scale).

- Because the UL policy doesn't offer sufficient unique or advantageous attributes compared to the other policy styles, it will not be considered in this context.

Table 15's Matrix of Risk Indices demonstrates all the possible ratios of NLG, VUL, and Par WL as components in a portfolio of policies ranked by "Risk Index." For ease of explanation, we will divide the range of "Risk Indices" into 4 narrative labels: Conservative (0 to 3.9), Balanced (4.0 to 7.9), Growth (8.0 to 11.9), and Aggressive Growth (12 to 15). Note that these are Risk Indices and not rates of return. A process for determining a reasonable, responsive, and effective blend of policies for maximization of desired qualities would be as follows:

1. What is the risk tolerance and time horizon of the insurance buyer, using the labels described above? For the first example, we'll assume that the response is "4" – in other words, the lowest range within "Conservative" (and comparable to a 20/80 mix of fixed and equity asset classes in a general portfolio).

2. Determine which of the following is the greater priority: Lowest premium outlay, development and access to cash value, or the ability to generate excess death benefit. Since the existence and access to cash value is closely linked to the ability to generate increases in death benefit (Section 7702 of the IRC) we will combine the cash value and death benefit criteria for the following choices:

    a. Lowest premium outlay; or
    b. Development and access to cash value and subsequent ability to generate excess death benefit[54]

3. From the Risk Index Table, select the a matrix ranging from 3 steps below to 3 steps "above" the Risk Index closest to "4."

The following three examples demonstrate the use of the process of "mixing" life insurance styles to obtain an efficient result:

Example 1: "Conservative" Risk Index

With a view to the different "mixes" of product styles in the chosen risk matrix: if lowest premium outlay is the greater priority, we'll focus on the NLG column and maximize the amount of NLG suggested in the matrix. This results in 70% NLG with the accompanying 0% WL and 30% VUL.

Par WL	NLG	VUL	Risk Index
30	50	20	3.54
40	40	20	3.72
50	30	20	3.9
60	20	20	4.08
70	10	20	4.26
80	0	20	4.44
0	70	30	4.5

If, on the other hand, availability and access to cash value – as well as the potential for an increasing death benefit over time – is of greater importance, we'll focus on the Par WL column and maximize the amount of WL suggested in the matrix. This results in 80% WL with the accompanying 0% NLG and 20% VUL.

Par WL	NLG	VUL	Risk Index
30	50	20	3.54
40	40	20	3.72
50	30	20	3.9
60	20	20	4.08
70	10	20	4.26
80	0	20	4.44
0	70	30	4.5

Thus, by selecting an appropriate mix of policies based on the underlying Risk Index, the resulting cumulative premium, cash value, and death benefits of these mixes allow the insurance buyer to achieve a more favorable result than would occur from the exclusive selection of one type of policy or another. A results summary is shown below:

Risk Factor 4		Lowest Prem		Access to CV/ Increasing DB
Total Prem	$	923,000	$	1,546,400
LE DB	$	78,754,100	$	128,712,080
Risk Index		4.50%		4.44%
NPV to LE *	$	3,165,440	$	4,590,968

Example 2: "Balanced" Risk Index

Here we assume that the prospective buyer of life insurance indicates a Risk Index of 7 (comparable to a 60/40 mix of equity and fixed asset classes in a general portfolio).

With a view to the different "mixes" of product styles in the chosen risk matrix: if lowest premium outlay is the greater priority, we'll focus on the NLG column and maximize the amount of NLG suggested in the matrix. This results in 50% NLG with the accompanying 0% WL and 50% VUL.

Par WL	NLG	VUL	Risk Index
30	30	40	6.54
40	20	40	6.72
50	10	40	6.9
60	0	40	7.08
0	50	50	7.5
10	40	50	7.68
20	30	50	7.86

If, on the other hand, availability and access to cash value – as well as the potential for an increasing death benefit over time – is of greater importance, we'll focus on the Par WL column and maximize the amount of WL suggested in the matrix. This results in 60% WL with the accompanying 0% NLG and 40% VUL.

Par WL	NLG	VUL	Risk Index
30	30	40	6.54
40	20	40	6.72
50	10	40	6.9
60	0	40	7.08
0	50	50	7.5
10	40	50	7.68
20	30	50	7.86

Again, by selecting an appropriate mix of policies based on the underlying Risk Index, the resulting cumulative premium, cash value, and death benefits of these mixes allow the insurance buyer to achieve a more favorable result than would occur from the exclusive selection of one type of policy or another. A results summary is shown below:

Risk Factor 7		Lowest Prem		Access to CV/ Increasing DB
Total Prem	$	1,145,000	$	1,584,800
LE DB	$	97,923,500	$	132,995,810
Risk Index		7.50%		7.08%
NPV to LE *	$	3,976,915	$	4,944,626

Example 3: "Aggressive" Risk Index

In a final example, we assume that the prospective buyer of life insurance indicates a Risk Index of 12 (comparable to a 70/30 mix of equity and fixed asset classes in a general portfolio).

With a view to the different "mixes" of product styles in the chosen risk matrix: if lowest premium outlay is the greater priority, we'll focus on the NLG column and maximize the amount of NLG suggested in the matrix. This results in 20% NLG with the accompanying 10% WL and 70% VUL (a second possibility is 20% NLG with the accompanying 0% WL and 80% VUL).

Par WL	NLG	VUL	Risk Index
10	20	70	10.68
20	10	70	10.86
30	0	70	11.04
0	20	80	12
10	10	80	12.18
20	0	80	12.36
0	10	90	13.5

If, on the other hand, availability and access to cash value – as well as the potential for an increasing death benefit over time – is of greater importance, we'll focus on the Par WL column and maximize the amount of WL suggested in the matrix. This results in 30% WL with the accompanying 0% NLG and 70% VUL.

