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The "End Result" Approach to Public Utility Regulation

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THE "END RESULT" APPROACH TO PUBLIC UTILITY REGULATION

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THE author advanced a proposal in 1955 that public utility rates be set without going through the usual procedure of first finding a rate base and a rate of return on that base.[1] The plan was simply to learn the amount of money needed to maintain and enlarge the level of services and set the prices of utility services accordingly. Some glimmerings of hope along these lines had appeared in the decisions of a few regulatory bodies.

The past twelve years have witnessed some further encouraging developments. Regulatory agencies have shown a greater tendency to be concerned with the "end result," the amount of money needed, even if lip service is still paid to the ancient formula. And economists have been questioning the basic assumptions involved in some of the steps in the old approach, particularly those concerned with the debt-equity ratio and the pay-out ratio. There has also been increasing attention to the possibility that the utility prices set under the traditional procedure tend to promote a misallocation of economic resources.

I. THE TRADITIONAL APPROACH

The procedure for setting prices of regulated utilities has generally been as follows: (1) a "rate base" is found, *i.e.*, the investment in the utility, usually the original cost less depreciation of investment dedicated to the public use as shown by the accounting records; (2) a rate of return that should be earned on that investment is then determined by examination of the capital market, strongly laced with traditional notions as to the appropriate range; (3) the rate of return is applied to the rate base, giving a dollar amount that should be earned; (4) the prices to be charged for the utility's services are then set at a level that is expected to yield that dollar amount of return after costs are met.

Difficulties arise at each stage in this procedure. There is a question as to how to treat changing price levels under (1). Should we use only original cost or should we allow reproduction cost or original cost trended for price changes? What "rate of return" are we seeking under (2)? Do we want the rate that is actually being earned on the investment, the rate required to retain the existing amount of capital in the company, the rate required to prevent a "flight of capital," the rate needed to "attract capital" for expansion and improvement, or some other rate? And should the regulatory body accept management decisions on how much debt and equity capital to use and how much of earnings to retain

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1. Somers, *"Cost of Money" as the Determinant of Public Utility Rates*, 4 Buffalo L. Rev. 289 (1955), digested in 55 Pub. Util. Fort. 787 (1955).

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and how much to pay out? These decisions affect the computation of the average rate of return.

When we have completed step (3) we have the total number of dollars that should be earned. Will this be more or less than the amount required to attract the capital needed to maintain and improve the level of utility services to consumers? In view of the competing needs for capital in the economy as a whole, is the amount of capital attracted to the utility by the regulated return consistent with the optimum allocation of capital throughout the economy? Are the prices of utility services set in the final step, (4), similarly such as to leave a net amount after costs of operation sufficient to provide the capital allocation that is consistent with consumer preferences?

These are some of the questions that are raised by the traditional approach.

II. The Obligation to Investors and Consumers

A problem that has plagued the commissions is what are the legitimate interests of investors and consumers that regulation should protect? Specifically, should the investor be protected (even if it is at the expense of the consumer) against fluctuations in prices of capital goods and in rates of return on investment? It is in this context that questions of original cost, reproduction cost and the like come up.

A fair return to investors is not necessarily fair to consumers.[2] But what is "fair to consumers"? Is it a return that ensures constant innovation and improvement in service or merely some rate of return on past investment, regardless of present and future consequences?

The New York Public Service Commission has not denied that it must take account of changing economic forces but it has insisted that it must do so only to the extent of ensuring a certain degree of stability in the dollar return, not in the real return. The latter would require a dollar return that is high enough to allow fully for inflation. The Commission has insisted that the investor in public utility shares expected the former rather than the latter when he made his investment. The Commission has said:

> Lest we be deliberately misunderstood, it should be made abundantly clear that just as we cannot disregard the economic realities of our daily business life, so also in a rate case, we must in like manner consider the cumulative effect of current economic forces upon the company whose rates we are fixing. Certainly the investor considers these before committing his money to the enterprise. . . .
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> In the case of the American Telephone & Telegraph Company many of its million and a quarter stockholders have undoubtedly been attracted to it by reason of the past and expectation of the future continuance of the $9 dividend. This fact has been very effective in aiding the company in its tremendous job of financing since the last World War.
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> [W]ell informed [these investors] are on the matter most vital to them,

2. See Federal Power Comm'n v. Natural Gas Pipeline Co., 315 U.S. 575 (1941).

namely that the past record of the company offers the prospect of a continued annual payment in the same number of dollars. There appears no basis for the argument that they anticipated double that number of dollars because of the diminution in purchasing power.[3]

* * * *

In determining the value of a telephone company's plant, we cannot use the standards of competition in the industry because these do not exist. There is, however, another standard of competition and that is competition in the money market for capital. If the rates fixed are too low and the income is insufficient, there will be a flight of capital from the telephone industry to other types of investment. The converse is equally true. "Value" as used by the Legislature is the end result and does not, as contended by the company, constitute the point of departure.[4]

* * * *

No regulation can be sound or effective nor can it be fair to the utility or to its customers if made in a vacuum. Nor can it ignore the economic facts of life such as the trends of business, of prices, or of the national tax structure. It seems, however, that the company asks this Commission to go one step further and to make a determination not alone in the light of the factors which affect the business world but to adopt a regulatory process which insures it and its equity investors (not those from which it borrows money) a complete protection against any loss which economic conditions may threaten. To put it another way, the company's position goes to the extent of asking a regulatory body to insure that equity capital devoted to a utility enterprise shall be forever preserved in its original integrity, irrespective of the tax policies of government or fluctuations in economic conditions. It asks for its stockholders not only what is virtually a bondholder's assurance of steady income, with more than twice the bondholder's annual percentage, but also a hedge against inflation which is beyond the bondholder's dreams.

