



SOCIETY OF ACTUARIES

Article from:

# News Direct Newsletter

May 2002 – Issue No. 40



## Direct Insurance Sales Using Microeconomics

by Robert E. Winawer

*Editor's Note: This excellent and timely paper will be published in its entirety over the next three issues of NewsDirect.*

### Section One: Introduction

**D**irect response has become an attractive alternative to traditional distribution for many insurers because of the added control over the sales process and ownership of the customer subsequent to sale. These advantages are weighed against the costs, efforts, and risks of direct response.

The greatest risk in direct response is that most of the acquisition costs are incurred before the policy is sold. First, the cost of generating lists of prospective consumers by gaining access to affiliated groups, advertising in mass media, or by purchasing names from third parties is incurred. Then, the cost to close sales either by mail, phone, or the Internet is incurred. Finally, the policy is underwritten, issued, and mailed to the policyholder.<sup>1</sup> Spending money before it is certain that the policy will be sold makes the financial risk in the sales process greater than in



continued on page 6

## Chairperson's Corner Looking Ahead

by Mike Fix

**A**s I begin to write this article, my first as the Chairperson of the Non-Traditional Marketing Section, I can think of so many things to pass along to you, the readers of our publication, *NewsDirect*.

I must first thank my predecessor chairperson, Jim Smith, for his contributions to the council and his leadership for the past years. Thanks also to Steve Ostlund who has completed his term of service on the council. He has helped to make our Council and our Section better.

We have added three new members, and I welcome them to the Council: Diane McGovern, Paul LaPorte, and Steve Konnath, who was re-elected after serving a partial term. I am sure they will find their volunteer efforts very rewarding.

We are a Section that is proud to have an active and involved Friends of the Council. Many of these fine people have been members of the council in the past and continue to graciously offer their services to our members and to the actuarial profession as a whole.

I encourage all readers to volunteer in any of a number of ways to help with Section activities. In each of my

continued on page 2, top

### IN THIS ISSUE

**1 Chairperson's Corner**

by Mike Fix

**1 Direct Insurance Sales Using Microeconomics**

by Robert E. Winawer

**3 New Credit Life Insurance Valuation Standard in the Making**

by Steven L. Ostlund

**4 Editor's Corner**

by Christopher H. Hause

**14 The 2nd Annual Product Development Actuary Symposium & Special NTM Seminar**

by Jay M. Jaffe

**15 NTM Section Council Meets to Discuss Activities and Future**

**16 Nontraditional Marketing Sessions at SOA Meeting in Colorado**

**19 Summaries of Boston NTMS Sessions**

**Direct Insurance Sales...**

from page 1

traditional distribution. This underlies the importance of efficient use of capital for direct-marketed insurance. In fact, the primary goal of direct sales management is to allocate capital in a way that maximizes profits in relation to risks taken.

This essay shows how to allocate capital efficiently for a subset of direct sales management called solicitation management (SM) by using the microeconomic marginal cost/ marginal revenue paradigm (MC/MR). SM focuses on closing sales. In this stage of the company's decision making process, it is assumed that premium rates have already been set and a list of consumers has already been generated or procured. The decisions to be made are to whom to sell, and how much to spend to close each sale.

The MC/MR paradigm can help a company make SM decisions in light of several competing forces. The company may expect to increase sales volume either by spending more capital or by using that capital more efficiently. Conversely, as the company progressively spends more to close each sale, profits per sale will be forced downward. On the other hand, profits per sale can be bolstered if the unit solicitation, production, and delivery costs decrease because of economies

of scale. However, it is unlikely that economy of scale gains will continue indefinitely; eventually, producing at full capacity will result in diminishing returns.

Unfortunately, applying the MC/MR paradigm to insurance SM is not as straightforward as it is in industries involving manufactured products such as toys or cars. For manufactured products, management is directed to expand sales by incurring proportionately more acquisition expense until the increase in aggregate acquisition expenses and production costs associated with the last (least profitable) sale equals the increase in aggregate revenue from that last sale. The change in aggregate acquisition expense associated with each sale is called the marginal acquisition cost. Marginal production cost and marginal revenue are defined similarly. In most microeconomics texts, marginal acquisition costs and marginal production costs are bundled together and called simply marginal costs. Management's goal is to expand sales until marginal costs equal marginal revenue, which means that net profit from that last sale is zero.

