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[Paper Reducing Project](#)

By Glenda Channel (*NAIC/SSO*)

The NAIC Standard Reporting Formats Working Group of the Blanks (EX4) Task Force has undertaken a project that asks states to forgo printed copies of several supplemental filings that can be accessed through the NAIC database. This article provides a summary of the states that participate in this project and the supplemental filings that are included.



[Consistency in Company Reserve Assumptions Relative to
Equity-Indexed Annuities](#)

By Mark Peavy (*NAIC/SSO*)

This article provides a very brief discussion of Actuarial Guidelines ZZZ - The Application of the Commissioners Annuity Reserve Method of Equity-Indexed Annuities. A survey that was completed by companies that issue equity-indexed annuities based on the S&P 500 is included along with the survey results.



[SERFF - An Update](#)

By Joy Morrision (*NAIC/SSO*)

A current view of the SERFF (System for Electronic Rate and Form Filing) Project is provided in this article along with a summary of the events leading up to the current standing of the project.



[Accident and Health Insurance Report](#)

By Teresa Walker (*NAIC/SSO*)

The NAIC Research Department produces an annual report called the *Statistical Compilation and Market Share Reports for Accident and Health Maintenance Organizations*. This article provides a brief history of the report and a summary of the information contained in the report.



[Market Structures and Regulatory Implications](#)

By Davin Cermak (*NAIC/SSO*)

This article discusses basic market structure theories (monopolies, competitive monopolies, oligopolies and competitive) in the economic tradition and provides an overview of the expected effects of regulation of competitive and non-competitive market structures.

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The National Association of Insurance Commissioners (NAIC) is a voluntary organization of the chief insurance regulatory officials of the 50 states, the District of Columbia, American Samoa, Guam, Puerto Rico and the Virgin Islands. The NAIC provides its members with a forum for discussing common interests and for working cooperatively on regulatory matters that transcend the boundaries of their own jurisdictions.

The views expressed in these articles do not necessarily represent the view of the NAIC members, individually or collectively.

Paper Reducing Project

by Glenda Channel (NAIC/SSO)

Each year, the volume of data in the annual financial statements and related filings of insurance companies increases requiring additional printed information and space to store the paper. In an effort to reduce the amount of paper produced by insurance companies, the NAIC Standard Reporting Formats Working Group of the Blanks (EX4) Task Force has undertaken several objectives. The benefits from these objectives are twofold. The first benefit is the reduction of paper that state insurance departments must track and store. The second benefit is the reduction of printing and mailing costs for insurance companies.

Effective with the 1996 annual statement filing, the working group asked states to forego printed copies of several supplemental filings and to access that data via the NAIC database. At year-end 1997, 45 states participated in this project and additional jurisdictions have indicated an interest for year-end 1998. Table 1 is a preliminary list of the states that will participate in the project at year-end 1998 and the supplements that are included.

The following jurisdictions will not participate in the paper saving project at year-end 1998:

Alaska
American Samoa
Massachusetts
Missouri
Montana
New Mexico
Oklahoma
Virginia
Washington

All companies licensed in the states participating in the NAIC Standard Reporting Formats Working Group pilot project will file paper copies of the following forms with the state of domicile and the NAIC only. Exceptions to this rule are listed in Table 1.

Property/Casualty

- Trusteed Surplus Statement
- Insurance Expense Exhibit
- Credit Insurance Experience Exhibit
- Long-Term Care Experience Reporting Forms
- Medicare Supplement Insurance Experience Exhibit *

Life, Accident & Health

- Long-Term Care Insurance Exhibit
- Trusteed Surplus Statement
- Interest Sensitive Life Insurance Products Report
- Credit Insurance Experience Exhibit
- Life, Health and Annuity Guaranty Association Model Act Assessment Base Reconciliation Exhibit
- Adjustments to the Life, Health and Annuity Guaranty Association Model Act Assessment Base Reconciliation Exhibit
- Long-Term Care Experience Reporting Forms
- Medicare Supplement Insurance Experience Exhibit *

Fraternal

- Long-Term Care Insurance Exhibit
- Trusteed Surplus Statement
- Interest Sensitive Life Insurance Products Report
- Long-Term Care Experience Reporting Form
- Medicare Supplement Insurance Experience Exhibit *

*Added for year-end 1998.

Some states have indicated that there are statutory bars to participation in this project. A proposal on the October 1998 Blanks Task Force agenda will add the project information to the *Annual Statement Instructions*. If the task force adopts this proposal, the modification to the instructions should allow additional states to participate at year-end 1999.

The working group was instrumental in effecting a change to the 1998 *Annual Statement*

Instructions that will allow companies to forego filing the printed copies of Schedule D – Parts 1 through 5 and Schedule DA – Part 1 with any foreign state, unless each state specifically requests the printed information. Additional investment schedules (Schedules A, B, DB and DC) will be considered as the NAIC captures additional information on its database. To date, 23 states have indicated they will **not** require the printed copies of Schedule D and Schedule DA from foreign insurance companies. This change does not preclude companies from filing the paper copy if they choose but they are strongly encouraged not to send paper copies to states not specifically requesting them. The year-end state filing requirements should include this information. Companies will continue to file the printed copies with the state of domicile and the NAIC.

The final objective of the working group is to standardize state-specific filing requirements to the extent possible. Always sensitive to the unique

needs of each state and the statutory requirements that states must meet, the working group is reviewing state-specific forms to see if it is possible to standardize these forms among states. The first form that the working group circulated to the states was a state-filing checklist showing the annual and quarterly filing requirements for each business type (for instance, life/health, property/casualty, etc.). Forty-one jurisdictions have indicated the intent to use the standard state-filing checklists at year-end 1998. The NAIC also will include this checklist with its filing instructions to companies. A copy of the checklist for life/health insurers follows for illustration purposes.

The working group will continue to solicit state support for its current objectives. In addition, the working group will continue to review state-specific filings and will look for opportunities to streamline the filing process as much as possible. The working group meets on a quarterly basis in conjunction with the NAIC national meetings. For future activities of this working group, you may access the minutes for each meeting on the NAIC Web page at <http://www.naic.org>.

Table 1
Preliminary List of States that will Forego Printed Copies

Alabama	Illinois	Nevada	Tennessee*****
Arkansas	Iowa	New Hampshire****	Texas
Arizona*	Indiana	New Jersey	Utah
California	Kansas	New York****	Vermont
Colorado	Kentucky	North Carolina	West Virginia
Connecticut	Louisiana	North Dakota	Wisconsin
Delaware	Maine	Ohio	Wyoming
District of Columbia	Maryland	Oregon	Guam
Florida	Michigan	Pennsylvania	Puerto Rico
Georgia	Minnesota	Rhode Island	Virgin Islands
Hawaii**	Mississippi	South Carolina	
Idaho***	Nebraska	South Dakota	

*Arizona requires the Credit Insurance Experience Exhibit; Long-Term Care Experience Reporting Forms; Long-Term Care Insurance Exhibit; Life, Health and Annuity Guaranty Association Model Act Assessment Base Reconciliation Exhibit; and the Adjustments to the Life, Health and Annuity Guaranty Association Model Act Assessment Base Reconciliation Exhibit to be filed.

**Hawaii requires the Long-Term Care Experience Reporting Forms, Long-Term Care Insurance Exhibit and Medicare Supplement Insurance Experience Exhibit to be filed.

***Idaho requires the Life, Health and Annuity Guaranty Association Model Act Assessment Base Reconciliation Exhibit and Adjustments to the Life, Health and Annuity Guaranty Association Model Act Assessment Base Reconciliation Exhibit to be filed.