This is not our conception of the purpose of regulation nor, admitting for the sake of the argument that such contemplated legal power exists; do we believe such a result possible. Nowhere in modern economics do we find a case where such an objective has been permanently maintained. We realize that styles change in investments as well as human attire. We appreciate that a utility must earn an adequate amount to make its securities attractive in the current money market. When that test has been met our obligation in that respect has been discharged. It is true that if inflation became completely uncontrolled all the standards of the past would become outmoded and some new standards would be required if the extinguishment of capital savings is to be prevented. That point, however, has not been reached in this country.[5]

In this statement, the Commission rejects most emphatically the contention that

3. *Re* New York Tel. Co., 5 P.U.R.3d 33, at 47 (1954) (N.Y. Pub. Serv. Comm'n 1954) [hereinafter cited as the New York Tel. Co. case; parallel citations to the separate N.Y. Comm'n print (Case 16548) will be given in brackets following the P.U.R. report cite] [22-23].

4. *Id.* at 44-45 [18].

5. *Id.* at 47-48 [22-23].

the investor in utility equities is entitled to protection against inflation. It also says:

> The company . . . contends . . . that the investor in utility securities is entitled to some special protection against the loss in the purchasing power of his dollars committed to the enterprise. This contention, of course, is made only as to the equity investor.
>
> [t]his contention is completely rejected. The causes of inflation with the resultant decline in the purchasing power of the dollar are not the result of the processes of regulation but of national if not world-wide, economic conditions . . . .[6]
>
> We find nothing in our statutes, or the reported decisions, which guarantees to the investor in utility equities insurance against the results of economic forces or even the political policies of any national administration.[7]

The New York Commission here raises a basic question which economists cannot avoid: should the shareholder or the consumer bear the price-level risk? This question involves considerations of "economic efficiency" as well as "historical equity." The regulatory process dictates an answer that differs from the one that would be given in the free market. By virtue of regulation, the utilities investor is not permitted the large gains from risk that he might get elsewhere. It is therefore consistent with optimum allocation of resources to the utilities industry (or makes the best of a bad job) to truncate the returns at the other end also and remove some of the risks of loss or low earnings. In other words, the regulatory process truncates the returns at both ends. This may be the best way of attracting the "optimum" (actually a "second-best," but "optimum" within the fact of regulation) amount of resources to the utilities industry in the sense of economic efficiency. The economic need for some assurances on earnings (to attract the optimal amount of capital) is accentuated by the fact that the investor is not protected against some capital losses, *e.g.*, when the service is no longer desired (as in the switch to trucks or planes instead of railroads) or where there is a swindle (as in the collapse of utility empires in the 1930's).

The consumer is not entirely at the mercy of the utility. The regulatory body merely sets the price of the service to be sold. It is still subject to the inexorable law of demand. The consumer still decides how much of the service to buy. This gives the consumer the last word, in a sense. After a certain point, a price increase will not help and may even hurt earnings. In the case of essential utility services, however, this point may be far above prevailing levels.

What about using the economist's approach to valuation: discounted value of future earnings? Would this give us a "fair value"? The logical problem of circularity of reasoning involved in setting a "fair value" rate base in this way is apparent. The Supreme Court said in the celebrated *Hope* case that "rates cannot

6. *Id.* at 46 [20].
7. *Id.* at 47 [21].

be made to depend upon 'fair value' when the value of the going enterprise depends on earnings under whatever rates may be anticipated."[8] In the ordinary sense, "fair value" must depend on future earnings. Yet future earnings are to be determined on the rate base. Thus it becomes impossible to set a "fair value" without knowing the rates, and yet the rates are to be determined by taking account of the "fair value" base. The same logical problems do not arise where "fair value" is narrowly construed to mean reproduction cost or original cost adjusted for general price changes. Prevailing prices, specific or general, can then be used.

The earnings that prevent a flight of capital will yield a certain value for the property but that value may not be a "fair" one from the point of view of existing stockholders. As far as the constitutional standard is concerned, "Fair value is no longer deemed an essential ingredient of an economic rate base for rate-making purposes."[9]

The entire issue of reproduction and original cost is of dwindling significance if we have a sustained trend of "inflated" prices, *i.e.*, a "once-and-for-all inflation." The difference between original cost and reproduction cost decreases as more and more plant and equipment is replaced at "inflated" prices. This occurs if we remain at a certain level of prices for some time, no matter how "inflated" those prices are compared with some base period. If the inflationary "trend" continues in the sense that prices keep going up, a discrepancy between the two costs remains and does not "dwindle."