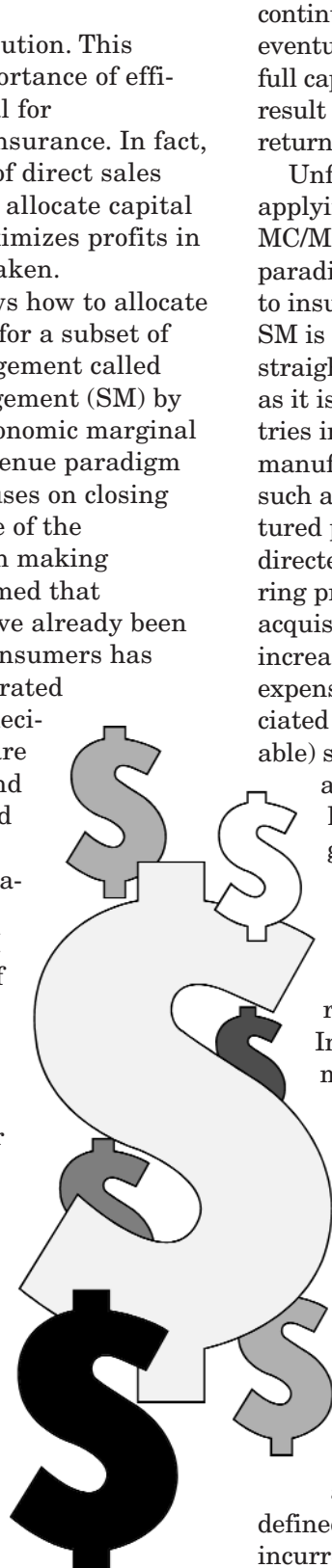
Applying the paradigm to direct response insurance solicitations, marginal acquisition expenses may be defined as the additional expense incurred to make the sale, underwrite, and issue the policy. Marginal production costs and marginal revenue are both more nebulous. Insurance production costs (admin-

istrative expenses and contractual obligations) and revenue (premiums and investment income) continue for several years after the sale, adding risk as well as complication to insurance SM. The insurer must find a way to define marginal production costs and revenue before the MC/MR paradigm may be applied.

This paper demonstrates that embedded value of new business (VNB) using the Embedded Value framework is the most appropriate way to quantify marginal production costs and revenue. VNB also includes marginal acquisition costs. It is defined as the present value of profits available to shareholders using a risk discount rate (RDR). RDRs are based on organizational risk tolerance and reflect uncertainty of closing the sale and subsequent profits. The RDR may be viewed as an explicit risk penalty in the VNB formula. A higher RDR produces a lower VNB, all else equal.

VNB measures marginal risk-adjusted revenue, production costs, and acquisition costs combined. Hence, management is directed to increase marginal acquisition costs until they exceed marginal revenue less marginal production costs; that is to say, until VNB is zero. This is equivalent to the traditional MC/MR paradigm which dictates that the net profits from the last (least profitable) sale is zero. This may seem to be a change in focus from the MC/MR paradigm because production costs have been combined with revenue, rather than with acquisition costs as most Microeconomics texts do. However, the end result remains—net profits from the last (least profitable) sale are zero.

The use of a case example that is described in the subsequent installments of this essay, explains how



insurers can implement the MC/MR paradigm to make superior capital allocation decisions. The process is implemented in stages for clarity.

- Section 3 shows how insurers can improve SM decisions by focusing on marginal acquisition expenses rather than full or average costs. It is assumed that the insurer is using the industry's most common risk/reward threshold to make SM decisions rather than VNB. This section takes the first step toward applying the MC/MR paradigm by changing the measurement of acquisition costs without changing the measurement of production costs or revenue (i.e. the risk/reward threshold).
- Section 4 shows how some insurers have the opportunity to improve SM by making more granular risk/reward decisions, even if they do not use VNB. While the premise of this section is useful taken alone, the purpose of this section is to introduce a level of complexity that is needed to show why VNB should be used in the MC/MR paradigm.
- In Section 5 it is asserted that by replacing the risk/reward threshold that is most commonly used in the industry with VNB, every insurer can be assured that total risk-adjusted profits will be maximized. This section completes the application of the MC/MR paradigm.
- Finally, Section 6 provides a brief recapitulation and conclusions are drawn. Based on the case example constructed for this essay, the tools introduced in Section 3 produce the greatest gain in risk-adjusted profits. The tools used in Section 4 also produce significant additional risk-adjusted profits. However,

the tools introduced in Section 5 do not increase risk-adjusted profits substantially. This will likely be the result when only one product is being analyzed as is done in this essay. As we will discuss in Section 6, using VNB will improve results more dramatically when several products are offered. There are also non-financial merits of using VNB, such as improved communication, which will be discussed as well.

As stated previously, the scope of this paper is limited to the application of the MC/MR paradigm to SM. Appendix 1 gives suggestions on how the principles discussed in this

citizens' final expenses. Premiums are unisex, as it is desirable to have direct response solicitations with premium structures that are easy for the consumer to understand. Full details underlying the list of consumers and the product sold are shown in Appendices 2 and 3.