****New Hampshire and New York require the Trusteed Surplus Statement to be filed.

*****Tennessee requires the Credit Insurance Experience Exhibit to be filed.

LIFE, ACCIDENT AND HEALTH INSURERS

COMPANY NAME: _____ NAIC Company Code: _____

Contact: _____ Phone: _____

FILINGS CHECKLIST FOR THE STATE OF: _____ Filings Made During the Year 1999

(1) Check-list	(2) Line #	(3) REQUIRED FILINGS FOR THE ABOVE STATE	(4) NUMBER OF COPIES		(5) DUE DATE	(6) FORM SOURCE*	(7) APPLICABLE NOTES
			Domestic	Foreign			
I. NAIC FINANCIAL STATEMENTS							
	1	Annual Statement (9"x14")			3/1/99	NAIC	
	2	Annual Statement Diskettes		XXX	3/1/99	NAIC	
	3	Quarterly Financial Statement			5/15, 8/15, 11/15/99	NAIC	
	4	Quarterly Statement Diskettes		XXX	5/15, 8/15, 11/15/99	NAIC	
	5	Separate Accounts Annual Statement (9"x14")			3/1/99	NAIC	
	6	Separate Accounts Diskettes		XXX	3/1/99	NAIC	
	7	Statement Filing Fees					
II. NAIC SUPPLEMENTS							
	11	Accident & Health Policy Experience Exhibit			5/1/99	NAIC	
	12	Credit Insurance Experience Exhibit		XXX	4/1/99	NAIC	
	13	Interest Sensitive Life Insurance Products Report		XXX	4/1/99	NAIC	
	14	Life, Health & Annuity Guaranty Assessment Base Reconciliation Exhibit		XXX	4/1/99	NAIC	
	15	Life, Health & Annuity Guaranty Assessment Base Reconciliation Exhibit Adjustment Form		XXX	4/1/99	NAIC	
	16	Long Term Care Experience Reporting Forms		XXX	4/1/99	NAIC	
	17	Long Term Care Insurance Exhibit		XXX	3/1/99	NAIC	
	18	Management Discussion & Analysis			4/1/99	Company	
	19	Medicare Supplement Insurance Experience Exhibit		XXX	3/1/99	NAIC	
	20	Risk-Based Capital Diskettes		XXX	3/1/99	NAIC	
	21	Risk-Based Capital Report		XXX	3/1/99	NAIC	
	22	Schedule D – Parts 1-5 detail (excluding Part 1A)		XXX	3/1/99	NAIC	
	23	Schedule DA – Part 1 detail		XXX	3/1/99	NAIC	
	24	Schedule DC			3/1/99	NAIC	
	25	Schedule DS			3/1/99	NAIC	
	26	Schedule SIS		XXX	3/1/99	NAIC	
	27	Statement of Actuarial Opinion			3/1/99	NAIC	
	28	Statement on non-guaranteed elements - Exhibit 8 Interrogatory #3			3/1/99	NAIC	
	29	Supplemental Compensation Exhibit		XXX	3/1/99	NAIC	
	30	SVO Compliance Certification			3/1, 5/15, 8/15, 11/15/99	NAIC	
	31	Trusted Surplus Statement			3/1, 5/15, 8/15, 11/15/99	NAIC	
						NAIC	
III. AUDITED FINANCIAL STATEMENTS							
	51	Accountants Letter of Qualifications					
	52	Audited Financial Statements			6/1/99		
	53	Audited Financial Statements Exemption Affidavit		XXX			
	54	Designation of Independent CPA		XXX			
	55	Notification of Adverse Financial Condition		XXX			
	56	Report of Significant Deficiencies in Internal Controls		XXX			
	57	Request for Exemption to File		XXX			
IV. STATE REQUIRED FILINGS							
	101	Certificate of Compliance					
	102	Certificate of Deposit					
	103	Certificate of Valuation					
	104	Filings Checklist (with Column 1 completed)					
	105	Premium tax					

*If NAIC is shown as Form Source, obtain the forms from the appropriate vendor.

Consistency in Company Reserve Assumptions Relative to Equity-Indexed Annuities

by Mark Peavy (NAIC/SSO)

For the last couple of years the NAIC's Life and Health Actuarial (Technical) Task Force has been reviewing various aspects of equity-indexed products. One result of that work is Actuarial Guideline ZZZ – The Application of the Commissioners Annuity Reserve Method to Equity-Indexed Annuities. At the time this article is being written, both the Task Force and the Life Insurance & Annuities (A) Committee have adopted AG ZZZ, and a vote by the NAIC's Executive Committee is scheduled for December 1998.

Traditional annuities contain fixed minimum interest guarantees (usually 3 percent). Equity-indexed annuities provide an additional guarantee, i.e., policyholder funds will accumulate based on a portion of the growth in a specified equity index. Given that the growth in the index can only be determined retrospectively, valuation of this benefit has proven difficult under traditional statutory reserving techniques.

AG ZZZ deviates from traditional reserving approaches by utilizing the market value of the annuity's embedded options. Specifically, the economic assumptions underlying the market value of the options are used in the valuation of the annuity's minimum guarantee. Thus, uniform application of AG ZZZ is dependent upon consistent perceptions of what those marketplace estimates are.

In order to get a sense of how consistently actuaries view those economic assumptions, I surveyed 34 companies that issue equity-indexed annuities based on the S&P 500. The survey letter (Attachment 1), the survey itself (Attachment 2), and a summary and detailed results of the survey (Attachment 3) are shown on the following pages. In summary, the survey results revealed varying degrees of consistency among companies; the most variation was exhibited in the assumed levels of implied volatility for the S&P 500. In some instances, respondents stated they did not know the assumptions underlying the embedded options.

Members of the Task Force have expressed disappointment at these results. However, many members also believe that the level of consistency will improve as AG ZZZ becomes widely adopted and the familiarity of actuaries with its provisions increases. In short, it is not yet clear whether additional regulatory steps are needed to promote more uniformity. The ultimate resolution of that issue will require further discussion of the nature of option pricing and input from all of the interested parties to this process.

Attachment 1 Sample Survey Letter

April 13, 1998

Mr. John Smith
Actuary
ABC Life Insurance Company
123 Main Street
Anywhere, USA

RE: Survey on Equity-Indexed Annuities

Dear Mr. Smith:

The Innovative Products Working Group (IPWG) of the NAIC Life and Health Actuarial (Technical) Task Force is developing an actuarial guideline pertaining to equity-indexed annuities (Actuarial Guideline ZZZ – a copy is enclosed with this memo). As part of that project, the IPWG is seeking information regarding reserving practices of companies that write these products.

Specifically, the IPWG is attempting to determine (1) the degree to which reserve assumptions are consistent between companies, and (2) the reserving methods currently being utilized by companies. The companies which are being surveyed are those which were reported to be writing equity-indexed annuities based on the S&P 500 (as reported in the survey by Milliman & Robertson which was included in the December 6, 1997 Report of the American Academy of Actuaries Equity Indexed Products Task Force). This information is being sought relative to the statutory reserves reported as of 12/31/97.

Please fill out the attached form and fax it to Mark Peavy (NAIC/SS) at 816-889-4446. If you would prefer to E-mail your responses, Mark's E-mail address is mpeavy@naic.org. It would be of most use to the IPWG if your responses could be submitted by May 8, 1998. We will be happy to provide respondents with a copy of the survey results. (If you are not the appropriate person to respond to the survey, please forward it to the correct individual.)

Thank you very much for your attention to this matter. Please be assured that the published survey results will not specify which data a particular company submitted. If you have any questions regarding any aspect of the survey, please contact Mark Peavy at 816-374-7257.

Sincerely,

Sheldon Summers, Chair
Innovative Products Working Group of the
NAIC Life and Health Actuarial (Technical) Task Force

Enclosures

Attachment 2
Innovative Products Working Group of the
NAIC Life and Health Actuarial (Technical) Task Force - April 13, 1998
Survey of Companies Relative to Their Statutory Reserving Practices as of
12/31/97 for Equity-Indexed Annuities Based on the S&P 500

1) What reserving method did you use (please check the appropriate line)? Please refer to the enclosed copy of "ZZZ" for a description of various reserving methods. If "other," please describe.

- Enhanced Discounted Intrinsic Method _____
- Commissioners Annuity Reserve Method with Updated Market Values _____
- Market Value Reserve Method _____
- Other _____
- If "other", please describe: _____

2) What annualized risk-free rate of return did you assume (please express your answer to four decimal places, i.e., 5.69% = .0569)?

Years Remaining Until Expiration of the Option										
1	2	3	4	5	6	7	8	9	10	
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	

3) What annualized dividend yield for the S&P 500 did you assume (please express your answer to four decimal places)? _____

4) What implied volatility did you assume for call options (please express your answer to four decimal places)?

Strike Price		Years Remaining Until Expiration of the Option									
"GTOET"	But Less Than	1	2	3	4	5	6	7	8	9	10
1043	- 1092	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
995	- 1043	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
946	- 995	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
898	- 946	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
849	- 898	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

("GTOET" = greater than or equal to)

Name of Company (please type or print): _____

Name of Individual Responding (please type or print): _____

Phone Number of Individual Responding: _____

Please fax (816-889-4446) or E-mail (mpeavy@naic.org) these results to Mark Peavy (NAIC/SSO) by May 8, 1998. If you have any questions regarding the survey, please phone Mark at 816-374-7257.

