Title: APPLICATION OF PRINCIPLES, PHILOSOPHIES AND PROCEDURES OF CORPORATE PLANNING TO INSURANCE COMPANIES

Author: Mary Lou O'Neil

Biography: The author is the Chief Actuary for Property/Casualty and Life/Health Insurance at the New Jersey Department of Insurance and was previously Vice President and Assistant Actuary at the Prudential Property and Casualty Insurance Company. The author is a Fellow of the Casualty Actuarial Society, and a member of the American Academy of Actuaries and the Casualty Actuaries of New York. The author holds a B.S. in Mathematics and an M.A. in Statistics, both from The Pennsylvania State University. The author is a Contributing Editor to the Actuarial Review, a member of the External Communications Committee, a member of the American Academy Committee on Property Liability Insurance; and a prior contributor to the Discussion Paper Program.

Abstract: The purpose of this paper is to illustrate the need for development of unique applications of general corporate planning concepts to insurance companies. This is accomplished by briefly reviewing the principles, philosophies and procedures of corporate planning as applied to corporations in general, the unique aspects of insurers and the insurance business, and, finally presenting examples of the unique application of general corporate planning concepts to insurers.

## I. INTRODUCTION AND PURPOSE

In researching the subject of corporate planning, I found a multitude of well developed material providing detailed principles, philosophies and procedures of corporate planning for corporate entities in general. Although these broad concepts apply to insurers as corporate entities, insurers and their businesses possess unique characteristics which require correspondingly unique applications of these general concepts. The purpose of this paper is to demonstrate this need by illustrating some of these unique applications in the context of the broad corporate planning concepts. This paper is, however, only a beginning in this endeavor and is not intended to present a complete identification of all aspects of the planning process unique to insurers.

## II. CORPORATE PLANNING

As background for exploring the applicability of corporate planning principles, philosophies and procedures to insurers, this section presents a brief review of the principles, philosophies and procedures of corporate planning currently applied to corporate entities in general.

### A. Need for Planning

The first question often asked is why plan at all? Basically, business planning parallels personal planning. In our everyday activity we anticipate the outcomes of various actions so that we can select the action which will result in the most desirable outcome. So too for business. Forecasts and plans are made to illuminate today's decisions -- to provide a process to make decisions now about what action(s) to take in the future.[1]

B. Definition of Planning and Planning Terminology

In reviewing many definitions of planning, I found that there were four common elements to these definitions. These are:

- A company must determine its goals and objectives.
- Planning is a way to chart a path so that the company can achieve those goals.
- Planning involves decision making before a crisis occurs -- the future is anticipated and alternative courses of action are evaluated in a structured way.
- Planning is a multifaceted process involving the entire organization.

These elements were best encompassed in the following definition:

> "Planning is an analytical process which encompasses an assessment of the future, the determination of desired objectives in the context of that future, the development of alternative courses of action to achieve such objectives, and the selection of a course (or courses) of action from among these alternatives."[2]

For ease of reference plans may be classified into three categories: (1) Subject area, referring to plans in terms of observable specs such as marketing plans, financial plans and production plans, (2) Scope, referring to the range of influence and amount of detail of the plans such as goals or policies and (3) Time, referring to the duration of the plans (long-range, mid-range, short-range). Certain common planning terms such as policies, strategies and tactics, overlap the scope and time categories and may be distinguished as follows. Policies are overall general guides to action or basic long term precepts of company philosophy.[3] Strategies, however, represent the overall plans of action set by top management of the company[4] while tactics are relatively short term plans set by lower levels of management in an attempt to implement strategies.[5]

In developing corporate plans the organization first sets its long term policies and strategies and then develops appropriate tactics and short range operational plans necessary to achieve these overall goals. This represents the essence of the corporate planning process described in the next section.

## C. The Corporate Planning Process

The corporate planning process is generally recognized to consist of the following steps:

- Establish objectives or goals.
- Develop basic planning assumptions or premises.
- Identify alternative courses of action.
- Evaluate alternative courses of action.
- Implement the plan (select a course(s) of action).[6, 7, 8]
- Control[9]

For interested readers these steps are described in more detail below.

### 1. Establishment of Goals and Objectives

This stage of the process can be viewed narrowly by defining objectives so that the only objective of any company is to make a profit.[10] Or from a broader view, objectives are defined as long range desired states or outcomes such as desired market shares[11] while goals are shorter range and are considered to be milestones along the path toward achievement of objectives. In this phase of the planning process management must first determine its overall objectives and their translation into goals such as target profit and then provide operational definitions of each goal and a way to measure progress toward their achievement.[12] This is probably the most important phase of the planning process since it charts the company's long range course of activity and is generally completed at the executive level.