In the next installment, the ratio of costs to premiums is used as the risk/reward threshold. This means that the company decides to send solicitations to particular segments of their list of consumers based on the anticipated ratio of acquisition costs to issued and paid premium (Cost-to-Premium, or C-to-P). This C-to-P threshold is based on the most restrictive of two asset share pricing criteria (1) 8% profit margin

**“Premiums are unisex, as it is desirable to have direct response solicitations with premium structures that are easy for the consumer to understand.”**

essay can be applied to other decisions that face direct response insurers.

**Section Two: Description of Case Study**

A hypothetical case study of three consecutive solicitations to a list of 4,000,000 consumers is used to illustrate concepts throughout the essay. After each solicitation, people who have purchased insurance are taken off the list. It is assumed that actual responses equal anticipated. In Example 1, shown on a following page, there are 3,987,000 consumers remaining after the first solicitation (4,000,000 – 3,987,000 = 13,000 responded to the first solicitation) and 3,978,032 remaining after the second (3,987,000 – 3,978,032 = 8,968 responded to the second solicitation).

The product offered is small face amount whole life insurance designed to meet the needs of senior

and (2) 15% return on investment (ROI). In Section 5, VNB is used as the risk/reward threshold rather than C-to-P.

Profit margin is defined as the present value of statutory profits divided by the present value of premiums discounted at the investment earnings rate. Profit margin may be thought of as an average profit over the pricing period, expressed as a percent of premium.

ROI is the discount rate at which the present value of shareholder profits is equal to zero. Shareholder profits are the profits that are available to the owner, defined as statutory profits adjusted for target surplus. ROI is synonymous with the term internal rate of return that is commonly used for financial analysis.

VNB is the present value of shareholder profits using a 10% RDR. It is also used as the definition

**Direct Insurance Sales...**

from page 7

of risk-adjusted profits in this essay. The SM risk/reward threshold is that VNB must be greater than zero.

In this essay, success is measured in terms of risk-adjusted profits. They are defined as the present value of shareholder profits at the 10% RDR. Risk-adjusted profits are a convenient way to measure the worth of any sale, venture, or even block of inforce policies. Management's goal is to maximize risk-adjusted profits as this measures their improvement to total company value.

It is important to note that VNB is defined with the goal of maximizing risk-adjusted profits in mind. VNB is equal to the increase in total company risk-adjusted profits caused by a specific sale. The SM tools discussed in this essay make use of this important relationship between VNB and risk-adjusted profits. If success is measured in terms of risk-adjusted profits, then sales should be measured in terms of risk-adjusted profits as well. Therefore, VNB is the best measure of a sale's worth.

In the next installment: *Improving Solicitation Management: Marginal Costs and the Value of New Business*

*Rob Winawer is with Sage Insurance Group in Stamford, Connecticut. He can be reached at 203/602-6506 or by e-mail at Rwinawer@sageusa.com*

**Footnotes**

- 1) In certain circumstances, these steps are shortened. For example, a bank that offers insurance to depositors incurs no cost to generate the list of prospective policyholders.
- 2) Chalke, Shane A., TSA xLIII, 1991.

**Appendix 1: Further Work/Extended Application**

This essay advocated using the MC/MR microeconomic paradigm with VNB as a proxy for marginal revenue and production costs to make SM decisions. The same paradigm can and should be applied to each step in the direct response insurance marketing and sales process.

- In "Macro Pricing: A Comprehensive Product Development Process," Chalke introduces an algorithm based on the MC/MR paradigm to set premium rates.<sup>2</sup> Using VNB as the utility measure for alternative ventures can enhance this algorithm.
- The MC/MR paradigm with VNB can be used to evaluate consumer list generation proposals. Management needs only to develop a model of their company's network of solicitations such as was used in this essay and compare the total VNB that results under each proposal. An important subsidiary exercise is to assign a value to each name on the list of potential customers. This value is simply equal to the VNB of all anticipated future sales to that person times the probability of each sale.
- The application of the MC/MR paradigm with VNB to SM involving lists of prospective consumers who have not yet purchased insurance was discussed in this essay. The same principles apply when evaluating policyholder-marketing campaigns. In fact, it is best to include VNB from anticipated future policyholder-marketing efforts with the VNB from the initial sale when evaluating initial policy acquisition expenses. Otherwise the value of the initial sale will be understated and management will be directed to spend less to acquire policies than is appropriate. Both sales and profits will fall short of their potential maximum.

It is clear that the techniques discussed in this essay marginal acquisition expense SM decisions, refined analysis, and using value of new business in the MC/MR paradigm are well worth consideration for a wide variety of financial decisions.