Attachment 3
Results of Survey on Equity-Indexed Annuities

TO: Sheldon Summers, Chair, Innovative Products Working Group
of the Life and Health Actuarial (Technical) Task Force

FROM: Mark Peavy
Life/Health Actuary

DATE: May 18, 1998

SUBJECT: Results of Survey on Equity-Indexed Annuities

On April 13, 1998, I mailed 34 questionnaires regarding the underlying assumptions for establishing reserves for equity-indexed annuities. (A copy of the survey is enclosed.) Of the 34 companies surveyed, 14 responded by the May 8, 1998 deadline. Enclosed with this memo are the fourteen responses. Except for eliminating references to actual company names, I used the literal language of the responses.

While it is somewhat difficult to generalize from this relatively small survey, I believe the following observations are a reasonable summary of the results:

- 1) The most consistency was exhibited relative to the dividend yield assumption.
- 2) Somewhat less consistency was exhibited relative to the risk free rate of return assumption.
- 3) The least amount of consistency was exhibited relative to the assumptions regarding implied volatility. However, it is not immediately clear whether the degree of inconsistency would justify regulatory steps to promote more uniformity. Resolution of that issue will require discussion among all of the interested parties to this process.
- 4) Many of the actuaries did not know the assumptions underlying the value of the equity options. This is interesting because draft Actuarial Guideline ZZZ requires the actuary to certify that "the assumptions used to determine such option market values are reasonable in light of the relevant economic conditions." For actuaries who utilize the EDIM, this analysis would be done "at the time of issue of each policy." For other methods, the analysis would be done "as of the date of valuation."

I am looking forward to discussing the survey results with you and the other members of the Innovative Products Working Group in Kansas City in June. In the meantime, please feel free to call me if you have any questions.

cc: Members of the Innovative Products Working Group
Members of the Life and Health Actuarial (Technical) Task Force
Interested Parties

Enclosures

RESPONSES TO EIA SURVEY, 5/8/98

Company 1.

Company #1 no longer offers an EIA.

* * * * *

Company 2.

Reserving Method Used: Enhanced Discounted Intrinsic Method
Risk-Free Rate, Dividend Yield and Volatility Assumptions Used: Not known explicitly. By using the EDIM reserving method, option values at policy issue are needed to set the initial reserve level. Company #2 used the cost it actually paid for the option for the option value at issue. Note that each time we buy needed options, a number of investment bankers quote on the option prices.

During 1997, Company #2 would receive quotes from two to four investment bankers every time an option purchase was made. The variation in the prices of the quotes would vary from week to week, but generally stayed between 2.5% and 8.0% (e.g. the highest price was 2.5% higher than the lowest price; highest price = 1.025 x lowest price). If variation of the option prices was at the higher end, it was usually because the investment bankers took a different view on volatility. Just for your reference, Company #2 purchases customized seven-year options to hedge the equity risk of our EIA.

* * * * *

Company #3.

1. Method = CARVM with Updated Market Values

2. Risk-Free Rate

5-Year	0.0571
6-Year	0.0572
7-Year	0.0573

Note that these are spot rates, as opposed to bond equivalent yields.

3. Dividend yield = 0.0158

4. Implied Volatilities

Strike Price	6 Years Until Option Expires
1043 - 1092	0.2208 to 0.2279
995 - 1043	0.2268 to 0.2306
946 - 995	0.2236 to 0.2383
898 - 946	0.2253 to 0.2388
849 - 898	0.2245 to 0.2419

We use the following method to choose the implied volatility: (1) get quoted market prices for the actual call options we own from the broker that sold us the option; (2) using the market values and the particular

features of each call option, back into the implied volatility for each call option; (3) we then match up the implied volatility from a particular call option to the particular policies that this option is hedging.

Our equity indexed annuities have an asian-end design. To calculate the market values for an individual policy we use the Black-Scholes option pricing method. While the Black-Scholes method is not intended to be used for an asian-end design, we feel it is reasonable to use this method with a lower implied volatility to reflect the averaging. Thus, the implied volatilities shown above may appear somewhat lower than would be expected due to the fact that they already reflect the reduced volatility of the asian call option.

* * * * *

Company #4.

1. Other. I used the Black Scholes Projection Method as described in the AAA Report of the EIP Task Force. Our product is an annual compound ratchet design whereby we guarantee participation 1 year at a time with a minimum floor guarantee.
2. I used Bloomberg's "SPX index OV" screen to obtain current market values of the options. I used the rate Bloomberg fills in for the risk free rate based on remaining time to maturity input. I was valuing 1 year options, most of which had less than one year to expiration. For example, for the 1 year at the money option to be used for projections of account values beyond the first anniversary past the valuation date, the risk free rate from Bloomberg was 5.53%
3. I used a dividend yield of 0% because I was mistaken on the application of this assumption at the time. For 1st quarter reserves I used a yield of 1.4%.
4. I assumed a unique volatility assumption for each strike price. For the at the money option (strike assumed to be 936.36, the value of the S&P on 12/26) vol was assumed equal to 24%. The lowest strike price I was valuing was 913, for that I used a vol of 25.4%. The highest strike I was valuing as 22.7%. These were the boundaries (highest and lowest vols used) for all the strikes and remaining terms to maturity.

* * * * *

Company #5.

1. What reserving method did you use?

- a. In those states where there were specific requirements, reserves were CARVM-UMV.
- b. In all other states, CARVM reserves were reported. Regular CARVM reserves in most cases are the cash value.

2. What annualized risk-free rate of return did you assume?

I assume this and subsequent questions pertain to reserves calculated according to one of the market value methods included in Actuarial Guideline ZZZ.

The risk-free rate utilized depended upon time of application and duration of application.

First, interest rates were determined from the Federal Reserve Statistical Release H.15 for December 31, 1997. The "Treasury Constant Maturity" rates published include zero-coupon security yields on Treasury Bills of durations 3 months, 6 months, and one year. Also included are coupon security yields for Treasury notes of durations 2, 3, 5, 7, 10, 20, and 30 years. The values found in the publication were, respectively, 5.45%, 5.51%, 5.66%, 5.68%, 5.71%, 5.77%, 5.75%, 6.02%, and 5.93%.

From these rates, spot rates and forward rates for all necessary periods of time were determined.

3. What annualized dividend yield for the S&P 500 did you assume?

All calculations applied an assumed dividend yield of 1.65%. This is approximately the implied dividend rate used by Morgan Stanley and Goldman Sachs in their quotations for call spread options around the end of the year, 1997.

4. What implied volatility did you assume for call options?

Volatility differed whether calculations were used to determine asset option purchase prices or liability exposure. Asset valuations are currently exposed to implied volatilities in excess of historical measurements, and these volatilities are further exposed to volatility skew, especially for call options in excess of 5% out of the money.

Liability valuations applied an assumed volatility of 21.5% at time of valuation, grading to a lower but still elevated 20.0% at the end of ten years.

Company #6.

- 1. Enhanced Discounted Intrinsic Method _____
- Commissioners Annuity Reserve Method with Updated Market Values _____
- Market Value Reserve Method _____
- Other x

If "other", please describe: Present value of minimum guarantee plus market value of options – since market was up this result is consistent with MVRM.

2.

	Years Remaining Until Expiration of the Option									
	1	2	3	4	5	6	7	8	9	10
	.0590	.0605	.0610	.0610	.0616	.0618	.0619			

3. .0160

4.

		Years Remaining Until Expiration of the Option									
Strike Price		1	2	3	4	5	6	7	8	9	10
"GTOET"	But Less Than										
1043	- 1092	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
995	- 1043	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
946	- 995	.2500	.2300	.2200	.2200	.2200	.2200	.2200	.2200	.2200	.2200
898	- 946	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
849	- 898	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

("GTOET" = greater than or equal to)

Company #7.

- 1. Enhanced Discounted Intrinsic Method ___x___
 - Commissioners Annuity Reserve Method with Updated Market Values _____
 - Market Value Reserve Method _____
 - Other _____
- If "other", please describe: Reserve at issue was established using MVRM.

2, 3, and 4: NA.

Company #8.

- 1. Enhanced Discounted Intrinsic Method _____
 - Commissioners Annuity Reserve Method with Updated Market Values ___x___
 - Market Value Reserve Method _____
 - Other _____
- If "other", please describe: Although not exactly the same, our method is deemed to be consistent with CARVM with UMV.