### 2. Development of Planning Assumptions

In this phase the company must try to explicitly identify the universe of conditions which may influence its operation or affect the achievement of objectives. These assumptions should reflect noncontrollable conditions such as business cycles, semicontrollable conditions such as market share or internal pricing policy, and controllable conditions such as whether to change product line or pricing strategy.[13]

3. Identification of Alternative Courses of Action

Based on the planning assumptions, the company then, forecasts its expected results given no new actions are to be taken. This is generally achieved using a system of linked together models, representing various aspects of the firm such as the firm itself, supply, sales, consumers, competition, environment and financial. Using variations of the original planning assumptions, based on possible factors which may influence results, the company can identify the results associated with different actions. The purpose of this phase of the process is to identify the range of actions available to the company, the expected results associated with each, and an assessment of the risk or margin of error inherent in each projection.[14]

4. Evaluate Alternative Courses of Action

The company must evaluate its array of possible actions identified in phase three in light of its moral policies, resources or other constraints to action.[15]

5. Implement the Plan

Once the company has selected its course of action it must be translated into specific policies, programs, procedures and practices by which the desired objectives and goals may be achieved.[16] This stage is generally considered the short range or operational phase of the process and is carried out by managers thruout the organization.[17]

6. Control

In order to assure achieving its selected plans, the company must establish check points to indicate whether it is on course. This requires continual monitoring and correction in the form of revised plans whenever significant deviations occur.[18] In fact, the planning process may appropriately be considered an iterative one -- continually changing as the need arises. The required monitoring is most easily achieved via a management information system designed to parallel the corporate planning model.

D. <u>Organization for Planning</u>

As noted above, certain aspects of the planning process are properly carried out by top management -- setting objectives, policies and strategies, while others are properly carried out by individual managers -- setting short term operational goals. The key to success of the planning process is participation thruout the organization.[19] The ideal organization for planning consists of an individual corporate planner coordinating the plans of operational managers -- there is no corporate planning department or specialized group of planners.[20]

## III. THE APPLICATION OF CORPORATE PLANNING TO INSURANCE COMPANIES

The preceding section presented an overview of corporate planning as it currently relates to corporations in general. Several authors illustrate the need to conform these basic concepts to individual industries and individual companies within an industry using the results of a study of the motor freight industry from which they found that regular long-range planning had little correlation with profitability. They concluded that the reason for this was the regulated nature of the industry -- markets, prices, and labor policies were stringently controlled leaving only day-to-day operations to management control. Thus, these companies could get by with <u>ad hoc</u> planning for acquisition or rate increases. The authors further point out that planning needs differ among different organizations and among the various levels in an organization. For example, a young company may require only a simple plan while a mature company in the same industry will need a formal planning function, or a small high-tech firm may desparately need plans while a large firm in a static industry may have less need. The planning needs of any organization are individual and situational.[21]

What does this mean for the role of planning for insurance companies? In order to answer this question, the next sections identify the unique characteristics of the insurance industry and its companies, and the consequent unique application of general corporate planning concepts to insurers.

## IV. UNIQUE CHARACTERISTICS OF THE INSURANCE INDUSTRY

The insurance industry shares many characteristics with other industries but is also quite unique in many respects. Both types of characteristics are described below.

Insurers are companies engaged in the sale of the product, insurance. They share the characteristics of corporations in other industries such as a corporate organizational structure including shareholders (stock companies), board of directors, and officers. However, at the same time, they differ greatly from similar sized companies in other industries. The primary sources of these differences are in the uniqueness of the insurance product and the significant role of regulation on nearly all aspects of an insurer's operation.

The insurance product differs from most products in two main ways, it is intangible and its cost of production is unknown until, often times, long after its sale. The intangible nature of the product likens insurers to other service industries. However, the uncertainty with respect to product cost remains a significant difference.

The other, and probably most important difference between insurers and other corporate entities is close regulation of many aspects of the business. This includes requirements for licensure to sell various insurance products, requirements to retain specified minimum capital and surplus, specification of the kinds and amounts of investment holdings, limitations on the amount of business which may be sold, rules regarding to whom the business must be sold (such as mandatory insurance or "take-all comers" laws and maximum premium to surplus ratios), rules regarding estimation of the final cost of the product, rules specifying the product itself (such as mandatory contract language), price regulation, and, finally limitation on rate of return. Because of these stringent guidelines the industry is often compared to the utility industry. However, this comparison is defective because that industry is provided a guaranteed rate of return in exchange for its regulation while insurers are limited only in the maximum return they may earn with no minimum.