Par WL	NLG	VUL	Risk Index
10	20	70	10.68
20	10	70	10.86
30	0	70	11.04
0	20	80	12
10	10	80	12.18
20	0	80	12.36
0	10	90	13.5

Once again, by selecting an appropriate mix of policies based on the underlying Risk Index, the resulting cumulative premium, cash value, and death benefits of these mixes allows the insurance buyer to achieve a more favorable result than would occur from the exclusive selection of one type of policy or another. A results summary is shown below:

Risk Factor 12		Lowest Prem		Access to CV/ Increasing DB
Total Prem	$	1,458,800	$	1,642,400
LE DB	$	124,535,735	$	139,421,405
Risk Index		10.68%		11.04%
NPV to LE *	$	5,017,298	$	5,475,114

Matrix Results by Risk Index - $50 million initial Death Benefit

	Lowest Prem	Access to CV/ Increasing DB
Risk Factor 4		
Total Prem	$ 923,000	$ 1,546,400
LE DB	$ 78,754,100	$ 128,712,080
Risk Index	4.50%	4.44%
NPV to LE *	$ 3,165,440	$ 4,590,968
	Lowest Prem	**Access to CV/ Increasing DB**
Risk Factor 7		
Total Prem	$ 1,145,000	$ 1,584,800
LE DB	$ 97,923,500	$ 132,995,810
Risk Index	7.50%	7.08%
NPV to LE *	$ 3,976,915	$ 4,944,626
	Lowest Prem	**Access to CV/ Increasing DB**
Risk Factor 12		
Total Prem	$ 1,458,800	$ 1,642,400
LE DB	$ 124,535,735	$ 139,421,405
Risk Index	10.68%	11.04%
NPV to LE *	$ 5,017,298	$ 5,475,114

* Net Present Value (at 5%) of premiums paid to life expectancy AND receipt of the death benefit at LE. The higher the number, the more favorable the total economic outcome.

The above results are in contrast to the selection of just ONE policy for any Risk Index:

All Whole Life	All NLG	All VUL
$ 1,508,000	$ 590,000	$ 1,700,000
$ 124,428,350	$ 50,000,000	$ 145,847,000
1.8%	0.0%	15%
$ 4,237,310	$ 1,948,228	$ 6,005,602

Observations

1. We assign Risk Indices to policy styles in order to provide an objective basis within which to clarify the different attributes of the various forms of permanent life insurance. Once the consumer has stipulated an appropriate Risk Index for the purchase of a portfolio of policies, she or he can then rank their considerations of price, cost, "upside" death benefit, and access to cash value to help determine the ideal mix of policies that will best serve their tolerance for risk and desire for "reward." This is a process with which the sophisticated investor is well acquainted.

2. It should be apparent that this approach could be utilized for the selection of just one policy when a portfolio of policies isn't practical or appropriate.

3. As can be seen in each of the three examples, the portfolio of policies has been optimized within a given range of Risk Indices for a desired premium outlay budget and considerations of access to cash value and the desire for an increasing death benefit.

4. It might appear that it takes some effort to mix policy styles to derive the most efficient blend based on risk tolerance. It would be fair to ask: "Why not just buy a VUL and adjust the sub-account selection to match investment risk?"

    - Many buyers of life insurance have a subjective concern about the "risk" of supporting a foundation asset with an aggressive investment approach. Further, it may not simply be the investment risk concerning the investor, but the consideration – rational or not – of depending on a policy that has no guaranteed premium, not to mention a policy style that's been labeled "risky." Technically, of course, it is possible to accomplish the underlying objective of matching risk tolerance and "return" optimization by purchasing, appropriately allocating, and carefully managing a VUL policy. But some buyers of life insurance may want guaranteed components, which a VUL can only simulate but not replicate.

    - A VUL policy may – based on its allocation and market volatility acting on at the policy's sub-accounts – be at the extreme of policy risk. A key issue is that the entire death benefit is subject to investment risk in the event the policy is not able to sustain itself based on premiums paid, assessed expenses and insurance charges, and portfolio gains or losses. At the other end of the risk spectrum, WL and NLG

policies do not put the death benefit at risk as long as the required premium is paid.

5. While the mixing of policy styles based on Risk Indices can be a productive approach to getting the best result consistent with risk tolerance, it's also important to again point out that cash values in a participating whole life policy are not subject to market value adjustments (wherein fixed values fall when interest rates rise and fixed values rise when interest rates fall). This is true even though the insurance company's investment portfolio underlying its ability to declare and pay a dividend is subject to market value adjustment.

Table 20

Risk Index Matrix

Par WL	NLG-UL	VUL	
1.8	**0**	**15**	**Risk Index**
0	100	0	0
10	90	0	0.18
20	80	0	0.36
30	70	0	0.54
40	60	0	0.72
50	50	0	0.9
60	40	0	1.08
70	30	0	1.26
80	20	0	1.44
0	90	10	1.5
90	10	0	1.62
10	80	10	1.68
100	0	0	1.8
20	70	10	1.86
30	60	10	2.04
40	50	10	2.22
50	40	10	2.4
60	30	10	2.58
70	20	10	2.76
80	10	10	2.94
0	80	20	3
90	0	10	3.12
10	70	20	3.18
20	60	20	3.36
30	50	20	3.54
40	40	20	3.72
50	30	20	3.9
60	20	20	4.08
70	10	20	4.26
80	0	20	4.44
0	70	30	4.5
10	60	30	4.68
20	50	30	4.86
30	40	30	5.04
40	30	30	5.22
50	20	30	5.4
60	10	30	5.58
70	0	30	5.76
0	60	40	6
10	50	40	6.18
20	40	40	6.36
30	30	40	6.54
40	20	40	6.72
50	10	40	6.9
60	0	40	7.08
0	50	50	7.5
10	40	50	7.68
20	30	50	7.86

Table 20

Risk Index Matrix

Par WL	NLG-UL	VUL	
1.8	**0**	**15**	**Risk Index**
30	20	50	8.04
40	10	50	8.22
50	0	50	8.4
0	40	60	9
10	30	60	9.18
20	20	60	9.36
30	10	60	9.54
40	0	60	9.72
0	30	70	10.5
10	20	70	10.68
20	10	70	10.86
30	0	70	11.04
0	20	80	12
10	10	80	12.18
20	0	80	12.36
0	10	90	13.5
10	0	90	13.68
0	0	100	15

Chapter 11: Financial expertise versus life insurance expertise

There has long been tension between those in the financial arena whose expertise regarding risk and reward is broad-based, versus those with a specialty in risk management and whose expertise is more focused specifically on life insurance. Experts in many fields have been known to act on the principle that "... when one is a hammer, all the world appears as a nail." For example, insurance planners have developed insurance needs and solutions well beyond the classic border of the need to protect wives and children from the financial ravages of becoming widows and orphans. And there is little doubt that some insurance salespeople may have had an historic bias toward permanent insurance with the consideration that insurance commissions – a percentage of premiums paid – are significantly higher on permanent forms of life insurance. However, the broader financial planning community, including the financial press, also has its own biases. The most frequently championed message is something like "...life insurance is a foundation asset on which you should take the least amount of risk and pay the lowest possible premium for the least amount of time necessary – while you quickly build other investment assets so that the life insurance won't be needed in the long term." Perhaps the most dangerous message suggests that one has only to shop for the best "deal" in a life insurance policy, without appreciating the unintended risks or consequences such a purchasing scheme can create.

