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UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

PROGRAM ANALYSIS
DIVISION

10 NOV 1982

B-209252
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The Honorable John J. LaFalce
Chairman, Subcommittee on General
Oversight
Committee on Small Business
House of Representatives

Dear Mr. Chairman:

On May 18, 1982, you asked us to review the merits of studies referred to in a hearing held by your Subcommittee on February 8, 1982. One main issue addressed at the hearing was whether it was desirable that States adopt open competition statutes and permit insurers to compete on premium rates as opposed to the continuation of premium regulation. The second major issue was whether the present premium-regulated system as practiced by most States adequately reflected the value of investment income earned by insurers from the premium payments of employers.

On Friday, October 1, members of my staff, Natwar Gandhi and Clifford Tuck, met with your counsel, Mr. Robert Rigney, and briefed him on our findings. These findings and a critical discussion of the issues contained in the February testimony as well as studies that elucidated the views expressed in the testimony were summarized.

At his request we are transmitting a copy of the study used as the basis for the briefing as well as a bibliography of source materials that formed the basis of our summary and critique of the issues.

Sincerely yours,

Morton A. Myers
Director

Enclosures

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Issues Associated with Workers' Compensation Insurance

This paper provides a brief background on workers' compensation insurance, an overview of salient issues, and our findings. These issues are

--Is open competition a viable alternative to the prevailing premium-regulated State system?

--Should investment income be taken directly into account in setting premium rates?

--How can the present ratemaking system be modified to reflect investment income?

BACKGROUND

Since 1948 every State has had a workers' compensation law. These laws were generally intended to guarantee that covered workers would be recompensed for lost wages and health costs associated with work-related injuries regardless of fault. Laws in each State require that workers be indemnified for medical expenses and a proportion of earnings lost. The coverage extends to almost all types of employment and includes coverage for both injury and occupational disease. By law, employers must pay worker benefits and this is typically arranged through employers purchasing workers' compensation insurance either from a private insurance company or an insurance agency of the State for those States that underwrite workers' compensation policies. Another alternative available to some employers is to insure themselves. This is called "self-insurance" and is permitted for qualified employers in all but three States. In 1978 self-insurance accounted for approximately one-sixth of all workers' compensation insurance payments.

Rates for workers' compensation insurance are generally prepared by private ratemaking bureaus and filed with State insurance departments for approval. Assisting many of these private carrier rate bureaus is the National Council on Compensation Insurance (NCCI). Formed in 1915, the NCCI is a voluntary, nonprofit, unincorporated association of insurers. The NCCI is the licensed statistical agent in 32 jurisdictions, and has approximately 600 member companies. The NCCI's chief function is to collect and analyze statistical and financial data periodically from its member companies. For each individual State, the NCCI's assembly of financial data--premiums, discounts, benefits, expenses, etc.--is used by its State-affiliated rate bureaus in preparing premium rate filings.

Regulation of premiums traces back to the turn of the century. At that time, according to a recent report on regulation in the insurance industry, most States permitted voluntary associations of insurance companies to set rates and standardize insurance contracts for various kinds of property-casualty insurance, fire insurance being the most prominent hazard of the times.[1] But competition on premiums kept breaking out among members of these voluntary associations, often forcing rates to a point below the actual indemnity cost. Thus competition came to be seen as "destructive" by many State legislatures because it could drive company solvency to levels inadequate to pay benefits if casualties occurred. Also, the fact that private carrier rate bureaus were entrusted with the establishment of rates and the monitoring of rate compliance was seen as an oversight responsibility of the State delegated to private associations. Their mistrust of placing control over casualty premium rates in the hands of self-interested groups and a concern with the adequacy of private carrier solvency conjoined to facilitate the passage of State laws which substituted regulation for competition as the arbiter of premium rates.

Recently a counter trend to the direct regulation of workers' compensation premiums has occurred. Six States that formerly regulated premium rates prepared and filed by NCCI affiliated rate bureaus have passed open competition statutes. These premium competition statutes commence in some of these States this year and for the remaining States on January 1, 1983.