\*\* Editor's Note: Please look to the next several pages as they contain supporting charts and tables for this article.

EXAMPLE 1: COMPARISON OF FOUR BASIC DECISION CRITERIA

	First Offer with Fixed Costs	Average of All Offers with Fixed Costs	Average of All Offers without Fixed Costs	Last Offer without Fixed
<b>List Generation</b>	Formulas	Formulas	Formulas	Formulas
	Values	Values	Values	Values
1. Fixed Costs	\$3,000,000	\$3,000,000	\$3,000,000	\$3,000,000
2. Names Generated	4,000,000	4,000,000	4,000,000	4,000,000
<b>Offer 1 Anticipated Costs &amp; Sales</b>				
3. Marginal Costs	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000
4. # Mailed	4,000,000	4,000,000	4,000,000	4,000,000
5. Response Rate	0.325%	0.325%	0.325%	0.325%
6. # Issued	13,000	13,000	13,000	13,000
7. Avg Premium	\$284.46	\$284.46	\$284.46	\$284.46
8. Premium Issued	\$3,698,000	\$3,698,000	\$3,698,000	\$3,698,000
<b>Decision Criteria</b>				
9. Costs Included	1+3.	1+3.	3.	3.
10. Premium Included	8.	8.	8.	8.
11. C-to-P	9/10.	9/10.	9/10.	9/10.
12. Threshold C-to-P	135.21%	135.21%	54.08%	54.08%
Decision	Offer 1 Not Acceptable, Do Not Consider Offer 2	Offer 1 Not Acceptable, Consider Offers 1&2	Offer 1 Acceptable, Consider Offers 1&2	Offer 1 A
<b>Offer 2 Anticipated Costs &amp; Sales</b>				
13. Marginal Costs	\$1,993,500	\$1,993,500	\$1,993,500	\$1,993,500
14. # Mailed	3,987,000	3,987,000	3,987,000	3,987,000
15. Response Rate	0.225%	0.225%	0.225%	0.225%
16. # Issued	8,969	8,969	8,969	8,969
17. Avg Premium	\$293.11	\$293.11	\$293.11	\$293.11
18. Premium Issued	\$2,628,756	\$2,628,756	\$2,628,756	\$2,628,756
<b>Decision Criteria</b>				
19. Costs Included	1+3+13.	3+13.	13.	13.
20. Premium Included	8+18.	8+18.	18.	18.
21. C-to-P	19/20.	19/20.	19/20.	19/20.
22. Threshold C-to-P	110.84%	63.12%	75.63%	75.63%
Decision	Offers 1&2 Acceptable, Consider Offers 1,2&3	Offers 1&2 Acceptable, Consider Offers 1,2&3	Offers 1&2 Acceptable, Consider Offers 1,2&3	Offer 2 A
<b>Offer 3 Anticipated Costs &amp; Sales</b>				
23. Marginal Costs	\$1,989,016	\$1,989,016	\$1,989,016	\$1,989,016
24. # Mailed	3,978,032	3,978,032	3,978,032	3,978,032
25. Response Rate	0.125%	0.125%	0.125%	0.125%
26. # Issued	4,968	4,968	4,968	4,968
27. Avg Premium	\$315.72	\$315.72	\$315.72	\$315.72
28. Premium	\$1,568,504	\$1,568,504	\$1,568,504	\$1,568,504
<b>Decision Criteria</b>				
29. Costs Included	1+3+13+23.	3+13+23.	3+13+23.	23.
30. Premium Included	8+18+28.	8+18+28.	8+18+28.	28.
31. C-to-P	29/30.	29/30.	29/30.	29/30.
32. Threshold C-to-P	120.00%	120.00%	120.00%	120.00%
Decision	Send No Offers	Send Offers 1,2&3	Send Offers 1,2&3	Send Offers 1&2
<b>Final Decision Profit Statistics</b>				
Conclusion	1.	1+3+13+23.	1+3+13+23.	1+3+13.
Cost	\$3,000,000	\$8,982,516	\$8,982,516	\$6,993,500
Premium	\$0	\$7,895,260	\$7,895,260	\$6,326,756
Margin	N/A	8.95%	8.95%	9.45%
ROI	N/A	19.94%	19.94%	21.33%
Risk Adjusted Profits	(\$1,950,000)	\$1,939,523	\$1,939,523	\$1,672,647

Direct Insurance Sales...