In addition to regulation, insurers are set apart from other businesses because of their unique jargon (e.g. frequency, severity, pure premium, etc.) and unique accounting practices (e.g. deduction of pre-paid expenses and unpaid claims, etc.).

Insurers further differ among themselves in their organizational structure (stock vs. mutual), sales organization structure (direct writers, independent agency system), product mix (personal, commercial, reinsurance, etc.), etc.

However, despite the constraints of regulation, there is intense competition, particularly in property/casualty insurance. This competition is the result of the maturity of the insurance product reflected in the saturation of the major insurance markets (more than 90% of individuals are covered by life insurance and more than 96% of workers are covered by group life and health insurance) and relatively low growth (1 to 3% per year) in the number of insurable objects such as people, cars, houses, businesses, etc., per year.[22]

## V. CORPORATE PLANNING -- AND ITS APPLICATION TO INSURANCE COMPANIES

The earlier sections of this paper presented a brief overview of corporate planning -- its definition, its need, the process and its steps. This section illustrates some of the unique applications of general corporate planning concepts to insurance companies.

A. Need for Planning

Is planning needed at all by the insurance industry?

I believe that there is a role for planning in insurance companies. For example, despite the constraints of regulation, there is a need for the firm to establish its target profit or rate of return, to choose objectives such as market dominance, market (or product) emphasis, geographic emphasis, prices, attitude toward employees and clients, attitude toward social goals and insurance, and reactions to changes in regulatory or legal climate, etc. Wherever there is room for choice or change, there is room for planning.

Stated more strongly, insurance executives will be forced to reckon with significant changes in the forseeable future requiring the ability to innovate and respond quickly.[23] It is no longer possible to rely on the cyclical nature of the business and operational strategies to pull them through.[24]

B. Definition of Planning and Planning Terminology

Is the definition of planning provided in section II. B appropriate for insurers? Is there any unique meaning of the common planning terminology for insurers? What are the appropriate subject areas for insurer planning? What should the scope and planning horizon be? What should the level of detail of planning be?

The appropriateness of the definition of planning may be ascertained by examining each of the common elements of the various definitions of planning. The first element requires a company to identify its goals and objectives. I believe it is fundamental for insurers to identify goals and objectives particularly its target rate of return -- otherwise the company has no direction. The second element of the definition asserts that planning is a way for the company to chart a path towards its objectives. Of course objectives are worthless if the organization cannot identify a way to achieve them -- insurer or not. Third, planning is said to provide an opportunity to make decisions in advance. Insurers can benefit from this insulated decision making as well as other corporate entities. Finally, the definition identifies planning as a process. This would be true regardless of the entity employing it. Thus, the definition of planning applies to insurers without modification.

The categorization of plans into subject area, scope and time as well as the terminology associated with these planning categories may be taken as generic and hence applicable to insurers. Subject areas for insurance planning include, as for corporations in general, marketing plans, financial plans, and production plans.

The planning horizon will depend on the company's chosen lines of business and areas of operation. In determining the planning horizon for a property/casualty insurer it must be remembered that as of January 1 the results for the ensuing year are largely already determined because the book of business which will create those results has already been written. With restrictions on cancellations or non-renewals, there is a long period of time between action and result for a property/casualty insurer. Thus, the preparation of a one-year plan is a useful exercise which will point out the work to be accomplished over a longer term, say five years.[25] Thus, I believe there is an appropriate role for both short and long term plans, each designed to meet the specific needs of the individual organization. And, these two types of plans should be interdependent.

Plan scope can range from the broad statements of objectives to detailed plans regarding every aspect of the business (number of claims in a given geographic area in a given period of time for a given coverage, etc.) Planning must be done in sufficient detail in order to provide a basis to monitor and control results. There must be a balance between the detail used and the detail required or the cost versus the benefit to the specific organization.

C. The Planning Process -- Establishing Objectives and Goals

Section II. C.1. defines and distinguishes objectives and goals for corporations in general. What objectives and goals may be relevant to an insurer? Who should set the objectives and goals? What should be included in the objectives and goals? What should the level of detail of the objectives and goals be?