Each "camp" has its point of view, and there are aspects of each that contain some wisdom. The questions that should be addressed are "what's real?" and "what do I choose to do in consideration of *my* risk tolerance and *my* comfort zone?" The following is a list of observations for the reader's consideration:

1. There are many risks in life; some can be planned for, some aren't even on the "radar screen" until they occur. For those foreseen risks that can be quantified as having financial consequences, it's appropriate to evaluate those consequences to determine whether they can be budgeted from income or savings – or whether the financial risk is so great that it needs to be shifted to an insurance company for a certain premium against an uncertain catastrophic event (a classic example of the need for health, disability, fire, and life insurance).

2. Risk management can be a complex issue in today's seemingly volatile (and hence risky) financial environment. Whether seeking to improve net worth by taking money out of insured savings and purchasing rental property or increasing the hedge fund component of a stock portfolio, few individuals feel comfortable initiating such strategies without professional advice.

3. Financial expertise has become more and more specialized since the 1960's when a handful of mutual funds became a popular way to invest – or when the only two options for life insurance were term and whole life. At one time information, advice, and execution were part of the entire financial transaction – whether with a stockbroker or an insurance agent – but now it is often segmented. The classic gatekeeper role of both stockbroker and insurance agent has become blurred in an era where information about stocks and life insurance can readily be obtained on the Internet and the selected item can be purchased as easily as clicking on a shopping cart icon. *Advice* – perhaps the most critical part of the relationship between client and broker/agent – has now become a distinct commodity by itself.[55]

4. There have emerged three distinct types of decision makers: Delegators, Validators, and Self-Directors. Delegators seek a relationship with an expert whose advice they come to value, allowing them to direct their attention and energy in other directions. Self-Directors are quite the opposite; they choose to develop their own expertise and avail themselves of the many opportunities over the Internet to acquire and manage their investment and insurance choices. Validators (the largest of the three groups of decision-making styles) seek a certain amount of information on their own to more knowledgeably and actively engage in the process of managing portfolios of stocks and insurance[56]. In other words, it's useful to not only know what questions to ask, but to have a basis on which to understand and further evaluate the answers to those questions.

5. In an era of financial specialization, both Validators and Delegators will optimize their information/advice/execution process by working with experts in the various areas of investments, insurance, real estate, accounting, estate planning, etc. Individuals expressing either of these two styles will need to determine whether they will be the "captain" of the planning team, or whether that will in turn be delegated to one of the experts.

6. Experts in the various fields surrounding financial management have begun to recognize that advice is the only component that cannot be readily commoditized on the Internet – or globalized to a computer monitor half a world away.

7. Delegators and Validators should attempt to find experts with a compatible personality and "world view" in the various fields appropriate to their circumstances. In the ideal relationship, the client creates lasting relationships with these experts and is explicit about expectations and the means by which he / she / they will measure "success" or "failure." Client/expert loyalty has great value when expectations can be expressed and met. When

it comes to considering the many issues involved in the purchase and management of life insurance for a best possible solution to their needs, Delegators and Validators should seek out professional life insurance agents with the requisite knowledge, training, experience, licensing, and credibility. At the outset, such an agent would discuss and take into account the client's current and possible future needs for life insurance, the durations of those needs, the appropriate policy amount, a policy type suited to the client's risk profile, and especially consider a policy's style consistency with other elements of the investment portfolio.

8. Given the sheer volume of data and information surrounding financial opportunities and possibilities, Self-Directors will potentially have the most difficulty deriving completely coherent strategies given their chosen style. Because of the time needed to acquire knowledge, they will tend to rely more on generalists ("one-stop shopping") rather than specialists. This tendency will, in turn, more readily put them in touch with websites, money-oriented periodicals, and other non-personal resources that inevitably take a generalist approach. As a result, Self-Directors will tend to get less satisfying, simplistic answers. Such resources tend to make "all or nothing" recommendations as to investment and risk management when the very nature of the task should involve the skills of collaboration, integration, and allocation. As a result, Self-Directors may be more prone to "... the attractive impossibility rather than the less attractive probability." The attractive impossibility may be the hope that the return on invested assets will always be positive (and most often "double digit") and that invested resources can quickly replace life insurance for the contingency of early death. The less attractive probability is that it is more difficult than it seems to achieve sufficient long-term returns with no risk or "potholes" along the way. Recognizing this, an effective strategy can include shifting a certain amount of investment risk to a life insurance company's General Account portfolio that in turn supports a whole life or NLG policy (as appropriate) for lifelong insurance needs.

9. Regardless of style, investors will be well served by a financial aphorism best served on a grandmother's knee: "... get and stay rich the old fashioned way – saving and investing using good planning, advice, patience, and diversification."

Chapter 12: Policy management

It's notable that most articles and discussions about life insurance are focused on whether you need it, and if so, how to buy it as cheaply as possible. Or if you already have life insurance, whether you should replace it with a more "modern" version. Of great importance - but little attention – is the need to have a *process* by which life insurance will be monitored, managed, and assessed (including replacement if deemed necessary by the *process*) over the lifetime of the insured.

Since an underlying strategy of this paper is to apply to life insurance the concepts and terminology of broader financial planning and investment management, it is not enough to focus on the up-front (i.e. time of purchase) evaluation process without recommending a process by which lifetime "in-force" progress will be measured. Indeed, in the authors' respective consulting practices, even those who are paid and charged with professional stewardship as trustees of Life Insurance Trusts will often not have a "reasoned investment strategy" with respect to trust-owned policies. Often there are no written, formal processes by which policies will be evaluated. By contrast, the typical institutional trust *investment* manager has a very specific and personalized *Investment Policy* to guide asset allocation, review criteria, and specify triggers for redeployment and/or reallocation for client's *investment* portfolios. The skills and processes applied to investment portfolios need to be applied to the management of life insurance.

In-force policy illustrations have typically been the primary (if not exclusive) tool by which non-guaranteed policy sufficiency has been measured. But as discussed in this paper, policy illustrations are of minimal value in projecting the effect of volatile market conditions – and the level of funding premiums – on the likely sustainability of the policy over the insured's lifetime. This is especially true when evaluating minimally funded policies *and* when using an in-force illustration as the primary means of projecting factors that will inevitably change over time.