OVERVIEW

Critics of the present system favor open competition instead of the premium regulated system used by most States. They argue that two defects in the present system cause rates to be higher than they would be under open competition. First, insurance companies compete inefficiently by providing excessive engineering safety services and incurring excessive sales expenses. The resulting extra expenses come about because direct competition on premiums is precluded. Second, the typical premium-setting formula used by most States does not directly account for investment income earned on funds supplied by policyholders. Reflecting investment income in rates, critics argue, would lower the average level of workers' compensation premiums.

Proponents of the present pricing system claim insurance companies are very competitive in the workers' compensation line and this is manifested in the form of services and policyholder

[1] Insurance Deregulation: Issues and Perspectives, A Report of the Conference Board, ed. Nathan Weber, 1982, New York, N.Y.

dividends. Further, premium rates are not unduly high because data on operating and investment income for companies writing workers' compensation do not indicate excessive company profits.

Proponents do not reject consideration of investment income in the determination of rates, but they express concern that the introduction of investment income in the regulatory rate process would create new problems, e.g., reductions in investment income would not be reflected in the ratemaking process as rapidly as increases because of presumed regulatory bias against increasing premiums. Also, citing recent data from stock companies' investment income experience, they argue that taking investment income as well as the actual underwriting profit margin into account as a percent of net earned premiums suggests that the profitability of workers' compensation insurance is modest. Since there are no apparent excessive profits and there are potential new regulatory problems that might follow in making changes to the present ratemaking system, they conclude there is no demonstrable need for rate reform.

However, some critics argue that account should be taken of investment income. Their reformulation stresses a target rate of return to equity approach.[2] However, it has been argued that the rate of return to equity is not necessarily the appropriate profitability measure. Some contend the rate of return to assets is superior.

In theory, the viability of States deregulating premium rates and adopting open competition seems reasonable. We note that six States have recently adopted open competition statutes. Since there is no empirical evidence available on how successful open competition would be in the workers' compensation line or whether any new problems, such as a realignment of premiums between small and large employers, might occur, it seems reasonable that such evidence be gathered in these six States before deciding that open competition is an unmixed blessing.

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[2]A rate of return to equity approach requires the selection of a target rate of return to equity for the company and then arriving at the appropriate profit margin. Rate of return to equity is the ratio of net income to invested capital and surplus. This ratio contrasts to the rate of return to assets, which is the ratio of net operating income plus interest expense (net of tax effects) to total assets. The cost of capital is the rate of return a firm's shareholders could obtain on an alternative investment of equal risk.

FINDINGS

Our findings fall into three broad categories, open competition, investment income, and alternative approaches to the current ratemaking process.[3]

Is Open Competition a Viable Alternative to the Prevailing Premium-Regulated System?

In his February testimony, Robert Hunter alleges that the current premium-regulated system as practiced in most States is deficient, not only because investment income is not taken into account in the rate formula but, more fundamentally, because premium rate regulation is unnecessary. Hill-Hunter claim, since all insurance companies must adhere to the approved rates by law, that competition in the writing of workers' compensation takes the form of excessive provision of services and policyholder dividends. If competition on rates was permitted, employers could choose among insurance companies offering various combinations of rates and services. Also, insurance companies would consider the total profitability of writing workers' compensation insurance in setting rates, that is, both the underwriting profit margin and the investment income derived from policyholder-supplied funds. Thus, they argue rates would be lower for two reasons: 1) fewer company resources would be used to provide excessive services; and 2) competitive behavior would force insurance companies to reflect the investment income they earn.

John Worrall challenges the Hill-Hunter contention that competition is inefficient in the workers' compensation line. Worrall states Hill-Hunter are correct in claiming that insurance companies are not in a purely competitive market. But he claims their own description of insurance company nonrate competition portrays a very competitive market for workers' compensation insurance. Worrall argues that competition is manifested in the provision of services and through the payment of policyholder dividends. That this competition is vigorous, he avers, is demonstrated by the nonexcessive underwriting profits earned by insurance companies writing workers' compensation insurance and the fact the earned underwriting profit margin, for many years,

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[3]Leading critics of the present premium-regulated system are Professor Raymond Hill and Mr. Robert Hunter. Full development of their views is to be found in "Workers' Compensation Insurance Ratemaking: Regulation of Profit Margins and Investment Income,'" their unpublished paper submitted to the U.S. Department of Labor. Direct criticism of this paper's contentions and methodologies is contained in "A Discussion of the Hill-Hunter Report, 'Workers' Compensation Insurance Ratemaking: Regulation of Profit Margins and Investment Income,'" an unpublished paper by John Worrall, an NCCI official.

has been less than the 2.5 percent of premium provided for in the traditional ratemaking formula.