I believe that the objectives and goals relevant to an insurer, must certainly parallel those of most corporations, in general, to make a profit and to survive, and then, specifically, to the individual company, to gain certain market share, etc. The detailed specification of these goals may take on a different nomenclature due to the uniqueness of insurance jargon. For example, the goals of controlling claim costs or improving renewal ratios parallel goals for other businesses such as decrease production costs or maintain current customer accounts. Objectives and goals could, as for corporations, be completed either by top executives or by individual managers. I believe that the objective and goal formulation phase of the planning process establishes the path of the organization and, hence, should remain with top executives. Individual managers must be given a framework within which to establish short term operational goals.

Objectives and goals can be broad statements of direction or specific measurable achievements. I believe insurers have a need for both. Long range policy statements and overall broad organizational goals provide the framework for specific measurable goals to be completed by each manager.

The level of detail of objectives and goals should be sufficient to determine whether or not the desired result has been achieved.

D. The Planning Process -- Establishing Planning Assumptions

Section II. C.2. defines planning assumptions for corporations in general. What should these assumptions include for insurers? Who should prepare the assumptions?

Planning assumptions were defined to include all those conditions which may confront the organization. For insurers, general conditions of importance include inflation, interest rates, and regulatory and legislative changes. Dutter enumerates six key forces which will confront insurers in the foreseeable future: erratic swing in rates of inflation or interest, decline in attractiveness of other business combined with ease of entry to insurance, dramatic advances in EDP, unbundling of commercial property/casualty, group life/health, and pensions, and greater distribution efficiency.[26] Howland provides an extensive list of external influences which must be considered, which is reproduced as Exhibit I.[27] These fall into the category of noncontrollable forces.

Insurers should further enumerate controllable factors such as the number of employees, its anticipated market share, product mix, geographic emphasis, etc. These assumptions may take the form of numerical projections (discussed below) of new business sales, claim counts, etc., and provide the basis for input into the company's modeling system.

## E. The Planning Process --Identification of Alternative Courses of Action

Section II. C.3. presented the process of identification of alternative courses of action for corporations in general. What is the proper role for a management information system in an insurance company? What aspects of the insurance firm should be modeled?

As noted in Section II. C.3, corporations generally create models reflecting various aspects of the firm linked together to form an overall model. Hylas states that for insurers, computer planning models may be used to systematize the planning process, create "what if" analyses, measure the possible effects of inflation on future earnings, evaluate the impact of state and other regulations, evaluate the effect of recent court decisions, for tax planning, projecting cash flow, structuring competitive rates, and determining the best mix of business.

He goes on to state that a successful planning model must be designed to meet the specific planning needs of the organization. There is no universal all purpose planning model. He does, however, provide a simplified outline of the basic elements which might be common to most insurer modeling systems. These are reproduced as Exhibit II.

He also asserts that the overall model consists of convenient submodels which are unique to the individual company. His possible input/output variables for each submodel are displayed on Exhibit III. The key to model design is to be sure that the model meets the user's needs.[28] Verrengia concurs with these thoughts, suggesting that for a medium size insurer models should focus on earned premiums, loss ratios, profit and loss planning and ratemaking.[29]

Hence, models are appropriate as well as useful tools as part of the planning process. I believe computerized models are key to the effectiveness of the planning process.

F. <u>The Planning Process</u> -- <u>Evaluation of Alternative Courses of Action</u>

Section II. C.4. noted that corporations must evaluate alternative courses of action in light of its constraints. Similarly, what criteria should be included in the action selection process for insurers?

An insurer, which sells a product affected by the public interest, must clearly identify its moral policies and first evaluate each action on this basis discarding those which are unacceptable. Other constraints might include available capital (premium to surplus ratio), maximum rate levels, or prohibited underwriting standards. I believe that each insurer must develop its own criteria for evaluation of its alternative actions. These criteria should be established before they are needed, and should be consistent with the company's other policies and philosophies. To the extent possible, the criteria should be objective and measurable.

G. <u>The Planning Process</u> -- <u>Implementation</u>

Section II. C.5. discussed implementation of the planning process for corporations in general. How should the plan be implemented by insurers?

This phase of the process refers to the implementation of the actions selected in the previous phase and applies to insurers as well as corporations. Policies, programs, procedures and practices must be established to provide individual managers with the actions which each must accomplish in order to achieve overall goals.

## H. The Planning Process -- Control

Section II. C.6. discussed the need for control of implemented plans for corporations. What kind of analysis of results should be done, by whom, when? How does the plan provide for control?