Institutional trustees are guided by the Uniform Prudent Investor Act as enacted by most states. As fiduciaries, trustees have a duty to apply professional management to the assets placed under their care for the ultimate benefit of trust beneficiaries. While personal trustees may not be held to the same breach of duty standard, insurance trust grantors should expect the same level of competent advice, guidance, and assistance as they would receive from an

institutional trustee. At a minimum, the following assessment tools and monitoring / management processes should be required of a personal trustee *or* professional trustee to assure satisfying the obligations to trust beneficiaries. Indeed, all of the following apply to the individual policy owner and the best process by which the policy should be managed for the benefit of direct beneficiaries:

1. Whether personally or professionally trusteed, trust-owned life insurance should include a Life Insurance Investment Policy Statement, confirming the grantor's expectations, considerations and instructions regarding such key issues as change in the insurance carrier's financial strength, what procedure to follow if annual gifts are temporarily or permanently suspended, the timeframe in which unsustainable policies should be remediated, and whether remediation should focus on rebalancing sustainability with changes in death benefit or enhanced premium gifts. If policies are or can be investment-oriented (i.e. EI, VWL or VUL), there should be instructions about the grantor's intention with respect to time horizons, range of investment risk, and a targeted long-term return that is consistent with the recommended risk levels. Guidance should also be provided regarding the criteria to use in asset evaluation, as well as memorializing the practical manner in which the trustee's rights and obligations will be executed as directed in the trust agreement.

   This is not an exhaustive list, but is indicative of the types of issues that should be contemplated in the establishment of a grantor trust whose assets will include life insurance.

2. Individual and institutional trustees should periodically address the following policy issues; the timeframe will largely be dictated by policy type (PWL requires less frequent review, VUL requires more frequent review) and underlying premium sufficiency guarantees (NLGUL requires less frequent review, thinly funded VUL requires more frequent review):

   a. Does the life insurance policy remain suitable for the purpose set out in the Life Insurance Investment Policy Statement?

   b. Are scheduled premiums adequate to sustain the policy to contract maturity?

   c. If the policy requires self-directed investment of the premium and cash value into sub-accounts, have sub-accounts performed within an acceptable range for the asset classes and the planned asset allocation?

d. Have the insurance company's financial ratings deteriorated?
e. If there is a significant enough deviation in performance that the policy is in jeopardy to meet its long-term sustainability objectives, a third-party expert should be retained (if such expertise is not available "in house") to make recommendations that will include remediation alternatives (lower the death benefit, increase the premium, or consider replacing the policy with a lower-premium *guaranteed* policy).

3. In-force policy illustrations and updated reports from the major financial rating agencies will be a useful start in the periodic review of life insurance. But any realistic attempt to fulfill the primary responsibility of the trustee – assuring the viability of trust assets for the benefit of the beneficiaries – requires *actuarial evaluation* of the policies. Going far beyond an in-force illustration projected with constant numbers that will change over time, actuarial evaluation includes statistical analysis (i.e. Monte Carlo), benchmarking long-term cost of insurance and other expenses with peer policy styles and peer carriers.

4. Life insurance agents have the resources and ability to facilitate the policy owner's ongoing management process – whether by an individual or institutional owner. Policy owners should expect agents to initiate periodic reviews, especially when the policy is owned/administered by a non-institutional entity that is less likely to have a regular review process.

5. Variable universal life policies are especially vulnerable to lapse before death if policies are underfunded *and* if the underlying sub-accounts are not actively managed. Management not only includes initial asset allocation and subsequent rebalancing, but includes assuring that fundamental allocation continues to meet the policy owner's (or beneficiary's in the case of trust owned policies) risk/reward criteria. Since many insurance agents lack the experience or resources to make specific investment selection recommendations, it is critical for those considering variable policies to obtain professional management of the sub-accounts. We would typically recommend the use of investment managers with whom investors are actively engaged. It should be anticipated that such managers will charge fees – typically 1% of net asset value – comparable to what is paid for investment portfolio management. Since fees will reduce sub-account returns, it would be appropriate to note one last comparison of participating whole life (requiring no asset management) with the graded-mix returns discussed in Chapter 7:

Age 45-M	30-year Cash Value	30-year Death Benefit
Historic Whole Life	$630,635	$805,307
Graded-mix Historic VUL	$570,449	$820,449
Graded-mix with 1% management fee	$454,011	$704,011

Age 60-F	30-year Cash Value	30-year Death Benefit
Historic Whole Life	$876,966	$986,065
Graded-mix Historic VUL	$694,452	$944,452
Graded-mix with 1% management fee	$538,746	$788,746

Chapter 13: Conclusion

The authors have spent their entire adult careers in the life insurance industry, for a combined total of more than 70 years of observation and experience. These careers have included direct sales, home office executive positions, rendering financial and actuarial opinions, and designing sophisticated software for a more complete view of possibilities when attempting to quantify an answer to "how much will this policy cost?"

Life insurance is a complicated, wonderful, frustrating, and intriguing asset to understand and acquire. It is about the economic preservation of families – or businesses – as well as being the subject of many jokes which can be appreciated for the depth of emotion that exists when we contemplate our deaths.

It is also about setting aside biases and preconceived notions and getting into the nuts and bolts of what it is, how it works, and how life insurance can best be deployed for its intended purposes. There are no "right" answers, only a process of evaluation that must take into account the needs and desires of an individual to protect those she or he loves and wants to protect from economic calamity.

From the different perspectives and assessments contained in this paper, we believe it is reasonable to summarize the following observations and conclusions:

- Short-term needs for life insurance can readily be met with term insurance for the appropriate duration, and can be primarily purchased on the basis of premium.

- It is not always certain how long life insurance will be needed; circumstances change and the uses for life insurance can transform (e.g. from protection of family, to generating supplemental retirement income, to preservation of estate assets). Most of us have experienced significant changes in our lives, often completely unpredicted from just a few years earlier.

- Lifetime uses of life insurance require an enhanced level of understanding, assessment, and explanation in order to acquire the right type(s) of policy(ies) for specific financial, estate, and portfolio considerations. Policy illustrations are almost always an inappropriate means of valuing the price/value proposition.

- For lifetime uses of life insurance, no-lapse-guarantee UL, variable UL, and participating whole life policies will satisfy a breadth of considerations regarding price, cost, liquidity, and the potential for an ultimately increasing death benefit.

- Even when compared to variable universal policies, a realistic asset allocation that is appropriately scaled back as the insured ages will produce results comparable to participating whole life policies – with substantially lower risk and concern about taking risk with an asset that is typically considered a "foundation" asset. Appropriate investment management fees for variable universal life would further reduce accumulation results.

- Perhaps the most commonly heard consideration of the different types or styles of life insurance is to "buy term and invest the difference." In three different views of this potential strategy for individuals with lifetime uses of life insurance – and assessing both an insured aged 33 and 45 – we determined that overall cost, the development of a legacy value, and the potential for enhanced retirement income were optimized with a combination of portfolio investments and permanent life insurance for returns that are consistent with historic market results.