2. Years Remaining Until Expiration of the Option

	1	2	3	4	5	6	7	8	9	10
	_____	_____	_____	_____	_____	.0616	.0618	_____	_____	_____

3. .0158

4. Years Remaining Until Expiration of the Option

			1	2	3	4	5	6	7	8	9	10
Strike Price "GTOET" But Less Than												
1043 - 1092			_____	_____	_____	_____	_____	.2250	.2250	_____	_____	_____
995 - 1043			_____	_____	_____	_____	_____	.2250	.2250	_____	_____	_____
946 - 995			_____	_____	_____	_____	_____	.2250	.2250	_____	_____	_____
898 - 946			_____	_____	_____	_____	_____	.2250	.2250	_____	_____	_____
849 - 898			_____	_____	_____	_____	_____	.2250	.2250	_____	_____	_____

("GTOET" = greater than or equal to)

Company #9.

- 1. Enhanced Discounted Intrinsic Method _____
 - Commissioners Annuity Reserve Method with Updated Market Values _____
 - Market Value Reserve Method ___x___
 - Other _____
- If "other", please describe

2. Years Remaining Until Expiration of the Option

	1	2	3	4	5	6	7	8	9	10
	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

.0606 _____

3. .0160

4. Years Remaining Until Expiration of the Option

Strike Price	1	2	3	4	5	6	7	8	9	10
“GTOET” But Less Than										
1043 - 1092	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
995 - 1043	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
946 - 995	.2300	_____	_____	_____	_____	_____	_____	_____	_____	_____
898 - 946	.2300	_____	_____	_____	_____	_____	_____	_____	_____	_____
849 - 898	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

(“GTOET” = greater than or equal to)

We began issuing in Nov. 97. Only 6,000,000 in PR in 97.

Our annual reset design requires calculation of market value of Asian call (1 Yr) options for each year during the 9 year term. We used the forward risk free rates from Bloomberg and forward volatility from Bear Stearns.

* * * * *

Company #10.

- 1. Enhanced Discounted Intrinsic Method ___x___
- Commissioners Annuity Reserve Method with Updated Market Values ___x___
- Market Value Reserve Method _____
- Other _____
- If “other”, please describe

2. Years Remaining Until Expiration of the Option

	1	2	3	4	5	6	7	8	9	10
	.0534	.0547	.0564	.0566	.0570	.0572	.0575	NA	NA	NA

3. .0160

4. Years Remaining Until Expiration of the Option

Strike Price	1	2	3	4	5	6	7	8	9	10
“GTOET” But Less Than										
1043 - 1092	.2146	.2146	.2146	.2146	.2146	.2146	.2146	.2146	.2146	.2146
995 - 1043	.2146	.2146	.2146	.2146	.2146	.2146	.2146	.2146	.2146	.2146
946 - 995	.2146	.2146	.2146	.2146	.2146	.2146	.2146	.2146	.2146	.2146
898 - 946	.2146	.2146	.2146	.2146	.2146	.2146	.2146	.2146	.2146	.2146

849 - 898 .2146 .2146 .2146 .2146 .2146 .2146 .2146 .2146 .2146 .2146 .2146

("GTOET" = greater than or equal to)

* * * * *

Company #11.

1. Reserving method: MVRM

2-4. We do not use Black-Scholes to value our hedges. Since there is no active market for our hedges (calls on the S&P 500, with strike price = guaranteed end-of-year 7 value), we use the greater of amortized cost or intrinsic value as the Schedule D "market" value of the hedges. Since these hedges mirror the policyholder option, we use a similar basis for calculating the option value portion of the MVRM calculation.

* * * * *

Company #12.

1. Enhanced Discounted Intrinsic Method

Commissioners Annuity Reserve Method with Updated Market Values _____

Market Value Reserve Method (IL and SC) x

Other (In other states) x

If "other", please describe: Underlying minimum guarantee (90% of premium growing at 3% annually) plus increase in intrinsic value of the options plus mortality reserve for deaths prior to the end of the term.

2, 3, and 4: Questions 2-4 of the survey are unanswered as option market values are provided to us by the seller of our call options.

* * * * *

Company #13.

1. Enhanced Discounted Intrinsic Method

Commissioners Annuity Reserve Method with Updated Market Values _____

Market Value Reserve Method x

Other _____

If "other", please describe

2. Years Remaining Until Expiration of the Option

	1	2	3	4	5	6	7	8	9	10
	.0542	.0557	.0572	.0586	.0601	.0616	NA	NA	NA	NA

3. .0157

4. Years Remaining Until Expiration of the Option

Strike Price		1	2	3	4	5	6	7	8	9	10
"GTOET" But Less Than											
1043 - 1092		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
995 - 1043		.2233	.2106	.1980	.1853	.1727	.1600	NA	NA	NA	NA

					[volatility "reversed" to historic mean]									
946	-	995	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
898	-	946	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
849	-	898	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

("GTOET" = greater than or equal to)

* * * * *

Company #14.

- 1. Enhanced Discounted Intrinsic Method x
 - Commissioners Annuity Reserve Method with Updated Market Values x
 - Market Value Reserve Method
 - Other
- If "other", please describe: Fixed component at issue is produced by the CARVM-UMV method.

2.

	Years Remaining Until Expiration of the Option									
	1	2	3	4	5	6	7	8	9	10
	.0596	.0600	.0604	.0608	.0612	.0614	.0616	.0618	.0620	.06215

3. .0167

4.

			Years Remaining Until Expiration of the Option									
	Strike Price		1	2	3	4	5	6	7	8	9	10
	"GTOET" But Less Than											
	1043 - 1092		.2280	.2250	.2250	.2250	.2250	.2250	.2250	.2250	.2250	.2250
	995 - 1043		.2280	.2250	.2250	.2250	.2250	.2250	.2250	.2250	.2250	.2250
	946 - 995		.2280	.2250	.2250	.2250	.2250	.2250	.2250	.2250	.2250	.2250
	898 - 946		.2280	.2250	.2250	.2250	.2250	.2250	.2250	.2250	.2250	.2250
	849 - 898		.2280	.2250	.2250	.2250	.2250	.2250	.2250	.2250	.2250	.2250

("GTOET" = greater than or equal to)

SERFF - An Update

by Joy Morrison (NAIC/SSO)

If you have picked up an insurance industry publication in the last few months, it is quite likely that you have seen an article on the NAIC's SERFF Project. SERFF (System for Electronic Rate and Form Filing) has become a clear target for "naysayers" on both sides of the regulatory fence and, in fact, it is the guiding principle of the SERFF project that makes it such an easy mark. SERFF is a cooperative effort between states and the insurance industry, and the early success of the project is, in part, attributable to the developer's work in gathering requirements from both sides. SERFF's efforts to build a system that will accommodate reviewers and filers means coming under fire from concerned spectators in both camps. SERFF supporters say, "Fire away!" These early "pioneers" have an unbounded enthusiasm for the system that dwarfs any obstacle.

Many of the early concepts of SERFF are gone, replaced by a scaled-down, "bare necessities" design that has been quickly enhanced to provide additional functionality to participating states and companies. In 1996 the SERFF Consortium was formed to meet the demand for a more efficient, cost-effective method for submitting and reviewing rate and form filings. This Consortium, made up of state *and* industry participants, funded the project development. Design sessions were held in Chicago, and state and industry participants worked together to plan a system that would serve the needs of both. The partnership actively participated—making decisions, jointly, about SERFF's development and use. During this time, the issue of a central repository for filings was finally laid to rest and, because of its robust features, Lotus Notes was chosen as the tool for development. The

Consortium contracted with a private software developer to build the system and moved one step closer to fulfilling its goal. In roughly nine months SERFF went from design to demo as test piloting began in the third quarter of 1997 with 6 states and 10 companies participating.

By the time December 1997 rolled around, the NAIC, at the request of the SERFF Consortium, had agreed to take over the operations of SERFF. Guided by a board comprised of savvy industry personnel and state regulators, SERFF has continued to grow and prosper in 1998. The first live filings were completed in March 1998 and numbers have grown since. In late July 1998 SERFF users and interested parties met in Kansas City for the 1998 Users Conference. Attendance more than doubled the previous year's count and the rooms were crowded with people who wanted to hear from those who were actually using the system. Questions about how filers and reviewers were handling the processes involved flew, and the spirit of cooperation that pervades this project was never more evident. Even those already active with SERFF were surprised at how SERFF filers and reviewers worked together to resolve issues and find the best solution for everyone involved. One issue at a time, the users are smoothing out the rough spots and paving the way for future participants.

A Product Steering Committee (PSC) was appointed in early 1998—again a combination of industry and state personnel—to ensure that the SERFF board has continued direction from both interest groups regarding product development. The PSC met twice in the spring to review and prioritize design enhancements submitted by SERFF users. The result of that work was the release of SERFF Version 1.3 in late August of 1998. The enhanced functionality in 1.3 demonstrated the resolve of the SERFF board and the PSC to keep SERFF on its path of rapid growth by keeping the focus on the users. Since the conference, the PSC has met twice to help plot the course of this product's development. The SERFF board has approved additional development hours and another release is tentatively scheduled for late 1998 or early 1999.

