TITLE: PRICING, PLANNING AND MONITORING OF RESULTS: AN INTEGRATED VIEW

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ABSTRACT: The paper discusses current approaches to financial planning, and argues that planning and monitoring of results can be improved by integrating them with the pricing process. Traditional insurance accounting information is rejected as not being meaningful. In its stead the author argues that products should be priced, planned and monitored either on an issue year or an exposure year basis.

Most major property/casualty insurance companies (and many of the smaller ones) are now actively engaged in business planning. The centerpiece of this activity is a financial forecast of operating results over some future time horizon, usually ranging from one to five years.

Inputs to the financial forecast include estimates of future premium growth based on market analyses and production objectives; projections of future loss ratios reflecting actuarial, claim and underwriting input; as well as expense assumptions based on fairly detailed budgets and staffing projections. As a final step the investment and tax areas overlay their projections onto the underlying forecast of the insurance area.

These efforts are by no means the only type of planning activity that takes place at most companies. In addition to the financial planning described above, a great deal of operational planning is underway. Marketing, claim, underwriting, and investment are all devising strategies and operational plans designed to accomplish their objectives.

Operational planning is important; however, the unfortunate truth is that it usually takes a back seat to financial planning where the focus is on results.

Once the financial plan has been constructed, it is then used as a benchmark against which actual results are measured. At most companies considerable effort is expended in the analysis of planned versus actual results, particularly in explaining significant variances between actual and plan (especially adverse variances).

CURRENT APPROACHES TO PLANNING & MONITORING OF RESULTS

The proper construction of a property/casualty financial planning exercise is the key to its success. Unfortunately, at many companies the construction is not well conceived, and suffers as a result. The defects in the construction of the financial planning exercise usually stem from the historical traditions of the property/casualty industry and fall into two main (but related) categories:

- An overemphasis on calendar year accounting results
- Separation of underwriting results from investment results

This situation creates a straightjacket for any analysis, severely limiting its effectiveness. Management is focusing on the wrong numbers, configured in the wrong manner for intelligent decision-making.

Calendar year accounting results are not a meaningful measure of an insurer's profitability. This is true whether these results are

presented on a statutory or a GAAP basis; and also whether or not the reserves are discounted or undiscounted.

Calendar year results reflect the change in the inventory of accumulated profits and losses on all past policies issued.

- They are distorted by changing reserve margins on past issues.

- They reflect current investment income on cash flows generated by current and prior issues, with all funds commingled.

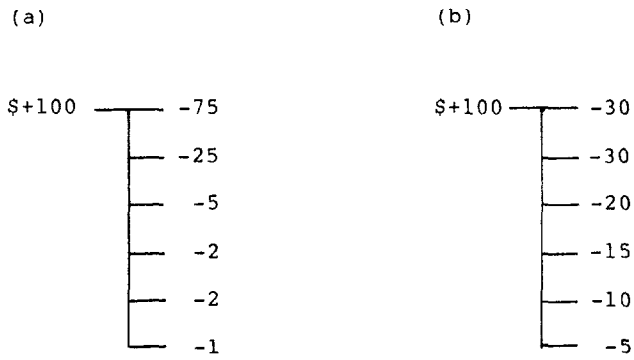
- Investment income derived from the insurance cash flow is often commingled with investment income on retained surplus.

- Underwriting results on current business are almost entirely an estimate.

Data configured in this manner is largely useless in assessing the current profitability (or unprofitability) of products being sold. The discussion above also implies that attempts to forecast calendar year results directly are doomed to failure.

Related to the problem of reliance on calendar year results is the traditional separation of underwriting and investment income. Interest rates have been high enough for long enough that almost everyone has developed an appreciation for the time value of money (although I am still surprised to hear of underwriters who do not consider deferred premium plans to be a form of price cutting). However, this appreciation has not extended to the traditional income statement.

Consider the following two cash flows:



Cash flows (a) and (b) are both insurance products with combined ratios of 110%, but with distinctly different cash flow characteristics. Cash flow (a) is attractive only when interest rates exceed 26%. On the other hand, cash flow (b) is attractive if interest rates are above 7%.