from page 9

EXAMPLE 2: COMPARISON OF AGESEX DISTINCT C-TO-P TO AGGREGATE C-TO-P DECISIONS

Refined C-to-P Decisions Based on Age & Sex									
Formulas for A,B,C&D	A. Male Age 50 Values	B. Female Age 50 Values	C. Male Age 65 Values	D. Female Age 65 Values	Formulas	Combined Values	Formulas	Values	Formulas
1. Fixed Costs 2. Names Generated	\$750,000 1,000,000	\$750,000 1,000,000	\$750,000 1,000,000	\$750,000 1,000,000	A+B+C+D A+B+C+D	\$3,000,000 4,000,000	A+B+C+D A+B+C+D	\$3,000,000 4,000,000	Form
3. Marginal Costs	500,000 1,000,000	500,000 1,000,000	500,000 1,000,000	500,000 1,000,000	B+C+D B+C+D B+C+D B+C+D	1,500,000 3,000,000	B+C+D B+C+D B+C+D B+C+D	2,000,000 4,000,000	4+5
4. # Mailed	0.250%	0.250%	0.400%	0.400%		0.320%		0.325%	
5. Response Rate	2,500	2,500	4,000	4,000		10,500		13,000	
6. # Issued	\$180,000	\$180,000	\$349,75	\$349,75		\$284,46		\$284,46	
7. Avg Premium	450,000	450,000	1,399,000	1,399,000		3,248,000		3,698,000	6+7
8. Premium Issued									
9. Decision Criteria	Offer 1 Marginal Costs	Offer 1 Marginal Costs	Offer 1 Marginal Costs	Offer 1 Marginal Costs		N/A		\$2,000,000	
10. Costs Included	\$500,000	\$500,000	\$500,000	\$500,000	3.	\$1,500,000	8.	\$3,698,000	3.
11. C-to-P	\$450,000	\$450,000	\$1,399,000	\$1,399,000	8.	\$3,248,000	9/10.	\$4,088	8.
12. Threshold C-to-P	111.11%	137.00%	35.74%	60.00%	9/10.	N/A		120.00%	9/10.
Decision	Offer 1 Not Acceptable, Do Not Consider Offer 2	Offer 1 Acceptable, Consider Offer 2	Offer 1 Acceptable, Consider Offer 2	Offer 1 Acceptable, Consider Offer 2		N/A			11 < 12 ?
13. Marginal Costs	498,750	498,750	498,000	498,000	C+D	996,000	C+D	1,993,500	16+17
14. # Mailed	0.150%	0.150%	0.300%	0.300%		0.300%		0.225%	
15. Response Rate	1,496	1,496	2,988	2,988		5,976		8,969	14+15
16. # Issued	\$180,000	\$180,000	\$349,75	\$349,75		\$293,11		\$293,11	
17. Avg Premium	269,325	269,325	1,045,053	1,045,053		2,090,106		2,628,756	
18. Premium Issued									
Decision Criteria	Offer 2 Marginal Costs	Offer 2 Marginal Costs	Offer 2 Marginal Costs	Offer 2 Marginal Costs		N/A		\$1,993,500	
19. Costs Included	\$498,750	\$498,750	\$1,045,053	\$1,045,053	13.	\$2,090,106	18.	\$2,628,756	13.
20. Premium Included	\$269,325	\$269,325	1,045,053	1,045,053	18.	2,090,106	19/20.	75,839	18.
21. C-to-P	185.19%	137.00%	47.65%	60.00%	19/20.	N/A		120.00%	19/20.
22. Threshold C-to-P									
Decision	21 < 22 ?								
23. Marginal Costs	496,506	496,506	496,506	496,506	D.	496,506	D.	1,989,016	
24. # Mailed	0.200%	0.200%	0.200%	0.200%		0.200%		0.125%	
25. Response Rate	1,986	1,986	1,986	1,986		1,986		4,968	
26. # Issued	\$349,75	\$349,75	\$349,75	\$349,75		\$349,75		\$315,72	24+25
27. Avg Premium	694,612	694,612	694,612	694,612		694,612		1,568,504	26+27
28. Premium									
Decision Criteria									
29. Costs Included	\$496,506	\$496,506	\$496,506	\$496,506	23.	\$1,989,016	28.	\$1,568,504	23.
30. Premium Included	\$694,612	\$694,612	\$694,612	\$694,612	28.	\$1,568,504	29/30.	126,81%	28.
31. C-to-P	71.48%	60.00%	71.48%	71.48%	29/30.	N/A		120.00%	29/30.
32. Threshold C-to-P									
Decision	31 < 32 ?								
Final Decision Profit Statistics	Conclusion								
	Cost	\$1,250,000	\$1,748,000	\$2,444,053	A+B+C+D	\$5,992,506	A+B+C+D	\$6,993,500	1+3+13.
	Premium	\$450,000	\$2,444,053	\$3,138,665	A+B+C+D	\$6,032,718	A+B+C+D	\$6,326,756	8+18.
	Margin					11.83%		9.45%	
	ROI					31.89%		21.33%	
	Risk Adjusted Profits					\$2,414,131		\$1,672,647	