State participation—a critical factor in SERFF's success—continues to grow. States committed to

SERFF now number 23 with several more expected to license by the end of the year. Kentucky is the latest state to come on line with SERFF in the smoothest transition since Arkansas. Colorado, Minnesota and Tennessee are waiting in the wings, so that by the end of 1998 SERFF hopes to boast 12 states in production, thus meeting one of its aggressive marketing goals.

As SERFF continues to develop, the SERFF staff and board have tried to keep an eye on its future—anticipating customer needs and positioning SERFF to fulfill those needs. Having identified state participation as a crucial part of SERFF's success, the board and staff searched for a way to make it easier for states *and* companies to join. The current development vendor has the resources to quickly develop a stable, working application that is functional, as well as open to design change and enhancement. However, a key goal of SERFF has always been to make electronic filing available to mid-size and smaller companies. Current implementation and usage costs are manageable for larger organizations but may be out of the range for groups with fewer resources. In an effort to provide for those companies and

states, bids were requested for a Remote Hosting Option that would allow a company or state to contract for a server to be provided and maintained for them outside of their organization. This greatly reduces the initial implementation costs—replacing them with a smaller monthly payment and less effort for technical staff as well.

The bidding process produced a vendor that was capable of providing the level of service and reliability our customers have always experienced along with a very affordable Remote Hosting Option that will make it easy for smaller states and companies to participate. The SERFF board and staff look to the next few months as a time for increased growth in both SERFF system functionality and its customer base. A vendor meeting will be held in November to discuss the options for developing a generic interface for back-end processes. SERFF growth will continue at its current pace and, although there will always be those who do not think this electronic system will ever make it in all the states, SERFF participants know that the system does work—all it takes is some patience and a little cooperation.

Accident and Health Insurance Report

by Teresa Walker (NAIC/SSO)

The NAIC Research Department produces an annual report called the *Statistical Compilation and Market Share Reports for Accident and Health Insurance Companies and Health Maintenance Organizations* (Accident and Health Report). This report was first published with year-end 1993 financial data, and at that time did not include data for health maintenance organizations (HMOs). The report contains aggregated financial data and individual company financial data, as well as group market share information. Each year the report evolves to include the most current data in the most usable formats available.

What's in the Report?

Data from the following five insurer types that provide accident and health insurance is included in the report: property/casualty; life/health; fraternal; health maintenance organizations (HMOs) and hospital, medical and dental service or indemnity corporations (HMDIs). Annual financial data for each of these entity types is taken from the NAIC financial database to compile the accident and health report.

The following sections are included in the Accident and Health Report:

- 1) HMDI Annual Statement Financial Data
- 2) Selected Data Elements for HMDIs
- 3) HMO Annual Statement Financial Data
- 4) Selected Data Elements for HMOs
- 5) Accident and Health Annual Statement Data by State and Countrywide (all Accident and Health entity types combined)
- 6) Accident and Health Market Share Reports by State and Countrywide (all Accident and Health entity types combined)

Sections one and three contain aggregated data from the basic financial statements of HMDIs and HMOs respectively. The aggregated financial pages are presented in the NAIC blank format. In addition to the current year aggregated data, aggregated historical data is also provided for some of the financial statement pages in sections one and three. These historical views allow for somewhat of an analysis of the growth of the accident and health industry within the HMDI and HMO entities. One must remember that the historical data is limited to the insurers that file with the NAIC each year. So, for each data year there are a different number of accident and health insurers that are aggregated.

Sections two and four contain selected individual company data for each of the HMDIs and HMOs that submitted 1997 annual financial data to the NAIC. The information contained in these sections includes: state of domicile, assets, liabilities, premiums, expense and income data.

The fifth section presents the accident and health insurance premiums in a Schedule T format. The data is presented in aggregate and by entity type. Each of these formats proves to be very useful pieces of information.

The market share reports found in the last section of the report contains a combination of data from all five entity types that write accident and health insurance. The individual company data is reported in this section by insurer group to show a better overall view of the accident and health insurance market. This section presents a listing of the top 125 accident and health insurance writers within each state and also on a countrywide basis. The listings show the amount of direct premiums written by each of the top 125 groups and the market share percentage represented by the group premiums.

What's New in the Report?

Prior to the 1995 report, HMO data was not captured on the NAIC financial database. The inclusion of the HMO data in this report creates a more complete data set for reviewing the accident and health insurance industry. Although not all HMOs currently file financial data with the NAIC, each year there is an increasing number of HMOs

that submit their data to the NAIC. Table 1 lists the states that required HMOs to file with the NAIC as of year-end 1997.

In recent years there have been numerous changes made to the HMDI and HMO NAIC annual statement blanks. The changes have made the HMDI and HMO entity reporting more standardized and the data collected more useful and meaningful. Each year as these changes are implemented, the Accident and Health report is reviewed to consider any changes that need to be included according to the changes in the data.

Beginning with the 1997 publication, the HMO State Page data is included in the Accident and Health Report. This data identifies premiums, enrollment and utilization by state. The data in the report has been aggregated for all HMOs filing with the NAIC. Also added for the first time in the 1997 report is a section at the end of the report that lists the companies included in each group as reported within the market share section of the publication. The frequency of insurer mergers and acquisitions causes difficulty when determining which group a company was a part of at a given time. This will help to eliminate some of the confusion and assist readers when they compare reports from year to year.

The 1997 Report

The 1997 report contains 144 individual HMDIs and 492 individual HMOs in addition to the property/casualty, life/health and fraternal insurers that provide accident and health insurance coverage. The number of HMOs included in the 1997 Accident and Health Report

increased 23.6 percent from 398 HMOs reported in the 1996 Accident and Health Report.

Chart 1 and Chart 2 provide a summary of the aggregated 1997 assets pages for the HMDI companies and the HMO companies that are found in sections one and three of the Accident and Health Report. Seeing the different asset allocations made by the two entity types shows something about the structures of the insurer entities. According to this data, the HMDI insurers invest a larger percent of their assets in bonds and stocks than do the HMOs.

Since the inception of the Accident and Health Report in 1993, accident and health direct written premiums have continued to increase. Chart 3 shows the increased accident and health premiums as shown in the Accident and Health Report. The inclusion of the HMO data in 1996 is seen on the chart by the large increase in premiums from 1995 to 1996. Chart 4 displays the countrywide breakdown of accident and health direct written premiums by entity type. Life/health insurers come in first with 43.1 percent of the accident and health insurance premiums recorded on the NAIC financial database.

Conclusion

The *Statistical Compilation and Market Share Reports for Accident and Health Insurance Companies and Health Maintenance Organizations in 1997* will be available in mid-to late December 1998. The report can be purchased from the NAIC publications department by calling 816-374-7259, faxing 816-460-7593 or on the NAIC web site at <http://www.naic.org>.

Table 1
States Requiring 1997 HMO Filings with the NAIC

Alabama	Kansas	New Jersey	South Dakota
Arkansas	Kentucky	North Carolina	Texas
Connecticut	Louisiana	North Dakota	Utah
Delaware	Maryland	Ohio	Vermont
Georgia	Massachusetts	Oregon	Virginia
Hawaii	Michigan	Pennsylvania	West Virginia
Idaho	Mississippi	Rhode Island	Wisconsin
Iowa	Missouri	South Carolina	Wyoming