Clearly the traditional underwriting result, which is the same for both products, does not tell us enough to compare their performance. By the underwriting results standard both products are losers. Yet in reality, if interest rates are 10% (and stay at 10%) one product is actually a winner.

And if interest rates are 10%, what is the magnitude of our true loss on product (a) and gain on product (b)?

At a 10% interest rate, cash flow (a) has a net present value of $-5.35, while cash flow (b) has a net present value of $+4.99. Regardless of the accounting treatment (and ignoring taxes) these are the true economic profits on these two transactions, given the interest rate.

At least for internal management purposes, we should be measuring our performance in a manner that more directly reflects this fact.

MACRO-PRICING

As the title of this paper suggests, the author believes that effective planning can only be accomplished by integrating financial planning with pricing. Before proceeding further, it is necessary to define pricing in this context. To do so, a distinction must be drawn between macro-pricing and micro-pricing of property/casualty insurance products.

Micro-pricing is concerned with individual rates for specific states, classes, territories and coverage limits. This activity is traditional at large companies and at the bureaus, where armies led by actuaries wage warfare with insurance departments using the rate filing as their weaponry.

In contrast, macro-pricing is concerned with the overall cash flow characteristics of a product line, and the resulting return on equity that it produces. This kind of activity needs to be done by all companies, regardless of whether they make their own rates or rely on ISO or NCCI.

Macro-pricing takes as its starting point, the aggregate ratemaking statistics for the product. This includes exposure, premium, loss and expense data, configured to reflect both the timing as well as the amount of each item.

Using traditional pricing techniques (loss development, trend, etc.), coupled with a cash-flow model it is possible to calculate the overall premium revenue necessary during some future period, to produce any desired rate of return. This is the essence of macro-pricing: the calculation produces an indication of future rate level need for the product line as a whole.

The macro-pricing indication is the benchmark by which micro-pricing decisions are measured. In fact, an operational planning issue becomes the design of a strategy to obtain via the individual micro-pricing decisions the overall macro-pricing objective.

Alternatively, if the macro-pricing objective is unattainable (due to market or regulatory constraints) the company might consider withdrawing the product from the market, altering the product, or curtailing the growth in its sales.

Inevitably, when the subject of rates of return arise the conversation turns to the question of what constitutes an adequate return. It is argued that total return pricing is an exercise in futility, without an answer to this question. A further impediment to total return pricing is the question of how much capital is required to support the line.

I will offer no answers to these related questions.

However, I would argue that the lack of concrete answers to these questions doesn't mean that we ought to reject the thought process embedded in them. Finance and economics strongly suggest that this is the right way to look at things. The supply of answers to these questions will not increase until it is spurred by a rise in the demand for them.

MONITORING OF RESULTS

In order to analyze the results for a product and measure its profitability, either historically or currently, it is necessary to accumulate all of the associated premium, loss, and expense transactions together in an orderly and consistent manner.

Fundamentally, there are only two approaches to accomplish this objective.

- Accumulate all transactions that relate to a particular exposure period.

- Accumulate all transactions that relate to a particular set of contracts, such as those issued during a set time interval.

The reader should recognize that for traditional applications, and at least for losses, these two approaches are synonymous with accident period and policy period (and if the policies are annual we have the traditional accident year and policy year.) I have utilized the exposure and issue terminology to imply a more generalized concept, capable of handling specialized products without a traditional policy term, and also to emphasize that the approach applies not only to losses, but also to exposures, premiums, and expenses.

All insurance transactions are assignable or allocable both to an issue period and an exposure period.

- Losses and allocated loss adjustment expenses are directly assignable to both issue and exposure period.

- Premiums, commissions, state premium taxes, and other excise taxes that are a direct function of premium are directly assignable to issue periods; they are traditionally allocated pro-rata over the term of the exposure.