- Permanent life insurance has unique characteristics that qualify it as an asset class in the consideration of combining with other portfolio assets to achieve an optimal and efficient return within the investor/insured's risk tolerance.

- A participating whole life policy funded by the income from a municipal bond component within a larger investment portfolio was found to produce a significantly larger legacy value and a growing advantage in liquidity value over the life of the investor having lifetime uses for life insurance. When viewed from the perspective of maximizing retirement income, the bond+life insurance strategy produced a higher retirement income than did the bond asset by itself. In fact, it met the ideal criteria of an efficient asset allocation: higher return with lower volatility/risk.

- Significant needs for life insurance may require an analytical process for matching risk requirements with considerations of overall outlay, net present value cost, liquidity, and the ability to achieve increasing amounts of death benefit over time. In this paper we have introduced such a process that objectively determines an appropriate mix of participating whole life, variable universal life, and no-lapse-guarantee universal life to achieve virtually any investor's requirements. While designed for the multiple policy strategy, the considerations or risk and reward should be taken into account even when purchasing just one life insurance policy for lifetime uses.

- Purchasers of life insurance – or indeed those employing a strategy for any financial product – would be well served to match their investor "style" by choosing an advisor with complementary skills and behaviors. Advice is generally the element in which all investors have a common interest. Yet our grandmothers may have known the best advice of all: "... get and stay rich the old fashioned way – saving and investing using good planning, advice, patience, and diversification."

We conclude with our own observation that life insurance is the ultimate character builder. It takes a little out of the "enjoyment budget" today in favor of the secure knowledge that the economic future is more adequately assured. Some have suggested that it should really be called "death insurance," but this misplaces the true meaning of continuing economic viability for the life of the beneficiaries.

Biographical Information

RICHARD M. WEBER, MBA, CLU
EMERYVILLE, CALIFORNIA

Dick is Managing Member of Ethical Edge Insurance Solutions, LLC. With 40 years of experience in sales, training, product design, senior management, and compliance, the firm provides training and consulting services that help empower life insurance agents, financial planners, advisors, and their clients to explore and view life insurance in the broader context of financial planning. He is the co-inventor of a process of applying Monte Carlo probability analysis to anticipate realistic premiums and financial outcomes for universal and variable life insurance.

Dick holds an M.B.A. from the University of California at Berkeley with a specialty in Insurance and Finance and was designated a Chartered Life Underwriter in 1974 by the American College. He has served as President of both the local Life Underwriter and the local CLU Chapters in the San Francisco Bay Area, was a member of the Association for Advanced Life Underwriting, and has been a Regional Vice President of the Society of Financial Service Professionals.

Dick has given presentations to virtually all the financial services educational venues, including: SFSP Arizona Institute, the Million Dollar Round Table, the Top of the Table, the Society of Financial Service Professionals, the Association for Advanced Life Underwriting, Trusts & Estates Educational Forum, LIMRA, the International Association of Financial Planners, the Society of Actuaries, the American Bar Association, FPA Annual Conference, and the College for Financial Planning.

Dick's insurance expertise is reflected in the more than 200 articles he's written for a number of industry publications. And his recent book – published by Marketplace Books – is entitled "Revealing Life Insurance Secrets: How the pros pick, design, and evaluate their own policies."

In 1993 and again in 1999, Dick represented the Society of Financial Service Professionals in an unprecedented series of Life Insurance Due Care Workshops presented around the country. These Workshops introduced to agents and allied professionals the Society's Life Insurance Illustration Questionnaire ("IQ") as well as suggesting what agents could do to return to a more fundamental, ethical, and educational form of selling life insurance products.

CHRISTOPHER H. HAUSE, FSA, MAAA, CLU
OVERLAND PARK, KANSAS

Chris is Chief Actuary and a principal in Ethical Edge Insurance Solutions, LLC and has also formed the firm Hause Actuarial Solutions, Inc. after serving as Managing Partner for William M. Buchanan & Associates. Chris has been a Fellow of the Society of Actuaries since 1986, and has been a Member of the Academy since 1980.

He earned a Bachelor's degree in Mathematics at the University of Wyoming in 1975.

Chris brings a unique blend of actuarial and management skills, having worked for insurance companies most of his career. His top-to-bottom knowledge of all functions of the insurance business brings quality and usability to all the projects undertaken by his firm.

Prior to forming Hause Actuarial Solutions, Inc., Chris was Senior Vice President and Actuary for Individual Assurance Company in Kansas City, Missouri for over 12 years. He served on the Board of Directors and the Investment Committee. He was the Chairman of the Long Range Planning Committee. IAC offers credit life and disability, group mortgage life and disability and term life through its client banks in the Midwest. It has a strong and profitable group life and interest sensitive payroll deduction operation in the Pacific Islands.

Chris' past work experience includes exposure to a broad range of products and distribution systems. Prior to IAC, Chris worked at Pyramid Life in Mission, Kansas; and Allianz Life (NALAC); and ITT Life in Minneapolis.

Chris is a member of several special interest sections of the Society of Actuaries and has served on the Council of the Marketing and Distribution Section and the Smaller Insurance Companies Section. He is a frequent speaker at SOA events and is a past President of the Kansas City Actuaries Club.

Appendix A

Tutorial on the calculation of account values in variable life insurance

A useful exercise toward making better decisions about purchasing and managing life insurance policies without guaranteed premiums is to look at the difference between an illustration assuming constancy and the real world of portfolio volatility. We'll do this with a review of the way investment returns are calculated, as well as understanding the interaction of net amount at risk with account values.

Consider $1,000 placed in a fixed-return account earning a steady 10% for 5 years. The arithmetic mean (or average) return is 10%, as is the geometric (or compound) return. At the end of 5 years, you'd have $1,611.

Now consider a second and third $1,000, this time invested in portfolios with returns that are volatile. Note that the returns of Portfolio "C" are the inverse of the returns in Portfolio "B." In all three instances, the average return is 10%.

Year	Portfolio A	Portfolio B	Portfolio C
1	10%	10%	-10%
2	10%	20%	30%
3	10%	0%	0%
4	10%	30%	20%
5	10%	-10%	10%
Value of $1,000	$1,611	?	?

What is your expectation of the value of Portfolio B relative to Portfolio A at the end of 5 years? Or the value of Portfolio "C" relative to the value of Portfolio "B" at the end of 5 years. (Answers follow this section.)