Chart 1
Aggregate HMDI Insurance Industry
1997 Distribution of Assets

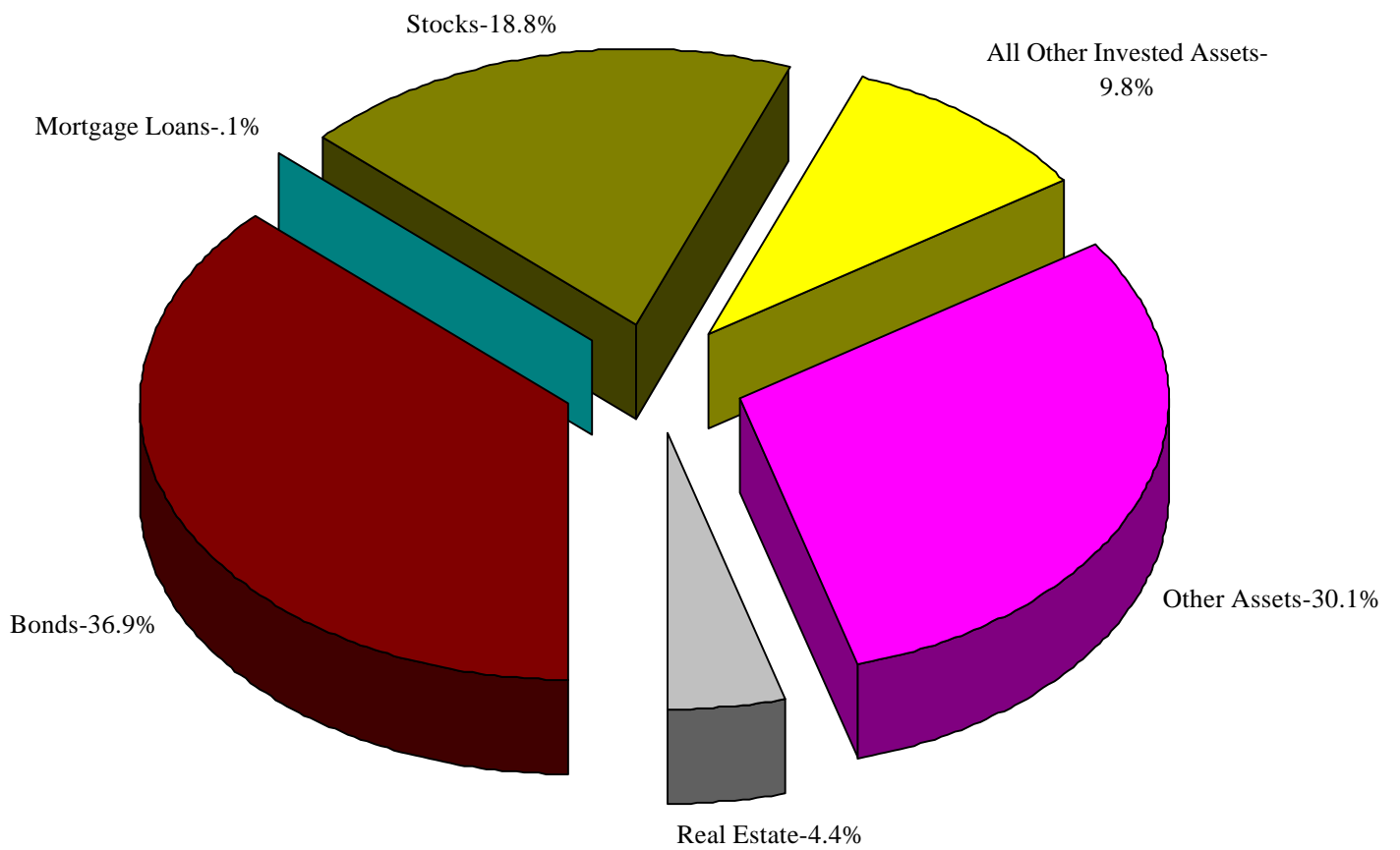


Chart 2
Aggregated HMO Insurance Industry
1997 Distribution of Assets

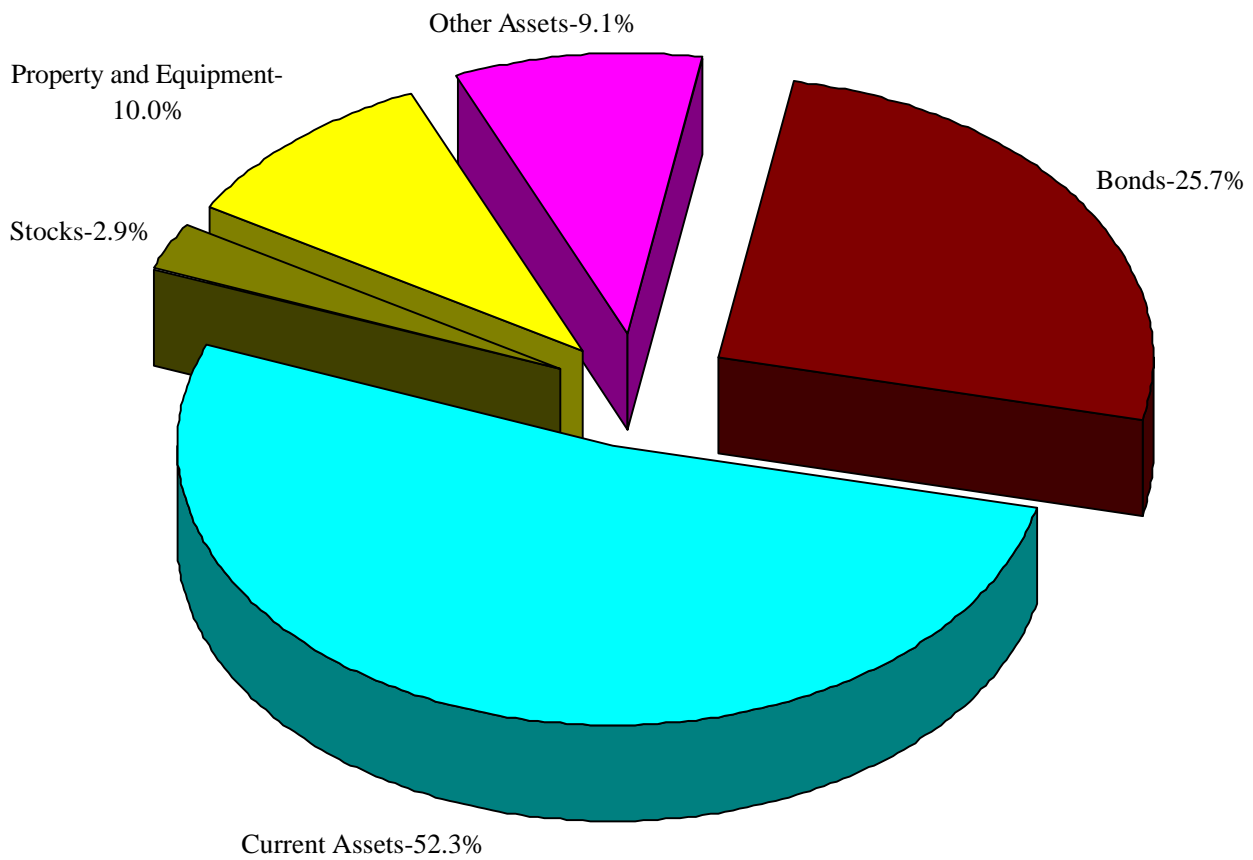


Chart 3
Total Accident and Health Direct Written Premiums
1997 - Countrywide

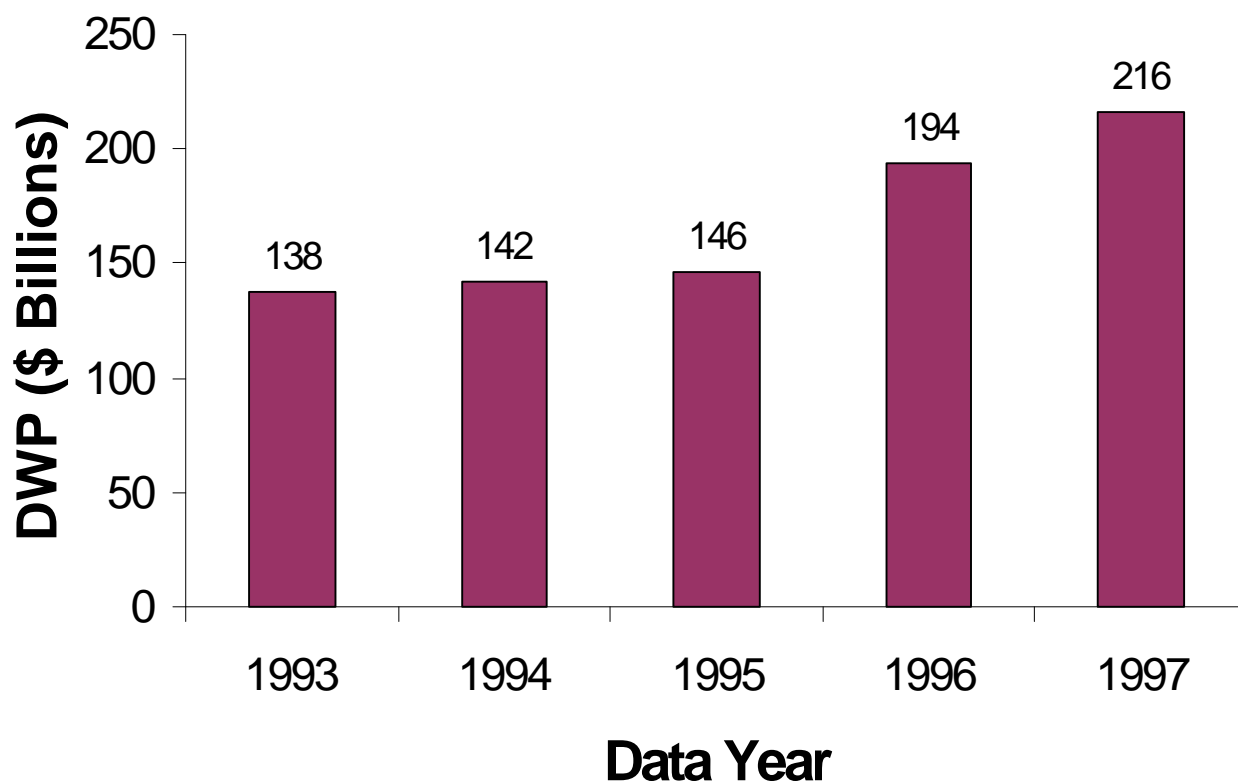
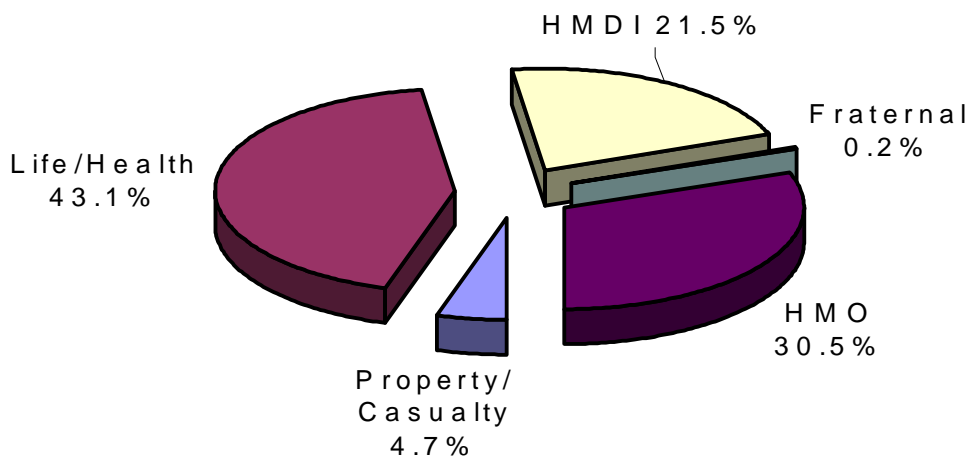


Chart 4
Accident and Health Direct Written Premiums
1997 - Countrywide



Market Structures and Regulatory Implications

by Davin Cermak, Research Associate
(NAIC/SSO)

In the last issue of the *Research Quarterly*, I presented a series of measurement tools available to regulators to utilize in examining market concentration and generate assumptions about the subsequent market structure. Economists generally group market structures into four types: perfect competition, monopolies, competitive monopolies and oligopolies. This article begins with a discussion of key concepts in understanding the economic view of market structures. It then moves into a discussion of the effects of regulation when confronted with different market structures.

Economic Concepts

Since the goal of this article is to present alternative market structures in the economic tradition, there are some important concepts that must be established in order to understand how economists arrive at their definition of each market structure.

Economic vs. Accounting Profits

The distinction between economic and accounting profits is critical in the discussion of the market structures. Whereas accounting profits consist of tangible revenues minus tangible expenses, economic profits consist of tangible revenues minus tangible expense minus a return on capital investments. The idea is this: owners of a business expect to earn a specific rate of return on their investment or they will sell their interest in that business and invest elsewhere. Businesses determine what rate of return the owners require and calculate it as a cost of doing business, thus making it a payment for the investment of owner capital.

Excess economic profit, to the economist, is considered a loss of welfare to society. In other words, excess economic profits make inefficient

use of scarce resources by removing them from the production of other goods consumers desire. Excess economic profit, which is only one component of social welfare, occurs when a business or group of businesses have the market position to establish prices on their own, leaving the consumer with the choice to either purchase their product or do without.

Marginal Costs and Marginal Revenues

Economists examine total costs and total revenues in terms of marginal change: the degree to which total costs and revenues change when selling an additional good or service. If an insurance company writes an additional policy, there are additional revenues and costs attributed to this policy. The additional costs include the time and resources to process the application, visits to the customer by an agent, etc. and additional revenue results in new premiums collected from the policy.

To understand the importance of the marginal concept, consider the additional costs and revenues from the addition of 1,000 policies, where more staff and equipment may be required to process and service these contracts. If the total cost to sell and service these policies is \$10,000, the average cost associated with each policy is \$10. But this does not give us the whole picture. Marginal cost provides a completely different view of costs associated with adding the new policies. If new staff is added initially to handle the additional policies, marginal cost will be higher for the first policy and decrease as the rest of the policies are written because the expense of the new staff and equipment would be spread over all 1,000 new policies. Or it may be the case that the insurer does not need additional staff and equipment to process the first 500 policies, but would for the remaining 500 policies. In this case, the marginal costs would increase substantially as the 501st policy is written and likely begin to decrease again. It would make sense for the insurer to determine if the additional staff and equipment costs of the last 500 policies are a worthwhile business expense.