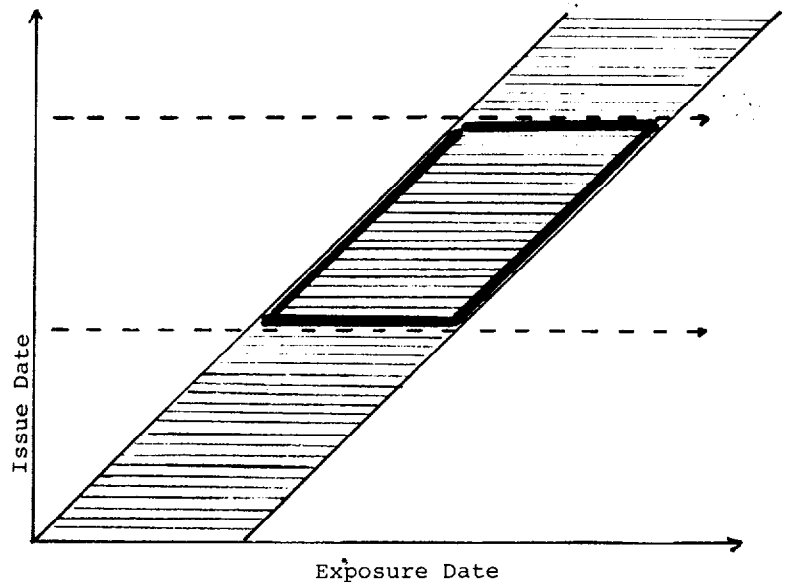
- All other expenses are overhead, and must be allocated in some reasonable manner both to issue periods and exposure periods.

Ideally, all allocations of costs should be based on functional cost and time studies. What is more important is that the methods of allocation be consistent, particularly with pricing assumptions.

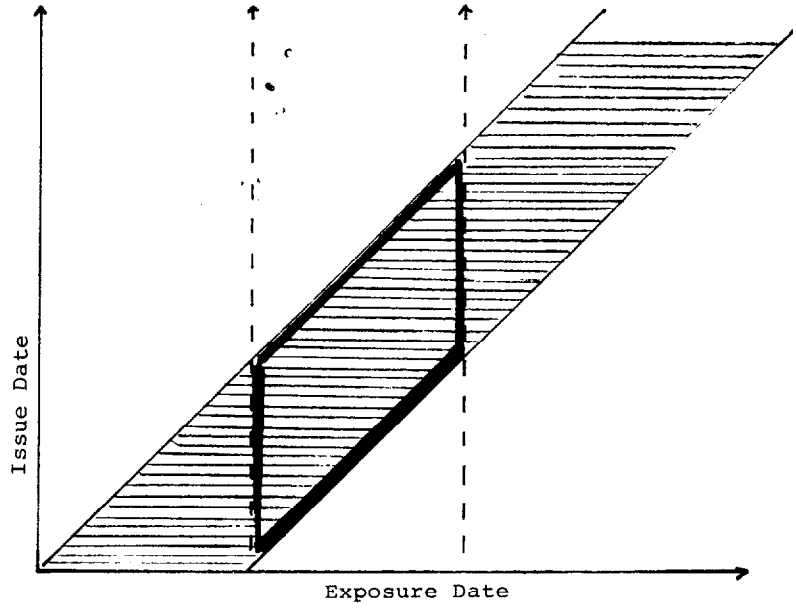
Exhibit I diagrams the traditional configuration of issue year versus exposure year for contracts with an annual term. (Note that both the policy year and the accident year are conceptualized as parallelograms). Each approach has advantages and disadvantages, most notably:

EXHIBIT I - ISSUE YEAR VERSUS EXPOSURE YEAR

Issue Year Configuration of Experience:



Exposure Year Configuration of Experience:



- Exposure year loss data matures more quickly than issue year loss data, hence its greater acceptance in ratemaking.

- Premiums, commissions and taxes are easier to assign to issue year, because all transactions associated with a given policy are assigned to the same issue year. Correct allocation to exposure year requires systems efforts not always easy to obtain. Individual transactions must be split between exposure periods; the pro-ration is intuitively simple, but quickly becomes very complex in the real world of endorsements, audit adjustments and error corrections.