Now let's shift this tutorial toward a variable life insurance policy example. Assume we have an 80-year-old male whose $1,000,000 policy account value is "on the curve"; that is, the account value of $393,822 (and net amount at risk of $606,178) at age 80 is sufficient at the 10% assumed rate of return to sustain the policy to age 100 with the net amount at risk reduced to "0" and the cash value equaling the death benefit. This is the so-called "endowment" scenario that, as earlier seen in Graph 1, actuaries recommend when calculating a sufficient policy premium for flexible premium policies.

For this example, we'll apply the three portfolio rate examples to the accumulation of account value from the end of age 80 to the end of age 85:

Year	**Portfolio A**	**Portfolio B**	**Portfolio C**
1	10%	10%	-10%
2	0%	20%	30%
3	10%	0%	0%
4	10%	30%	20%
5	10%	-10%	10%
Policy Value			
Age 80	$393,822	$393,822	$393,822
Age 85	$441,072	?	?

What is your expectation of the account value using Portfolio "C" returns relative to the account value of Portfolio "A" at the end of 5 years? And what about the account value of "C" versus " B?" Should it be the same? Lower? Higher?

The way in which cash value accumulations may defy conventional portfolio accumulation wisdom is important to variable policies during the insured's younger ages of 25 – 60, but is absolutely critical at older ages when increasing net amounts at risk – exposed to increasingly higher costs of insurance – can create a fast-acting, negative domino effect. Consider that the account value of a universal-style policy is like a bank account for the policy: each month it accepts deposits in the form of periodic deposits made by the policy owner, credits investment returns, and allows withdrawals for insurance and policy charges. But if the account value declines – as is the case whenever the market value of the cash value declines – the net amount at risk has to compensate. The next month, the account will have to withdraw more money for the extra insurance charges, further reducing the account value and further exacerbating the negative spiral. Subsequent monthly investment returns – even if robust – will rarely be sufficient to stem the tide at older ages.

Tutorial Answers:

Some advisors are surprised to learn the answer to the calculation of the accumulated value of $1000 when exposed to different annual returns that nonetheless have the same average return: the value of "B" and "C" is the same ($1,544) – but less than "A's" $1,611. The arithmetic mean returns are all the same, but the geometric return of "B" and "C" is only 9.08%, which is why the 5-year balance is lower.

Many are surprised that Portfolio "C" is roughly $30,000 *less* than Portfolio "A."

Most are surprised to discover that Portfolio "B" produces an account value almost $20,000 *more* than "A" (and thus almost $50,000 more than "C").

Endnotes

1 *2006 Life Insurers Fact Book,* American Council of Life Insurers, Washington, D.C.

2 Bureau of Economic Analysis, U.S. Department of Commerce at www.bea.gov.

3 *2006 Life Insurers Fact Book,* American Council of Life Insurers, Washington, D.C.

4 L*ife Insurance, 12th Edition,* pp 18 – 45, Kenneth Black, Jr. and Harold D.. Skipper, Jr., Prentice Hall 1994.

5 2001 Valuation Basic Table, Society of Actuaries "Report of the Individual Life Insurance Valuation Mortality Task Force," November, 2001

6 *Life Insurance Consumer Studies,* LIMRA International

7 *McGill's Life Insurance,* Edward E. Graves, Editor, The American College, 1994, pp. 305-306

8 Net Present Value calculations use Age 33 as the starting point in all columns

9 *2006 Life Insurers Fact Book,* The American Council of Life Insurers, Washington D.C.

10 Mutual life insurance companies reflect "profits" in operating costs through the contribution principle, defined by Black and Skipper as "the return to each class of policyowners a share of the divisible surplus proportionate to the contribution of the class to the surplus." In other words, policies of longer duration and higher total premiums paid will tend to earn more divisible surplus than more recently purchased, lower-premium policies.

11 *Revealing Life Insurance Secrets,* Richard M. Weber, Marketplace Books, 2005

12 Insurance companies selling variable policies do so through Broker-Dealers who are members of the National Association of Securities Dealers (NASD). While all insurance companies are regulated by both their states of domicile and states in which they are admitted to sell their products, the marketing and sales practices surrounding the distribution of variable policies are regulated by the NASD. An agent must be licensed by his or her state of domicile to sell life insurance *and* must be a Registered Representative with a Broker-Dealer for the sale of any securities-related insurance product.

13 Alan H. Buerger, "Life Settlements Come of Age," *Trusts & Estates,* November 2002.

14 Brian Brooks and Elizabeth Baird, "Clients May Hold Millions in Untapped Insurance Wealth, Study Finds," *On Wall Street,* November 2002.

15 Alan H. Buerger, "Life Settlements Come of Age," *Trusts & Estates,* November 2002.

16 Deloitte Consulting LLP and The University of Connecticut "The Life Settlements Market: An Actuarial Perspective on Consumer Economic Value," 2005

17 *Final Report of the Task Force for Research on Life Insurance Sales Illustrations under the Auspices of the Committee for Research* on Social Concerns, Society of Actuaries, 1992

18 *Ibid.*

[19] The broad-based, "Large Cap" S&P 500 Index was 359.69 on Jan. 2, 1990 and peaked at 1380 on Dec. 11, 2000 – an almost 4-fold increase in 12 years.

[20] From 1926 through 2006, total equity returns of Large Cap stocks (comparable to the S&P500™) reflected a 10.4% compound annual rate of return contrasted to a 5.5% compound annual return for long-term U.S. Government Bonds. **Ibbotson** *2006 Stocks, Bonds, Bills & Inflation (SBBI) Yearbook (Valuation Edition).*

[21] For example, at age 89 the cost of the net amount at risk is $155,000 per million – *that year.* If the cash value of a $1 million policy at age 89 is the sufficient and necessary $690,000 with just 11 years until contract maturity, then the risk charge that year on the resulting $310,000 of *net amount at risk* is a more modest $4,000 per month that is calculated and absorbed into the progression of debits and credits underlying monthly policy administration.

[22] For policies with level death benefits, the Net Amount at Risk equals the policy's stipulated death benefit minus the cash value for any point along the continuum from policy purchase until death. This fundamental design for level premium, lifelong insurance is centuries old and was conceived to affordably manage the disastrously high risk charges at older ages. Policies offering a death benefit equaling both the stipulated policy death benefit *plus* the cash value can cost substantially more since the net amount at risk is constant for all years.

[23] Of course, the opposite might turn out to be true if longer life expectancies become a reality due to medical advances *and* not too many healthy insured lapse their policies.

[24] Monte Carlo analysis in the context of portfolio return analysis is a means of statistically evaluating an unknown future outcome based on numerous random samples of prior experience.

[25] For example, the calculated premium for a 35 year-old insured using a VUL projection rate of 12% is almost 2.5 times *less* than the calculated UL premium using 6%.