In testimony before your Subcommittee, Spencer Kimball, Executive Director of the American Bar Foundation, generally supported open competition. However, he pointed out that he would prefer open competition be implemented by the States on an experimental basis. His reason is based on the possibility that open competition could result in sudden shifts in premium rates for employers of different sizes. He cites the familiar argument that premiums might become higher under open competition for smaller employers because larger employers currently pay more than their actuarially fair share of premiums. Kimball has no evidence that this is the case under the current ratemaking practice, but absent any firm evidence, as opposed to theoretical reasoning, he is reluctant to recommend unfettered open competition. Thus he concludes "[t]he best of all possible outcomes for the moment would be to have some states experiment with open competition while some continue with an administered pricing system in the form of a prior approval law." [4]

Comment

We believe that the arguments advanced in support of open competition are persuasive. Worrall's arguments do not directly address the Hill-Hunter contention that there are no substantive economic grounds for continuing the premium-regulated system. Worrall states that the current system does not meet the requirements of "pure competition." He seems to suggest, though, that insurance companies are highly competitive in other aspects of performance--services and dividends to policyholders. The evidence that we have reviewed indicates that this is so. But the main point is not addressed by Worrall: Is there any economic justification for preventing insurance companies from competing on premium rates as well as services and dividends? Our review found the arguments for open competition more convincing than than those given for the premium-regulated system.

There was evidence in the Hill-Hunter study and elsewhere that suggests the structure of the workers' compensation market is highly competitive. Calculated concentration ratios are low, indicating that many firms sell workers' compensation insurance.[5] In addition there are apparently no economies of

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[4]Spencer Kimball, testimony in a hearing on workers compensation ratemaking reform, before the Subcomittee on General Oversight, Committee on Small Business, February 18, 1982, p. 7.

[5]Hill-Hunter, Table 1, pp. 8-9.

size for property-liability firms.[6] Therefore, it is unlikely that a small number of companies could dominate the workers' compensation market. Moreover, the purchasers are sophisticated businessmen well able to calculate the relative benefits and costs of insurance packages offered to them. Open competition should therefore not entail any consumer protection concerns.

Though the main conditions for a viable open competitive system exist, direct empirical observation of open competition in practice in the workers' compensation arena is not available. Thus, questions concerning the possible significance of rate realignment among different sized employers if open competition were adopted remain unanswered. Had comparative empirical evidence on the benefits of open competition--lower rates and more coverage--been put forth, we would have been more confident in the validity of the open competition viewpoint. Since six States have only recently passed forms of open competition statutes for workers' compensation, we believe the validity of the case for open competition should, in the final analysis, depend on comparative economic analyses of workers' compensation rates and coverage in these States relative to States continuing with premium regulation.

In sum, the main potential advantages and disadvantages of shifting from a State premium-regulated system to open competition are

Advantages

--Workers' compensation insurance would be priced explicitly enabling employers to better weigh the benefits and costs of differing packages offered to them.

--Investment income attributable to policyholder funds would be reflected in premiums thereby slowing premium rate increases.

--Fewer resources would be devoted to services that only yielded marginal benefits to employers.

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[6]Paul L. Joskow, "Cartels, competition and regulation in the property-liability insurance industry," The Bell Journal of Economics and Management Science, Vol. 4, no. 2, Autumn, 1973, pp. 375-427.

--Costs of monitoring adherence to State-approved premium rates would be reduced.

Disadvantages

--Premiums probably would shift among employer size classes. Smaller sized employers may have larger premium increases than larger sized employers. But realignment of rates among size classes is a one-time event.

--State insurance departments probably would need to reexamine and revise solvency standards.

--Employers whose workers engage in physically risky endeavors or very hazardous health conditions might be subject to higher premium charges.