As noted for corporations in general, without control, there was basically no reason to plan i.e. there would be no way for the company to know whether the actions it implemented have put it on its desired course toward achievement of its objectives or not. Reuter described the controlling process in his insurance company as consisting of two items: an objective or standard which is clearly stated in measurable terms and a timely assessment or measure of actual performance or results. These two items are incorporated into control reports at the individual manager level.[30]

I believe that control includes both of Reuter's items as well as a constant monitoring of key variables via a management information system designed to parallel the plan models, so that timely action may be taken in response to deviations -- positive or negative.

## I. The Planning Process -- Organization for Planning

Section II. D. discussed the proper organization for planning. Who should plan? Should there be a Corporate Planning Department in insurance companies? What should be the involvement of individual managers in the planning process?

The planning process works best when the number of participants is as great as possible. Certain forecasts can begin in the field, such as production, loss ratio and development by line of business and then progress thru the organization.

Participation in the planning process should involve all of management via specific measurable goals. Overall objectives, however, should be set by top management.

## VI. OVERALL GUIDELINES IN DESIGNING AN INSURER PLANNING SYSTEM

The preceding sections presented various concepts related to an effective planning system. These are highlighted here.

- The company must develop a "plan", i.e. choose a set of identifiable measurable actions designed to achieve certain identifiable measurable results not just a "forecast" which is merely a numerical prediction of what results might be under one specific set of assumed actions.

- The planning process must balance detail with needs i.e. cost must be justified by benefits realized.

- The company must set overall objectives and policies. Executives should assume the responsibility of setting the company's direction and make it well known throughout the organization.

- Those individuals responsible for results should also be responsible for the plans. Participation in the planning process should be as broad as possible. There should be no need for a separate corporate planning department or a separate group of "planners".

- Plans should be structured so that the results are measurable and specific accountability should be assigned throughout the organization -- rewards should be tied to achievement of plan goals.

- The planning process should be a dynamic ongoing flexible activity responding to both favorable and unfavorable deviations as they arise.

- The plan should include models and a management information system specifically structured for the individual insurer's needs. Models and processes suitable for other firms should not be transplanted.

## VII. SUMMARY AND CONCLUSIONS

The preceding sections presented an overview of the planning process for corporations in general and identified some unique areas of application of the process to insurers. This identification represents only a beginning. There is a need to more fully develop these unique areas of application for insurers in general and finally individual insurers must carry the process into their own firms.

Exhibit I

External Influences
Influencing the Business Climate of Insurers[31]

I. For Property-Casualty Companies

- Extreme competition, especially for commercial business
- Cash-flow underwriting
- Mandated subsidies in involuntary markets
- Growing company/agent computer interfacing
- Financial service marketing
- Multiple types of marketing outlets
- Nonrisk-bearing insurance services
- Loss of market share by independent agents
- Continued inflation in medical expenses and auto repairs
- Deterioration of smoke stack industries
- High energy costs
- Growth of self-insurance and captives
- Open competition and requirement of independent pricing
- Possible increased taxes

II. For Life and Health Companies

- Increasing medical expenses
- Investment-oriented life policies
- Agent retention
- Possible increased taxes

Exhibit II

Basic Elements of An
Insurance Planning Model[32]