**List Generation**  
1. Fixed Costs  
2. Names Generated

**Offer 1 Anticipated Costs & Sales**  
3. Marginal Costs  
4. # Mailed  
5. Response Rate  
6. # Issued  
7. Avg Premium  
8. Premium Issued

**Decision Criteria**  
9. Costs Included  
10. Premium Included  
11. C-to-P  
12. Threshold C-to-P  
Decision

**Offer 2 Anticipated Costs & Sales**  
13. Marginal Costs  
14. # Mailed  
15. Response Rate  
16. # Issued  
17. Avg Premium  
18. Premium Issued

**Decision Criteria**  
19. Costs Included  
20. Premium Included  
21. C-to-P  
22. Threshold C-to-P  
Decision

**Offer 3 Anticipated Costs & Sales**  
23. Marginal Costs  
24. # Mailed  
25. Response Rate  
26. # Issued  
27. Avg Premium  
28. Premium

**Decision Criteria**  
29. Costs Included  
30. Premium Included  
31. C-to-P  
32. Threshold C-to-P  
Decision

**Final Decision Profit Statistics**  
Conclusion  
Cost  
Premium  
Margin  
ROI  
Risk Adjusted Profits

EXAMPLE 3: SM DECISIONS WITH VNB AND MARGINAL COSTS

	A. Male Age 50	B. Female Age 50	C. Male Age 65	D. Female Age 65	
<b>List Generation</b>	Formulas	Formulas	Formulas	Formulas	Values
1. Fixed Costs	\$750,000	\$750,000	\$750,000	\$750,000	\$3,000,000
2. Names Generated	1,000,000	1,000,000	1,000,000	1,000,000	4,000,000
	+	+	+	+	
<b>Offer 1 Anticipated Costs &amp; Sales</b>					
3. Marginal Costs	\$500,000	\$500,000	\$500,000	\$500,000	\$2,000,000
4. # Mailed	1,000,000	1,000,000	1,000,000	1,000,000	4,000,000
5. Response Rate	0.250%	0.400%	0.400%	0.400%	0.325%
6. # Issued	2,500	2,500	4,000	4,000	13,000
7. Avg Premium	\$180,000	\$180,000	\$349,75	\$349,75	\$284,46
8. Premium Issued	\$450,000	\$450,000	\$1,399,000	\$1,399,000	\$3,696,000
<b>Decision Criteria</b>					
9. Costs Included	Marginal Costs	Marginal Costs	Marginal Costs	Marginal Co.	
10. Premium Included	\$450,000	\$450,000	\$1,399,000	\$1,399,000	\$2,000,000
11. VNB @ 10%	\$29,315	\$156,124	\$620,891	\$620,891	\$3,696,087
12. Threshold VNB	\$0	\$0	\$0	\$0	N/A
<b>Decision</b>	11. < 12. ?	11. < 12. ?	11. < 12. ?	11. < 12. ?	
	Offer 1 Acceptable, Consider Offer 2.	Offer 1 Acceptable, Consider Offer 2.	Offer 1 Acceptable, Consider Offer 2.	Offer 1 Acceptable, Consider Offer 2.	
	→	→	→	→	
<b>Offer 2 Anticipated Costs &amp; Sales</b>					
13. Marginal Costs	\$498,750	\$498,750	\$498,000	\$498,000	\$498,000
14. # Mailed	997,500	997,500	996,000	996,000	996,000
15. Response Rate	0.150%	0.150%	0.300%	0.300%	0.300%
16. # Issued	1,496	1,496	2,998	2,998	2,998
17. Avg Premium	\$180,000	\$180,000	\$349,75	\$349,75	\$349,75
18. Premium Issued	\$269,325	\$269,325	\$1,045,053	\$1,045,053	\$1,045,053
<b>Decision Criteria</b>					
19. Costs Included	Marginal Costs	Marginal Costs	Marginal Costs	Marginal Co.	
20. Premium Included	\$498,750	\$498,750	\$1,045,053	\$1,045,053	\$498,000
21. VNB @ 10%	(\$111,241)	(\$36,346)	\$383,537	\$1,107,131	\$1,107,131
22. Threshold VNB	\$0	\$0	\$0	\$0	N/A
<b>Decision</b>	21. < 22. ?	21. < 22. ?	21. < 22. ?	21. < 22. ?	
	Offer 2 NOT Acceptable, DO Not Consider Offer 3.	Offer 2 NOT Acceptable, DO Not Consider Offer 3.	Offer 2 Acceptable, Consider Offer 3.	Offer 2 Acceptable, Consider Offer 3.	
	→	→	→	→	
<b>Offer 3 Anticipated Costs &amp; Sales</b>					
23. Marginal Costs	\$496,506	\$496,506	\$496,506	\$496,506	\$496,506
24. # Mailed	993,012	993,012	993,012	993,012	993,012
25. Response Rate	0.200%	0.200%	0.200%	0.200%	0.200%
26. # Issued	1,986	1,986	1,986	1,986	1,986
27. Avg Premium	\$349,75	\$349,75	\$694,612	\$694,612	\$694,612
28. Premium	\$694,612	\$694,612	\$694,612	\$694,612	\$694,612
<b>Decision Criteria</b>					
29. Costs Included	\$496,506	\$496,506	\$496,506	\$496,506	\$496,506
30. Premium Included	\$694,612	\$694,612	\$694,612	\$694,612	\$694,612
31. VNB @ 10%	\$1,481	\$1,481	\$629,026	\$629,026	\$629,026
32. Threshold VNB	\$0	\$0	\$0	\$0	N/A
<b>Decision</b>	31. < 32. ?	31. < 32. ?	31. < 32. ?	31. < 32. ?	
	Send Offer 1	Send Offer 1, 2&3	Send Offer 1, 2&3	Send Offer 1, 2&3	
	→	→	→	→	
<b>Final Decision Profit Statistics</b>					
Conclusion	1+ 3.	1+ 3+ 13+ 23.	1+ 3+ 13+ 23.	1+ 3+ 13+ 23.	A+ B+ C+ D.
Cost	\$450,000	\$1,250,000	\$2,244,506	\$2,244,506	\$7,177,330
Premium	\$450,000	\$450,000	\$3,138,665	\$3,138,665	\$11,069,012
Margin					
ROI					
Risk Adjusted Profits					