In the following sections the issue of whether investment income should be accounted for directly in widely used premium rate formulas is discussed. The issue is considered in the context of the continuation of the present State regulatory system, rather than nonregulated open competition where investment income, as has been argued, would by the force of price competition be reflected in premiums.

Should Investment Income Be Taken Directly Into Account in Setting Premium Rates?

The issue of investment income and its consideration in setting rates is controversial and has been for some time. State laws require insurance companies to set up two accounts, loss reserves and unearned premium reserves. These reserves are supported by premium dollars which insurance companies invest. In periods when interest rates are high, as they currently are, these invested reserves earn substantial amounts of interest which is investment income to insurance companies. An insurance company's annual income has two primary sources, investment income and underwriting income (income derived from the insurance operations of the companies). Investment income is apparently not explicitly considered when rates are set, and many people believe it should be, while others believe it is considered in current practice. A 2.5 percent of premium factor is included by many States in setting rates and is called a profit and

contingency factor.[7] This factor is the expected underwriting profit margin. Hill-Hunter, among others, claim this 2.5 percent is arbitrary.

By and large, we found that the most fully developed arguments, by Hill-Hunter and others, centered on the contention that workers compensation rates are "inflated" because the investment income derived from policyholder-supplied funds is not adequately reflected in the regulated rates.

Basically, Hill-Hunter contend the present rate formula used in the premium-regulated system is unsatisfactory because the determination of rate changes does not account for investment income earned. They argue rates should reflect investment income because policyholders should receive the benefit of income derived from their premiums. They claim that if insurance companies were to engage in open competition their rates would indeed reflect the discounted value of the net cash flow generated by the excess of premium payment over actual loss and expense payments. Thus, given that the goal of rate regulation is to approximate the rate pattern that would have obtained if competition were feasible, then the premium rate formula should account for investment income.

Frank Harwayne in opposing this viewpoint sets forth several arguments why the present system, which does not explicitly incorporate investment income, should continue unchanged.[8]

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[7]Its origin is described in the following quote from the National Association of Insurance Commissioners Proceedings (NAIC)

> In 1949, after three years in which investment earnings were at the lowest point in this century, the industry asked for a 2.5% profit loading to increase the total earnings from underwriting and investment to 7.4%. This was a very simple example of an increase in rates to offset a decrease in the return from investment. At present [1973], investment earnings are higher than they were during the period before 1949 when the industry operated with a profit loading of zero.

NAIC Proceedings - 1973 Vol. II, NAIC, p. 562.

[8]Frank Harwayne, Restatement of the Consideration of Investment Income in Workers' Compensation Insurance Ratemaking, NCCI, December, 1978.

--First, incorporating investment income directly into the ratemaking formula might induce insurance company investment managers to pursue less conservative investment policies and thereby harm the public's interest in maintaining high company solvency standards.

--Second, investment income tends to fluctuate directly with the business cycle. If the expected profit margin were to fluctuate inversely to cyclical changes, then regulators might be more disposed to lower the size of the expected profit margin when interest rates and investment income are rising, but less disposed to raise the size of the same margin when investment income is declining.

--Third, if investment income were to be directly incorporated in ratemaking and caused a reduction in the present 2.5 percent of premium expected profit margin, the ability to attract capital into the workers compensation insurance line would be impaired since the 2.5 percent margin currently only barely provides a competitive return.

--Finally, even if investment income is taken into account, the combined sum of the expected profit margin and investment income as a percent of net earned premiums is modest. For example, averaging over all stock carriers for the years 1978-79, the before Federal income tax combined ratio of the expected profit margin and investment income attributable to policyholder workers' compensation reserves was 6.4 percent of net earned premiums.

Comment

In our view the theoretical case for formula reform is compelling. Under a competitive system one would expect insurance companies to offer rates to customers that cover anticipated costs, that is, expected benefit payments and a competitive profit. A competitive profit consists of all income sources derivable from engaging in the business activity less costs and allocable expenses.