[26] "A likely impossibility is always preferable to an unconvincing possibility," Aristotle, "Rhetoric."

[27] *Some Empirical Observations on Term Life Insurance,* Arthur L. Williams The Journal of Risk and Insurance, Vol. 31, No. 3 (Sep., 1964), pp. 445-450

[28] If there is a lifelong need for a death benefit and it is currently in the form of a term policy, the generally available option to convert to a permanent plan must be exercised prior to age 65 or 70. But it must also be considered that the time period during which the term policy was held could have been used to develop and accumulate an asset, resulting in a paid-up or income producing asset, as opposed to an "asset" that is costing money with little opportunity for it to become a true asset in Kiyosaki's definition.

[29] In order to assess the payout ratio of term life insurance, we constructed a model for a twenty-year level term insurance policy on a 45-year-old non-smoking male. The 2001 Valuation Basic Table was used for mortality rates. For lapse rates, we consulted the most recent SOA-LIMRA study on term lapse rates and concluded that a 10% level lapse rate would be reasonable. The results are that approximately 85% of the policy owners lapse their policy before the end of the twenty-year term period, roughly 2.5% collect a death benefit, and the remaining 12.5% survive to the end of the term period. The majority (but not all) of term policy designs in use today have premium rates following the level, guaranteed premium period that are prohibitively high, leaving the 12.5% of persisting policyholders in our example to convert to a permanent plan, find a new plan (term or permanent) at their attained age, or lapse their coverage. Based on a review of renewal term premiums, our loyal policyholder (now age 65) can expect a renewal term rate of about $30 per

$1,000, increasing each year thereafter. For comparison (and somewhat coincidentally), our policy standards indicate that is exactly what a universal life policy, funded to endow at age 100, would cost annually. Our observation is that no one with any other option would choose to continue their term plan at renewal rates like these.

[30] *Rich Dad, Poor Dad,* Robert T. Kiyosaki, Warner Books, 2000.

[31] Federal Reserve Statistical Release, Selected Interest Rates at www.federalreserve.gov

[32] *Ibid.* One-year T-Bills spiked in 1970 to more than 7%, but fell back to a more typical 3% in early 1972. The rest of the decade saw rates seesaw back and forth between 4% and 9% until starting their inflationary climb in earnest by Spring 1977. T-Bills peaked in June 1981 at 16.2% and began a declining trend that reached its lowest rate of 1.01% in June 2003.

[33] *U.S. Individual Life Insurance Sales Trends,* 1975-2006, LIMRA International

[34] *2006 Life Insurers Fact Book,* The American Council of Life Insurers, Washington D.C.

[35] For example, the four major mutual insurance companies have strong financial ratings from A. M. Best Co., Moody's Investors Services, and Standard & Poor's. **Northwestern Mutual Financial Network** (A++, Aaa, AAA); **Guardian Life Insurance Company** (A+, Aa2, AA); **MassMutual Financial Group** (A++, Aa1, AAA); and **New York Life** (A++, Aaa, AAA). In addition they have similar agent-based distribution systems, and similar investment portfolio mixes

[36] The term "Law of Large Numbers" is not a mathematical law in the strictest sense. However, the Law of Large Numbers generally refers to a statistical theorem that multiple observed values of a trial event will converge to its true underlying mean value as the number of trials becomes "large."

[37] Policy Standards are used to demonstrate how modern life insurance policies work without the distraction of one insurance company's non-guaranteed values projections versus another's. In particular, the Policy Standards attempt to:

1) Portray how today's UL and VUL contracts react to various investment/interest returns
2) Measure funding adequacy
3) Demonstrate the interdependence between funding level and policy performance
4) Match a funding level with a confidence that the policy will sustain without lapsing

It is important that an analysis of this type recognizes the following:

1) No particular company's policy can be used, as it may not be reflective of the entire industry at any given time
2) All major carriers' experience for a given rate class and policy type will converge over time
   a. Mortality experience will converge because the underwriting tools are similar
   b. Expenses will be more or less the same for all large carriers
   c. The need for margins is approximately the same
   d. The standards must be updated and tested periodically to reflect current policy design

While certain companies will stress certain elements of policy cost over others, the total "package" of insurer mortality, expenses and margins over the life of a group of similar contracts will be similar. E.g. Company A's cost of insurance rates may be slightly higher than Company B's, whose expense charges are slightly higher than Company A's.

In our policy analysis and standards development, we have tried to focus only on those contracts that are "coverage-oriented" as opposed to "investment-oriented" and are available to the general public by commissioned agents.

The result is to have constructed a policy that is truly a generic policy design that represents an "average" contract for universal life, variable universal life and their survivorship counterparts. We have tended to the conservative in that our target for each policy cost component is between the mean and one standard deviation up from the mean. When the policy standard design is complete, we then test the policy's performance against periodic published studies, such as in the National Underwriter®.

For universal life plans, the current credited interest rate is a part of the basic policy standard.

For variable life sub-account performance, our investment database is taken from the S&P 500™ returns, including dividends, as periodically published by Robert J. Shiller at **http://www.econ.yale.edu/~shiller/**, combined with published Treasury returns.

The Policy Standards database is updated periodically, but no less than once yearly, in order to reflect current policy designs.

[38] 10-year Treasury Rates from 1/1 offerings each year + margin of .75 / original scale of COI & no mortality improvement

[39] The "800 pound gorilla" in consideration of term life insurance is whether or not the insured will be fully insurable at the end of the initial guarantee period. Since this can't be known in advance, we defer to the contractually guaranteed continuation premium of the original term policy. If coverage is available on at least as favorable a basis as the original underwriting, consideration should always be given to initiating a new policy with the understanding that the insured is subject to a new two-year contestable period.

[40] The following chart indicates the percent increase in the 11th / 21st / 31st premium to pay for renewal after the underlying guarantee period has expired for term life insurance:

Initial Age	**10-year Term**	**20-year Term**	**30-year Term**
33-M	1090%	1650%	3150%
43-F	1350%	2025%	3085%
53-M	1530%	3300%	3080%
63-F	1550%	2000%	Not Available

[41] Stipulated or computed average rates of investment return have been assumed to persist without variation, which of course is not realistic. The greater the assumed long-term return in excess of a "safe rate" (i.e. the yield on U.S. Government 10 or 30 year Bonds for long-term rate equivalence), the greater the risk undertaken to produce such returns. 10-year Bonds yielded 4.85% at the beginning of 2007 and 3.85% near the end of the year. Although the yield is guaranteed by the "full faith and credit" of the United States, such Bonds are subject to market value adjustment.

[42] Ibbotson *2006 Stocks, Bonds, Bills & Inflation (SBBI) Yearbook (Valuation Edition)*.