- Policies are priced at the time of their issue. Similarly, production goals are established by issue period. The issue year approach has the advantage of relating directly to these and other related marketing decisions and objectives.

For this last reason, the author prefers the issue year approach for planning and monitoring of results.

INVESTMENT INCOME

In discussing the allocation of transactions to issue year and exposure year, some readers may have noted that allocation of investment income was absent from the discussion.

This was intentional, not because investment income is not important, but instead because the author does not believe that actual investment income should be utilized in pricing, planning and monitoring of property/casualty insurance results.

Instead, the investment department should guarantee to the insurance area spot and forward interest rates to be used in the pricing process. These rates should be used in the pricing of the product. Investment income for the insurance area should be based on these rates, as if they were actually the rates being earned.

In other words, the insurance operation ought to loan its available cash to the investment operation at negotiated, fixed, and guaranteed rates. In essence the investment department should "pay" for the cash flow that it obtains from the insurance area.

The performance of the investment area should be based on its ability to earn investment returns in excess of that which it is paying for the funds that it has obtained. The investment department becomes a true banking operation.

Some might argue that the artificial book-keeping entries required to accomplish what I am describing are not worth the effort. I would disagree. The approach I am suggesting may be the only way to

establish the missing dialogue between the two areas about such topics as durations and the risks associated with mis-matching maturities.

This approach will also facilitate meaningful consideration of investment income in the pricing of these products.

The rates guaranteed to the insurance area should be at or near market interest rates, with any differences reflecting risk margins. They should be the rates that management is willing to concede to the buyer in the pricing of a product. For example, the pricing of alternative payment plans should use these rates, so that the seller is indifferent to the payment plan selected.

The concession of market interest rates in the pricing of the product does not imply a reduction in the overall target profit margin of the product. It merely causes that profit margin to be consolidated into a single number, rather than being split between an underwriting and an investment component.

Consolidating the profit margin into a single number is critical to the pricing process. The decision to reduce the profit margin to meet competitive pressures becomes an explicit one, and not an implicit one based on the amount of an indicated rate increase "left on the table".

A FINANCIAL PLANNING SYSTEM

Financial planning, including macro-pricing requires a specialized management information system to house both actual and projected experience. The system should consist of one or more databases capable of sorting and summarizing the various data elements in a variety of ways.

Exhibit II displays such a system in schematic form. The system consists of three inter-related databases:

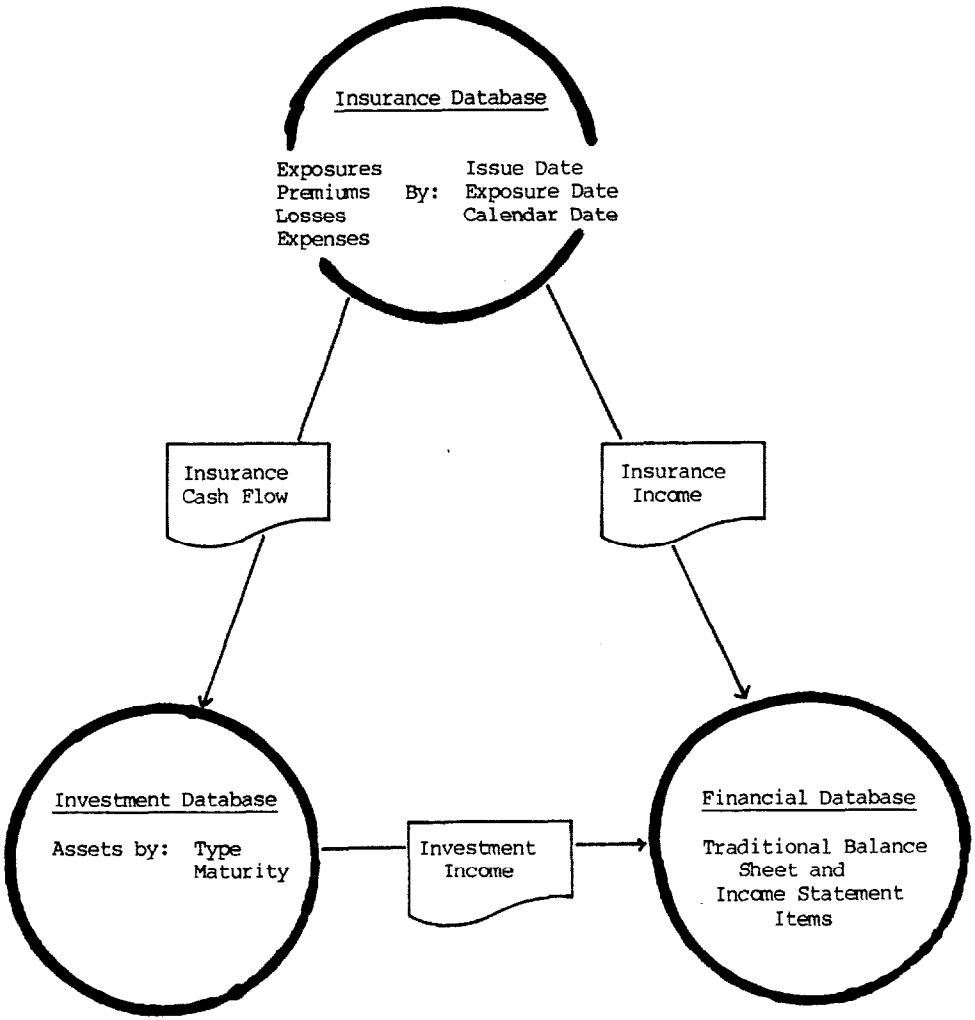
- An insurance database containing actual and projected exposures, premiums, losses and expenses, for each product line.

- An investment database containing actual and projected assets by type (taxable bond, tax-exempt bond, common stock, etc.) and maturity.

- A financial database containing traditional balance sheet and income statement items.

These three databases would interact: actual and forecast results from one database would serve as input to the others.

EXHIBIT II - A COMPREHENSIVE PLANNING SYSTEM



The insurance financial planning function (including macro-pricing and monitoring) is housed entirely within the uppermost database in Exhibit II. The analysis of actual results, and the forecast of future results would be by issue year or exposure year, (or both), depending on the specific design of the forecasting model for the line. (For major lines, it may be desirable to maintain greater than annual detail, e.g., issue quarter and/or exposure quarter).

The main objective of the planning exercise is the generation of the insurance cash flow, which is the principal input to the investment department for investment planning purposes. The investment department's plan involves the selection of a maturity profile appropriate to the cash flow forecast.

Both the investment and insurance areas can generate accrual forecasts in addition to cash flows. These can be fed into the financial database that produces forecasts of traditional accounting results. While ancillary to the first two steps, this last step is probably necessary, at least for tax planning purposes.

Given these three databases and modern database management techniques reports in a near-infinite variety of formats can be generated. Those reports should be designed to support either the macro-pricing, financial planning or monitoring of the line.

SUMMARY

In any business, decisions must be supported by adequate management information. The financial planning exercise is the support tool by which management assesses the current and future prospects of each product being sold by the company. It is imperative that the financial planning exercise be well defined, and reflect the true economics of the enterprise. Decisions should not be driven by either statutory or GAAP reporting requirements, either in their current or future forms. These requirements should, instead, be viewed on a constraint that must be satisfied. (Admittedly, an important constraint, but nonetheless a constraint).

Pricing, financial planning and reserving all involve forecasts of future transactions of the insurance company (hence they are all actuarial). Differences between the forecasts stem from timing differences. None of the differences suggest that the fundamental approaches to each forecast should be different.

The author has argued that pricing and financial planning should be performed on an issue year, or alternatively on an exposure year basis. Forecasts should be made that reflect both the timing and the amount of future cash flows. Within the insurance operation, investment income should be based on simple, fixed interest rate assumptions consistent with those used in pricing the product.

Finally, the monitoring of insurance results should not be on the basis of calendar year accounting results. Rather, comparisons between actual and planned results should be maintained by issue period or exposure period.