In our review of the rate formula traditionally used, it was apparent to us that rate changes are not predicated on changes in investment income attributable to the workers' compensation line. Rate changes occur when the actual loss ratio differs from

the permissible loss ratio. [9] Thus, rate changes would only reflect investment income if in some fashion the permissible loss ratio is affected by the level of investment income. But the permissible loss ratio will increase or decrease only if the expected profit margin as a percent of the standard earned premium decreases or increases.[10] We also note that since 1949 NCCI and its affiliated State rate bureaus have not altered the value of this profit margin. It has remained at 2.5 percent since that time. Thus, we conclude that investment income has not been accounted for in the traditional ratemaking process.

Harwayne's arguments do not directly refute the concept of including investment income in premiums but raise questions as to the potential harmful consequences from doing so. His first argument is that insurance company investment managers might pursue less conservative investment portfolio strategies and thereby jeopardize company solvency which is not in the public's interest. In effect this argument presumes investment managers will attempt to augment investment portfolio earnings by taking on more risky investments. But such investment behavior might well be appropriate. If the traditional ratemaking formula is adjusted to directly reflect investment income, as has been done in the prior-approval States of Minnesota and Massachusetts, and those adjusted rates are predicated on assuring insurance companies a competitive return to their invested capital and/or surplus, then any induced changes in investment portfolio strategy would be in the proper direction. Or put another way, any induced changes in investment portfolio strategy can be viewed as a correction to excessively conservative investment policies.

Harwayne's second concern is that directly incorporating investment income in rates through the medium of changes in the size of the profit and contingency factor will likely cause State

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[9]The actual loss ratio is the ratio of losses actually incurred in the experience period, e.g., the previous 24 months prior to the filing, to the premiums earned during the experience period. The permissible loss ratio is the ratio of actuarially determined expected losses to current premium rates. Expected losses expressed in terms of unit of exposure risk is called the present pure premium and represents that portion of current premiums available for the payment of losses. If the actual loss ratio in a prior year were .70 and the permissible rates were .65, then the average level of premiums would be increased by 7.7 percent [(.70/.65 - 1) x 100%].

[10]The standard earned premium is the manual or book premium modified by an experience rating plan.

regulators to reduce rates rapidly but raise them slowly when called for by the formula. This concern applies generally to the nature of regulation and implies that State insurance commissioners will overlay political concerns on the objective merits of each filing.

Harwayne's third point is that there is not a demonstrated need to account directly for investment income in the rate formula. Cited was the alleged fact that investment income for all stock companies, averaged over the two years 1978 and 1979, was 3.9 percent of net earned premiums. When added to the required 2.5 percent profit and contingency factor, this gives a combined before tax margin of 6.4 percent. This margin, Harwayne claims, is modest and does not generate overall profits that are excessive. So in light of his other concerns about changing the traditional rate practice, he concludes there are inadequate grounds for changing the existing procedure.

Harwayne's argument implicitly accepts the correctness of the profit margin approach to rate determination. However, he he does not provide any theoretical basis for the selection of the number, 2.5 percent, as the appropriate magnitude for the profit and contingency factor, or as it is also called, the underwriting profit margin. As will be discussed in the following section, we conclude that the appropriateness of the size of the profit and contingency factor should depend on a determination of a competitive rate of return to invested capital and surplus measure of performance.

How Can the Present Ratemaking System Be Modified to Reflect Investment Income?

In lieu of open competition as the means to determining rates, Hill-Hunter proposed a reformulation of the traditional profit margin approach. In essence, their suggested procedure is derived from a method currently practiced by the Massachusetts Insurance Division. The basic notion is that premium rates should be set so that the sum of investment income and operating income when taken as a ratio of capital and surplus is equal to the rate of return to invested capital available on comparable investments. Hill-Hunter call this ratio the target rate of return to equity. Once this target return is determined, the formula they propose permits one to derive the appropriate magnitude of the expected profit margin in the traditional formula.

As support for the target rate of return to equity approach they propose, Hill-Hunter cite the Supreme Court Hope natural gas landmark decision as pointing the way to an appropriate regulatory standard. [11] Their reading of the decision suggests that regulators should attempt to set rate levels so that annual returns to stockholder investment are sufficient to attract capital. Thus, the target rate of return to equity, adjusted for the riskiness of the business line, should approximate that obtainable from current investment opportunities.