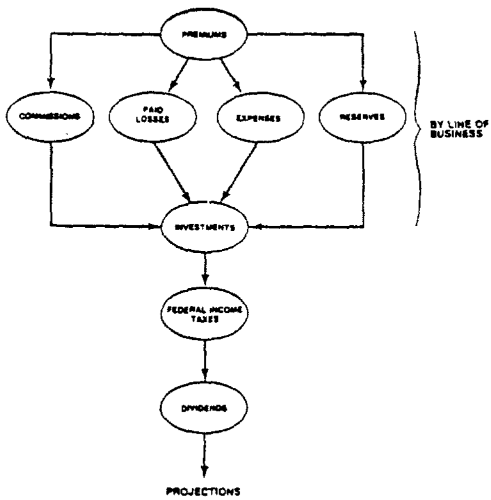

Exhibit III

## Examples of Input/Output Variables for an Insurance Planning Model[33]

| MODEL COMPONENT | INPUT VARIABLES<br>Outside Variables | Policy Variables | OUTPUT VARIABLES |
|---|---|---|---|
| Premiums | o Employment Levels<br>o Demographic Trends<br>o Competition<br>o Government Regulation<br>o Interest Rates<br>o Other Economic Indicators | o Premium Rates<br>o Levels of Advertising<br>o Type of Marketing Techniques<br>o Types of Policies<br>o Ceded Premiums | o Direct Premium Written<br>o Return Premiums<br>o Additional Premiums<br>o Earned Premiums<br>o Unearned Premiums<br>o Premiums In-Force<br>o Net Premiums |
| Commission | o Prevailing Commission Rates | o Agency Agreement<br>o Commission Rates | o Commissions<br>o Agents Current Account |
| Paid Losses | o Historical Experience<br>o Government Regulations<br>o Mortality Rates<br>o Catastrophic Events<br>o Judicial Decisions<br>o Inflation Rates | o Underwriting Policies<br>o Claim Adjustment Policies | o Paid Losses<br>o Reported Claims<br>o Incurred but not Reported Losses<br>o Outstanding Losses<br>o Other Reserves |
| Expenses | o Salary and Wage Rates<br>o Cost Accounting Data<br>o Historical Experience for not Reported Losses<br>o Inflation Rates | o Personnel Policies<br>o Location of Company Facilities<br>o Company Organization<br>o Administrative Support Functions, Number and Types of Personnel<br>o Union contracts | o Expense Reserves<br>o Loss Adjusting Expenses<br>o Unallocated Expenses<br>o Operating Expenses<br>o Expense Ratio |
| Investments | o Current Interest Rates<br>o Riskiness of Various Investment Opportunities | o Maturities on Current Investments<br>o Types of Investments<br>o Mix of business: Long-tail vs. short-tail losses | o Investment Portfolio<br>o Yield on Investments |
| Income Taxes | o Federal Income Tax Code<br>o State Income Tax Code<br>o International Income Tax Code | o Types of Policies Qualifying for Special Exemptions<br>o Accounting Policies<br>o Capital Expenditures | o Federal, State, International, Income Tax Expense<br>o Deferred Taxes |

## Footnotes

1. John Argenti, Corporate Planning A Practical Guide (Homewood, Illinois: Dow Jones - Irwin, Inc., 1969), p. 204.

2. Brian W. Scott, Long-Range Planning in American Industry (American Management Association, 1965), p. 21.

3. George A. Steiner and John B. Miner, Management Policy and Strategy Text, Readings, and Cases (New York: Macmillan, 1977), p. 26-27.

4. Steiner, p. 19.

5. Steiner, p. 23-24.

6. William R. Osgood, Basics of Successful Business Planning (American Management Association, 1982), p. 20.

7. Scott, p.22.

8. Argenti, p. 17.

9. Russell L. Ackoff, A Concept of Corporate Planning (New York: John Wiley & Sons, Inc., 1970), p. 6.

10. Argenti, p. 28.

11. Ackoff, p. 24.

12. Leon Reinharth, H. Jack Shapiro, and Ernest A. Kallman, The Practice of Planning Strategic, Administrative, and Operational (New York, Van Nostrand Reinhold Company, 1981), p. 31.

13. Osgood, p. 20-21.

14. Argenti, p. 110.

15. Argenti, p. 131-135.

16. Ackoff, p. 42.

17. David Dewan, Planning and Control for Managers (American Management Association Extension Institute, 1975), p. 4-5.

18. Reinharth, Shapiro, and Kallman, p. 38.

19. Ackoff, p. 129-131.

20. Argenti, p. 227.

21. Reinharth, Shapiro, and Kallman, p. 3-4.

22. William A. Sherden, "Stategic Planning: Do the Concepts Apply", Best's Review (October, 1983), 29.

23. Philip H. Dutter, "Successful Management in a Changing Environment", Best's Review (December, 1983), 33-34.

24. James E. Morey, "Planning for Survival", Best's Review (September, 1983), 128.

25. Wilfred G. Howland, "Corporate Planning -- Prescription for Survival", United States Banker (May, 1984), 121.

26. Dutter, p. 33-34.

27. Howland, p. 121.

28. Robert E. Hylas, "An Introduction to Planning Models for Insurance Companies", Insurance Accounting and Statistical Proceedings, 1982, p. 624-626.

29. Robert A. Verrangia, "Computer Modeling/Planning", Insurance Accounting and Statistical Association Proceedings, 1981, p. 469.

30. Robert E. Reuter, "Corporate Planning", Insurance Accounting and Statistical Association Proceedings, 1981, p. 193.

31. Howland, p. 120.

32. Hylas, p. 626.

33. Hylas, p. 627.