**List Generation**  
 1. Fixed Costs  
 2. Names Generated

**Offer 1 Anticipated Costs & Sales**  
 3. Marginal Costs  
 4. # Mailed  
 5. Response Rate  
 6. # Issued  
 7. Avg Premium  
 8. Premium Issued

**Decision Criteria**  
 9. Costs Included  
 10. Premium Included  
 11. VNB @ 10%  
 12. Threshold VNB

**Decision**  
 11. < 12. ?  
 Offer 1 Acceptable, Consider Offer 2.

**Offer 2 Anticipated Costs & Sales**  
 13. Marginal Costs  
 14. # Mailed  
 15. Response Rate  
 16. # Issued  
 17. Avg Premium  
 18. Premium Issued

**Decision Criteria**  
 19. Costs Included  
 20. Premium Included  
 21. VNB @ 10%  
 22. Threshold VNB

**Decision**  
 21. < 22. ?  
 Offer 2 NOT Acceptable, DO Not Consider Offer 3.

**Offer 3 Anticipated Costs & Sales**  
 23. Marginal Costs  
 24. # Mailed  
 25. Response Rate  
 26. # Issued  
 27. Avg Premium  
 28. Premium

**Decision Criteria**  
 29. Costs Included  
 30. Premium Included  
 31. VNB @ 10%  
 32. Threshold VNB

**Decision**  
 31. < 32. ?  
 Send Offer 1  
 Send Offer 1, 2&3



Direct Insurance Sales...

from page 11

Age 50		Male		Female		Combined	
Average Premium	\$180.00	\$180.00	\$180.00	\$180.00	\$180.00	\$180.00	\$180.00
Profit Margin	3.86%	13.64%	8.83%	8.83%	8.83%	8.83%	8.83%
ROI	9.77%	21.02%	14.99%	14.99%	14.99%	14.99%	14.99%
VNB @ 10%	(\$6)	\$267	\$261	\$261	\$261	\$261	\$261
Total Profits	\$714	\$1,414	\$2,128	\$2,128	\$2,128	\$2,128	\$2,128

Age 50		Male		Female		Combined	
Average Premium	\$349.75	\$349.75	\$349.75	\$349.75	\$349.75	\$349.75	\$349.75
Profit Margin	21.00%	15.15%	8.04%	8.04%	8.04%	8.04%	8.04%
ROI	647.00%	34.77%	18.13%	18.13%	18.13%	18.13%	18.13%
VNB @ 10%	(\$115)	\$563	\$448	\$448	\$448	\$448	\$448
Total Profits	\$437	\$1,778	\$2,215	\$2,215	\$2,215	\$2,215	\$2,215