The Hill-Hunter version of the Massachusetts method is not without controversy. In order to calculate the target rate of return to equity they make use of a financial model known as the Capital Asset Pricing Model (CAPM). Worrall claims their use of the model is inappropriate because the financial theory literature has not provided sufficient empirical evidence to validate it. He further contends that the model's assumptions are unrealistic and that the factors used to adjust the average insurance company's rate of return to equity for the company's investment riskiness are not adequately documented by Prof. Hill and may prove to be unreliable in practice.

Further criticism has been leveled at Hill-Hunter's overall performance measure, the rate of return to equity. Worrall argues the rate of return to assets performance measure is superior because it measures how well a company's total resources are utilized. He claims this is preferred because from society's point of view it is the returns generated by all of a company's assets that is of primary interest, not the effect of leverage on a company's return to equity. Regulators should judge management on the efficiency with which they utilize investor contributed funds and funds supplied by policyholders.

Comment

We believe the Hill-Hunter criticism of the traditional ratemaking approach is convincing. The traditional approach provides no justification for the magnitude of the profit margin. The economic theory of regulation suggests this margin should be determined as part of a methodology which relates expected total income to the capital placed at risk. If the profit margin is set without considering the implications of the profit margin for the typical insurance company's profitability, companies may earn excessive returns which will attract unnecessary capital into the workers' compensation line (and vice versa).

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[11] Federal Power Commission vs. Hope Natural Gas Company, 320 U.S. 591, 1944.

Worrall was particularly critical of the reliance Hill-Hunter placed on the CAPM in their preferred method, the Massachusetts risk-adjusted rate of return to equity approach. Several of the criticisms he mentioned are well founded. Financial theorists are unsettled on the validity of CAPM. After a review of the Hill-Hunter statistical procedure, we conclude that the reliability of the CAPM methodology, as applied to the workers' compensation rate of return to equity approach, is questionable, and its extension to accounting data, as opposed to market data like security prices, is not adequately justified in the Hill-Hunter study.

Notwithstanding the problems with extending the CAPM model to workers' compensation ratesetting, the target rate of return to equity concept has merit. Utilizing the same basic framework--the target rate of return to equity--the Minnesota Insurance Department has adopted a discounted cash flow technique. The technique does not use CAPM yet explicitly takes account of investment income attributable to policyholder reserves. In a 1981 rate order that used this approach, in lieu of the traditional 2.5 percent profit margin, rates were permitted to increase, on average, 11.8 percent; whereas the traditional approach used by the Workers' Compensation Insurers Rating Association of Minnesota filing requested a 28.6 percent increase. [12]

Worrall and Harwayne claim the appropriate performance measure is total return to assets. Their argument basically is that total return to assets measures how well the resources available to the firm are utilized. This argument seems more reasonable from a firm's management point of view than as a regulatory standard. Insurance companies are effectively highly levered compared to industrial companies in the sense that investor funds support only a small proportion of the firm's total assets. If regulators were to select a target rate of return to assets they would ignore the effect of leverage. As an hypothetical example, a 12 percent rate of return to assets for the average sized insurance company could be compatible with a 36 percent rate of return to equity (assuming a reserve to capital ratio of 2:1). If the cost of capital, the return investors could achieve from making a comparable investment, were 16 percent, then more capital would be attracted to the underwriting of workers' compensation. Thus using the rate of return to assets approach

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[12]Another present value discount method has been suggested by the Massachusetts Workmens Compensation Association. Though it uses CAPM, the Association suggested that within the confines of the basic methodology some procedure other than CAPM could be incorporated.

requires regulators to consider the possible consequences of creating significant spreads between the return to insurance company equity and the cost of capital on comparable investments. This redundancy would be overcome if regulators were to focus directly on rate of return to equity.

The return to equity measure, or cost of capital approach, is more convincing from an economic point of view than the traditional fixed profit margin method. Efficient resource allocation among insurers implies that it is the cost of capital which should be equated to investment opportunities, not return to assets. Admittedly, there are methodological difficulties to be overcome in departing from the traditional profit margin approach in a rate regulatory framework. However, these difficulties do not warrent dismissing the concepts underlying these new approaches.

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