[43] Assumptions: 45-Male in good health; $200,000 current investment portfolio – invested in Mutual Funds with a pre-retirement investment goal/risk tolerance of 8% (4% taxable, 3% realized capital gain, 1% unrealized capital gain) and a post-retirement investment rate of return objective of 5%; Tax rate = 30% (paid out of income, not investment account); long-term life insurance is estimated at $500,000; Life expectancy=89

In both approaches, the consumer considers allocating a total of $15,000 a year into one or the other scheme to better appreciate how best to achieve his goals. In the BTID strategy, cash flows will consist of the $865 yearly term premium and the balance of $14,135 a year into the investment fund. Income and capital gains taxes will be assessed and paid directly from the investment account. These taxes range from $3,533 for year 1 to $19,539 by year 20. In the "buy whole life" strategy, $9,550 is paid each year for a $500,000 whole life policy and the $5,450 balance is invested in an investment fund with the same assumptions as the BTID.

[44] The exclusion ratio for this example is .5081, resulting in approximately half of the annuity payments taxed at ordinary income tax rates (30% assumed).

[45] Virtually all investments – fixed or equity – will have quantifiable risk as to asset value and/or yield volatility over time. For life insurance, the volatility factor is an estimate of the annual volatility in the assets backing the reserves of the various policy types considered. The annual volatility measure selected is the standard deviation in recent historic returns of those underlying assets.

While we recognize that non-investment components – mortality and expense experience – will also affect the actual policy performance of the participating whole life and variable universal life plans, we choose to focus on the investment component alone rather than attempt to reflect these additional risk factors (i.e. the possibility that longer life expectancies might suddenly reverse the trend that has been observed for the last 50 years) for purposes of this analysis.

It is consistent with other work that we have done to assume that large blocks of similarly underwritten policies – by so-called "peer" insurance companies – can be expected to achieve similar mortality experience over time. While mortality experience studied by the Society of Actuaries has demonstrated that mortality experience between even large blocks of business and between companies can vary, there is no way to capture or measure that volatility for purposes of this analysis.

Similarly, it is our contention that the expenses of policy administration are quite consistent among the major "peer" carriers and can be expected to be reasonably predictable in the future. While we recognize that variable universal life may be more expensive to administer in practice, that additional expense is assumed to be reflected in the policy loads, and not a matter of future variability.

For purposes of this analysis, the universal life with a lifetime secondary guarantee is assigned a risk factor of zero. Again, this is reflective of the variability in the non-guaranteed elements of the contract (none, relative to the face amount).

The annual standard deviation in investment grade fixed instruments has been approximately 3% over the past 40 years. To assign a risk factor to a participating whole life, we separate the policy into its guaranteed and non-guaranteed face amounts at life expectancy. From Table 12, the guaranteed portion of the death benefit is $50,000,000, or approximately 40% of the total $124,428,350. The non-guaranteed portion is the other 60%. 60% of the 3% standard deviation produces an overall standard deviation of 1.8%. We use the value of 1.8 to reflect this standard deviation.

Since the funds backing the death benefit of our variable universal life example are assumed to be entirely invested in equities, there is no need for blending. We simply need to measure the standard deviation of the equity sub-accounts. There are a number of ways to measure the annual standard deviation of equity returns. We have calculated the variability of S&P 500™, and our measurements generally produce values between 12% and 16%. We have chosen to assign a risk factor of 15 to the all-equity sub-accounts underlying the proxy for a variable life insurance policy as an estimate of future variability.

[46] *A Study of Real, Real Returns,* Thornburg Investment Management, 2007.

[47] *Ibid.*

[48] *Asset Allocation,* Roger C. Gibson, McGraw Hill 2000. Third Edition.

[49] *Ibid.* Further: An example of potential negative correlation could include certain periods of time when bond prices fall due to lower demand during a period in which equity values are rising (in part because of higher demand). Again in this example, when stock values rise, all things being equal bond prices may fall since there is less demand for them compared to stocks. Correspondingly, when stock values fall, new bond prices may rise as they become a "haven" for those selling out of their stocks. An example of positively correlated assets might be a portfolio in which there are 1000 shares of General Motors and 1000 shares of Ford. While there might be modest diversification in the case of "bad press" about one or the other, market forces such as inflation spikes, labor union resolutions, and steel shortages are likely to affect *both* companies in the same way.

[50] Fidelity Investments states "... Strategic Advisers created four [target asset mixes] based on historical risk and return characteristics for the asset classes listed below. Each target asset mix offers different asset allocations, which are designed to provide optimal risk/return tradeoffs for each of the four different mixes listed on this investment spectrum."

Conservative:	For investors who want to stress the preservation of their capital and can accept lower returns in exchange for more price stability: 20% stock (20% domestic / 0% foreign) 50% Bonds 30% Short-term investments
Balanced:	Investors who want the potential for capital appreciation and some growth, and who can withstand moderate fluctuation in market values: 50% stock (45% domestic / 5% foreign) 40% Bonds 10% Short-term investments

Growth: Investors who have a preference for growth and who can withstand significant fluctuation in market values:

70% stock (60% domestic / 10% foreign)
25% Bonds
5% Short-term investments

Aggressive Growth: Investors who seek growth and who can tolerate wide fluctuation in market values, especially over the short term:

85% stock (70% domestic / 15% foreign)
15% Bonds
0% Short-term investments

[51] A similar analysis was employed with the use of Par WL, UL, NLG-UL, and VUL with similar risk characteristics for the non-guaranteed portion of a policy. The life insurance policy values used in this section are Par WL, which produced the best projected results of the various policy styles.

[52] "Asset Allocation: Balancing Financial Risk," Third Edition, by Roger C. Gibson, McGraw Hill, 1996; page 8.

[53] 33-M-NSP

[54] The linkage of the accumulation of cash value and the potential for increasing death benefit over time exists in Participating WL because of the possibility that the insurer's investment return above its cash value guarantee will provide an opportunity for a declared dividend, which in turn spawns the purchase of paid up additions and increased Death Benefit. Universal life (both traditional and variable) may experience increased death benefits due to IRC Sec. 7702. This Section requires an age-based ratio of death benefit to cash value, and when policy cash values approach the death benefit, the required "corridor" of death benefit will rise accordingly. Unlike participating whole life, however, when the underlying asset value of the sub-accounts decline in a "down" market, previous death benefit increases may reverse back to the stipulated policy amount, since "corridored" death benefits fluctuate with the account (cash) value.

[55] *Segmenting Today's Investors,* Bill Doyle, Forrester Research, March 31, 2006.

[56] *ibid.*