Marginal costs are defined as the rate of change of the total cost of doing business. In other words,

it is the additional cost of producing and selling an additional unit of output. Marginal revenue, then, is the rate of change of the total revenue. The calculation of marginal revenues and costs allows economists to compare them with the price of a good or service in explaining how firms behave under different market structures, as will be seen in the following sections.

Market Structures

Market structures can best be thought of as existing on a spectrum. At one end is the purely competitive market and at the other the monopoly market. In the middle of this spectrum lie all other market structures. Few, if any, truly competitive or monopoly markets actually exist in our economy, so they are generally treated as theoretical. These models do, however provide a simplified understanding of how market structures that more accurately reflect actual market structures are developed. Two of the most common models to be developed are the oligopoly and the competitive monopoly models.

Competitive Markets

A purely, or perfectly, competitive market is characterized by many businesses offering a single product to many consumers. Table 1 at the end of this article describes the characteristics of the competitive market structure and their implications. Commodity futures markets, such as those that trade agricultural and natural resources futures contracts, provide examples closest to the competitive market structure. These markets are designed so that all traders and sellers are collected in the same trading venue (the "trading pit") and have access to the same news and information pertaining to contracts currently trading. Commodity contracts are essentially the same (homogeneous) so there is no advantage to purchase one contract over another. In addition, because numerous buyers and sellers trade contracts, prices are determined through a bidding process leaving no one buyer or seller with the capacity to trade at prices other than the market price.

Figure 2 shows that a firm's marginal revenue is equal to the market price since all businesses sell at market price regardless of the number of units sold. The focus, then, turns to marginal cost. Businesses will produce at a point where their marginal cost is equal to its marginal revenue, or

the price of the good. Referring to our discussion of economic profits, this makes intuitive sense. If a company produces at a marginal cost below marginal revenue, selling an additional product or service generates more revenue than it costs to produce or sell the unit, providing incentive to produce this additional unit. Conversely, where marginal cost exceeds marginal revenue, selling an additional product or service will cost more than that unit would generate in revenues, so there is no incentive to sell beyond the market equilibrium price.

Figure 1 - Marginal Revenue Calculation for a Competitive Firm

Number of Policies Sold	Price	Total Revenue	Marginal Revenue
100	\$100	\$10,000	-
200	\$100	\$20,000	\$100
300	\$100	\$30,000	\$100
400	\$100	\$40,000	\$100
500	\$100	\$50,000	\$100

Monopoly

On the opposite end of the market structure spectrum, a monopoly exists when only one business supplies a single product to many consumers. Whereas individual businesses are powerless to influence how the competitive market behaves, a monopolist is the only producer in its market and does influence market forces through its decision to produce a specific number of goods and charge a specific price for them. All of the competitive market characteristics in Table 1 either do not exist or do not apply. The most important changes are the number of firms serving the market and the barriers to entry. Monopolistic markets contain some sort of barrier to entry, either through regulatory constraints, patent laws, or economies of scale.¹ Economies of scale occur when, in the long run, the average cost of a product decreases as more units are produced. Economies of scale are generally found in industries like utilities, mining and heavy manufacturing.

¹ A monopolist may exist because the addition of competition into a market will duplicate resources inefficiently and actually increase product costs to consumers. Public utilities generally fit into this category, also referred to as a natural monopoly.