Age 50		Male		Female		Combined	
Average Premium	60.00%	173.00%	120.00%	120.00%	120.00%	120.00%	120.00%
Profit Margin	8.07%	8.85%	8.04%	8.04%	8.04%	8.04%	8.04%
ROI	46.92%	15.07%	18.13%	18.13%	18.13%	18.13%	18.13%

Age 50		Male		Female		Combined	
Average Premium	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Profit Margin	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
ROI	149625.00%	149625.00%	149625.00%	149625.00%	149625.00%	149625.00%	149625.00%

Age 50		Male		Female		Combined	
Average Premium	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Profit Margin	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
ROI	298800.00%	298800.00%	298800.00%	298800.00%	298800.00%	298800.00%	298800.00%

Age 50		Male		Female		Combined	
Average Premium	\$296.25	\$296.25	\$296.25	\$296.25	\$296.25	\$296.25	\$296.25
Profit Margin	-0.44%	16.24%	7.99%	7.99%	7.99%	7.99%	7.99%
ROI	5.32%	57.28%	28.69%	28.69%	28.69%	28.69%	28.69%
VNB @ 10%	(\$50)	\$418	\$368	\$368	\$368	\$368	\$368
Total Profits	\$70	\$633	\$703	\$703	\$703	\$703	\$703

**Pricing Statistics**

Average Premium  
Profit Margin  
ROI  
VNB @ 10%  
Total Profits

**Threshold C-to-P Ratios**

Threshold C-to-P  
Profit Margin  
ROI

**Response Rates**

Offer 1  
Offer 2  
Offer 3

**Other Solicitation Program Assumptions**

List Fee or Cost to Acquire Each Potential Consumer Name: \$0.75  
Cost to Produce & Mail Each Solicitation Package: \$0.50

**APPENDIX 3B: FIVE YEAR TERM INSURANCE PRICING STATISTICS**

**Pricing Statistics**

Average Premium  
Profit Margin  
ROI  
VNB @ 10%  
Total Profits

Age 65		Male		Female		Combined	
Average Premium	\$296.25	\$296.25	\$296.25	\$296.25	\$296.25	\$296.25	\$296.25
Profit Margin	-0.44%	16.24%	7.99%	7.99%	7.99%	7.99%	7.99%
ROI	5.32%	57.28%	28.69%	28.69%	28.69%	28.69%	28.69%
VNB @ 10%	(\$50)	\$418	\$368	\$368	\$368	\$368	\$368
Total Profits	\$70	\$633	\$703	\$703	\$703	\$703	\$703

**APPENDIX 2: SAMPLE PRODUCT PRICING ASSUMPTIONS**

**Sample Products and Issue Ages**

Whole Life Insurance - Issue Ages 50 & 65  
 Five Year Term Insurance - Issue Age 65

**Unisex Gross Premium (per \$1,000 Insurance)**

Whole Life Issue Age 50	\$36.00
Whole Life Issue Age 65	\$69.95
Five Year Term Issue Age 65	\$59.25

**Reserves and Nonforfeiture Values**

Whole Life Cash Values: 1980 SNFL Minimum, 80CSO M/F ALB Ultimate Table, 5.75%  
 Five Year Term Cash Values: None  
 Whole Life & Five Year Term Statutory Reserves: CRVM 80CSO M/F ALB Ultimate Table, 4.50%  
 Whole Life & Five Year Term Tax Reserves: Equal to Statutory  
 Whole Life & Five Year Term Target Surplus: 5% of Statutory Reserves

**Mortality**

Whole Life & Five Year Term: 90% of 6570 M/F ALB Ultimate Table

**Withdrawals**

Applies to both Whole Life & Five Year Term:

<u>Duration</u>	<u>Issue Age 50</u>	<u>Issue Age 65</u>
1	60.00%	30.00%
2	25.00%	15.00%
3-4	10.00%	7.00%
5	8.00%	5.00%
6+	4.00%	3.50%

**Expenses**

Applies to both Whole Life & Five Year Term:  
 % Premium at Issue Marketing: 120.00% (Varies by Sales Program)  
 Per Policy at Issue Underwriting: \$20.00  
 Annual Per Policy Maintenance: \$10.00 with 3.00% Inflation  
 Annual % Premium Collected: 3.25%

**Federal Income Tax**

Applies to both Whole Life & Five Year Term:  
 Corporate Tax Rate: 35%  
 DAC Tax: 7.7% of Premium Collected, Amortized Over 10 Years

**Timing of Cash Flows**

Applies to both Whole Life & Five Year Term:  
 Premiums, Maintenance Expenses and Withdrawals: Annually  
 Deaths: Monthly  
 Marketing Program Costs Incurred at Issue  
 No Time Lag Between Marketing Programs