Where a competitive firm's goal is to earn a normal economic profit, the monopolist's goal is to maximize its economic profit. Since it has the ability to set prices of the goods at different levels of output, the monopolist's marginal revenue will always be less than the market-determined price, as shown in Figure 2. This is the key difference between competitive markets and monopolies. Businesses in both markets will sell at market equilibrium. The difference between the monopolist's marginal revenue and the market price is excess economic profit.

Figure 2 - Marginal Revenue Calculation for a Monopolist

Number of Policies Sold	Price	Total Revenue	Marginal Revenue
100	\$120	\$12,000	--
200	\$110	\$22,000	\$100
300	\$100	\$30,000	\$80
400	\$90	\$36,000	\$60
500	\$80	\$40,000	\$40

Oligopoly

The oligopoly market structure is characterized by a few large, dominant firms that have the ability to change the price of their product. Although businesses have the capacity to increase or decrease the price of their products, they must be conscious of the competitors' reaction to their pricing decision since it affects the sales and profits of its competitors. The United States auto industry was historically a prime example of an oligopoly. Generally if any of the Big Three auto manufacturers change prices on their vehicles, the others will follow suit. Competition from imports has eroded their ability to affect prices as they once could.

Oligopolies are created because of economies of scale, barriers of entry to the market and by attempts to weaken competitiveness. As with the monopolist, businesses in an oligopoly also have marginal revenues that are lower than the market price, the difference being excess profits, which creates a loss of social welfare. Firms can realize additional profits with this market structure if they work together (collude) to establish higher prices and not compete directly against each other. Many times this activity will result in the

creation of cartels in an effort to extract greater profits.

Competitive Monopoly

Whereas oligopolies are more typical of capital-intensive industries such as manufacturing, competitive monopolies are typical of retail and service industries, in which the insurance industry falls. A competitive monopoly contains many companies competing in an industry with products that while not entirely the same are very similar. These companies compete with each other on the basis of this product differentiation. Although the products are close substitutes for each other, they are not homogeneously the same.

In the short run, firms have the ability to earn excess economic profits since they have a unique product and can determine price by controlling the number of products it produces and sells. In the long run, however, firms do not necessarily earn excess economic profits. Since there are no significant barriers to entry in this market, new firms will enter and attempt to capture whatever excess economic profits other firms are earning. Existing businesses will lose market share as more and more firms enter the market, ultimately losing the ability to control the price of their product. In the long run, the market will see a demand situation similar to that of the competitive market where the market price nears the firm's marginal revenue until they are equal. Since the firm will produce where marginal cost and marginal revenue are equal, there will be little or no excess economic profits realized in the long run.

Auto insurance contracts are similar to each other in that they provide for financial coverage in the event of an accident and may indeed be similar to each other in terms of accident benefits. However, differences exist in terms of how settlements are handled by the insurer, financial ability of the insurer to pay a claim in the event of the accident, price of the contract and even the customer service provided by the insurer. These differences may be enough to allow insurers to maintain a larger market share and prevent a long-run perfectly competitive equilibrium from evolving.

The Regulation of Markets

Markets are most often regulated through price and entry/exit restrictions. In many cases,

methods to restrict both are used together. Again, the concept of social welfare will be revisited in this section. Viscusi, et al.,² provide an in-depth look at the effects of regulations given different levels of competition. The following section highlights their discussion.

Regulating Competitive and Imperfectly Competitive Markets

To understand the effects of regulations imposed upon competitive markets on social welfare, a competitive market equilibrium between price and the marginal cost of the firm would need to be determined. When considering only price regulation, establishing price at any level other than this equilibrium creates a loss of social welfare and hence a misallocation of resources. The loss of social welfare becomes larger the further price is set from the equilibrium value. The addition of regulations designed to limit market entry with price regulation lessens the loss of social welfare, but does not eliminate it.

Imperfectly competitive market analysis extends to the oligopoly or monopolistic competition market structures where firms maintain the ability to influence prices either through their relative market concentration or product differentiation position. Since price in an imperfect market is above competitive market equilibrium price, price regulations designed to lower price will decrease social welfare losses. Conversely, regulations that increase price will amplify social welfare losses. The effect regulations have on social welfare depends upon market profitability before and after the entrance of a new business. As such, conclusions cannot be drawn about whether relaxing entry and exit regulations raises or lowers social welfare. Viscusi, et al, suggest that regulations designed to fine-tune imperfectly competitive markets likely increase the loss of welfare and have a historical record of being self-defeating policies.³

Estimation of Regulatory Effects

Viscusi, et al, identify three approaches used to measure the effects of price and entry/exit regulation. An intertemporal, or time-series approach, measures the performance of a market

during years without regulation against the years that regulation was in place. Emphasis should be placed on controlling for factors other than regulations that influences the market. These factors include business cycle fluctuations, increased foreign competition, changes in technology, and changes in demand for the product, etc.

The intermarket approach compares a competitive market with an imperfectly competitive market that has similar characteristics, such as size and costs. Generally markets in different geographic areas can be compared. In this approach controls for factors that differ between the markets, such as demand elasticity⁴ or wages, must also be considered.

Finally, the counterfactual approach is used when either of the two previous approaches cannot be applied because of lack of data or unique market structure or product. Use of this approach requires development of assumptions about how the market would look if it were unregulated. The previously undefined market demand curve and the firm's previously undefined marginal cost curves, as they would look in a competitive market, are estimated to find the corresponding equilibrium price. Since the competitive market structure must be estimated, the possibility exists that not all effects of regulation can be accounted for with this approach. In many occasions, the counterfactual approach is used to supplement the other two approaches. It may also be used to examine what might have happened to a market if regulatory variables had been implemented at a different time or under different situations.

Conclusion

Economists have developed market structure models to demonstrate how businesses function within the boundaries of the market they produce in. While perfectly competitive and monopoly markets anchor the opposite ends of the models, they do not generally apply to any observable

² Viscusi, W. Kip, Vernon, John M., and Harrington, Joseph E., Jr., *Economics of Regulation and Antitrust*, 2nd ed. (Cambridge, MA: The MIT Press, 1998)

³ Viscusi, Vernon, and Harrington, *ibid.* p. 528.

⁴ Demand elasticity measures the willingness of consumers to purchase a product in the event of a price change. Demand is said to be inelastic if a price change does not drastically change the consumption of a product, whereas it is elastic if a price change does drastically change consumption.

market in our economy, which makes them more of a theoretical tool. Market models, such as the oligopoly and the competitive monopoly structures, attempt to explain how a typical industry functions in the real world.

These economic models show that regulations in all market structures other than pure competition may decrease the loss of social welfare, but not

eliminate it completely. In markets where a monopoly exists, a loss of social welfare exist can be lessened through the use of regulatory tools. Historically, however, regulation of industries exhibiting significant competitive market characteristics does not generally reduce the loss of social welfare.

Table 1
Characteristics of a Competitive Market

<p><u>Numerous firms.</u> Competitive markets are characterized by many small firms with no appreciable market concentration which eliminates any one firm being able to set a price higher than the market determines.</p>	<p><u>Implications:</u> Since there are no dominant firms, the market itself acts as the price-setting mechanism. If an individual firm sets a price that is higher than the established market price, it will not sell its product. And there is no incentive to sell at a lower price because it can already sell all it produces at the higher market price.</p>
<p><u>Homogeneous products.</u> All products in the marketplace are alike in the eyes of the consumer. There is no difference in the perception of quality and consumers have no preference for one product over another.</p>	<p><u>Implications:</u> One business does not have any advantages over any other based on the product or service it offers. This precludes gains in market share and attempts to establish a price that is above the market price.</p>
<p><u>No barriers to entry or exit.</u> No artificial or unusual barriers to entry or exit that would keep a business from entering or leaving the market.</p>	<p><u>Implications:</u> This characteristic also maintains a market-driven price since businesses are free to enter and leave the market without any significant cost to their decision. If the market begins to realize a net economic profit, other businesses will be able to step in and capture business, putting pressure on prices toward the market price. Conversely, if the market experiences net economic losses, businesses will voluntarily leave that market in search of other opportunities.</p>
<p><u>Perfect knowledge.</u> All consumers have access to all information about the product or service and can make an informed and intelligent decision about purchasing the product or service. Additionally, all information about technology is available to the producers as well.</p>	<p><u>Implications:</u> First of all, the consumer can easily go to another business if full disclosure about the product is not provided, so there is not incentive to deceive. Secondly, when information about technology is freely available, all producers in the industry will be able to employ it and willing to do so in order to maintain its market place.</p>
<p><u>Independence.</u> Firms make business decisions alone without the ability to collude with other businesses on price.</p>	<p><u>Implications:</u> Eliminating collusion allows for determination of price by market interaction between buyers and sellers.</p>

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