The New York Public Service Commission pointed this out in a telephone case: "The company's own evidence established that the ratio of reproduction cost new to actual cost was declining. This, of course, would be true for many reasons: the flattening out of the price curve, the continuing retirement of old property built at low cost and large additions at current prices."[10]

This is a general situation, as may be illustrated further in the case of Florida:

> Practically all of our public utilities have expanded their facilities to such an extent during the past five or six years that the vast majority of the utility plant now in service has been installed at more or less inflated prices. Consideration of reproduction cost new under such circumstances would be little benefit to the utilities at the present time. On the other hand, if we should enter upon a prolonged period of depression with resulting deflated costs, a rate base predicated upon reproduction cost new then would place most Florida public utilities in serious jeopardy.[11]

How can we resolve the conflicting interests of all concerned? Developments

8. Federal Power Comm'n v. Hope Natural Gas Co., 320 U.S. 591, 601 (1944).

9. Colorado Interstate Gas Co. v. Federal Power Comm'n, 324 U.S. 581 (1945); Federal Power Comm'n v. Hope Natural Gas Co., *supra* note 8; Federal Power Comm'n v. Natural Gas Pipeline Co., 315 U.S. 575 (1941); Cities Service Gas Co. v. Federal Power Comm'n, 155 F.2d 694, 701 (10th Cir.), *cert. denied*, 329 U.S. 773 (1946).

10. New York Tel. Co. case at 42 [14].

11. Petteway, *Utility Regulatory Climate in Florida*, 54 Pub. Util. Fort. 563, at 568-69 (1954).

in the legal theory of regulation offer some hope of resorting to the market place to accomplish this. There has been a trend away from the older constitutional emphasis on the narrow question of confiscation of property with the concomitant necessity of valuation of property. The newer emphasis is a broader one hinging on the use of the police power.[12]

The constitutional prohibition against confiscation remains as a restraint. It sets a lower limit. If a confiscation-minded commission were to claim that it was allowing a handsome earnings ratio on what happens to be a very depressed market value it would have to raise the "end result" at least to the confiscation floor. The Supreme Court's holding that the "end result" has to be fair and reasonable does not remove the prohibition against a confiscatory result. The emphasis on "police power" rather than merely "confiscation" does not deny the latter as a lower limit no matter what new-fangled method of rate-setting is used. The change that has occurred is that the courts no longer are concerned only with whether the return is above the confiscatory level but with whether there has been a proper exercise of the police power above that level.

The meaning of the legal concept of "confiscation" in a practical economic context is much more subtle than may appear at first blush. Paul Samuelson has made the point effectively:

> Can investors ever get their money *out of* a public utility? Are there cases where such companies have been permitted to pay out dividends in excess of earnings so as to liquidate the company? Very few, I imagine. So the issue here is really not one of coaxing the old money to stay, but rather of desisting from what the legal mind would call "confiscation."
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> * * * *
>
> [There is] one point that tends to lessen greatly the distinction between return on old capital and needed return for new capital. Much new equity capital is raised by issue of rights to existing shareowners permitting them to buy new shares at *less* than the going market price. This means that if a judge can force a company to issue such rights, he can *force* new capital into the industry. Thus, suppose a utility is allowed to earn only 4 per cent on its old capital of $1 million (= 1,000 shares). Suppose 8 per cent is a "more fair" rate and also the rate needed to coax an extra $100,000 into the industry. Then if there is no threat of forced new capital through rights, the market value of the stock will be $500,000 and each share sells for $500. Now let rights to buy one more share at $100 be issued to each shareholder. What will happen?
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> According to my rough reckoning: (1) the old stock will fall from $500 to $277.50 in value; (2) the rights will be worth $177.50 each; (3) the rights will all be exercised, bringing the desired $100,000 of capital into the industry. *The new investors will receive 8 per cent on their money!*
>
> At whose expense? At the expense of the ("confiscated," exploited)

12. Hon. Philip Halpern, J.S.C., *Public Utilities*, 1947 N.Y. Legis. Ann. 223-24.

> old members who have had their holdings (after sale of rights) reduced from $500 per share to $277.50. This plus the $177.50 gives $455.00 or a loss of $45.00 per share—or $45,000 in all. (If any of the new 1,000 shares are held by old owners who have exercised their rights rather than sold them the story is still the same.)
>
> Moral: unless you can prevent issue of new stock, old owners can be milked of market value.[13]

We are in difficulty no matter what we do with the rate base. If we merely use original cost, we may be unfair to investors and we may not even be discharging our obligation to consumers to keep the utility a going and growing concern that can provide the improved and expanded services that society demands. If we use either original cost trended for prices or reproduction cost, we are taking account of inflation but are still not necessarily ensuring the capital needed for maintenance and expansion of services to the consumer. And we cannot use an economic concept of discounted value of future earnings since our object is to set those earnings. Small wonder that regulatory bodies tend to keep to one of the more restrictive concepts of rate base and pin their hopes on the rate of return to pull their chestnuts out of the fire. No matter what they do or fail to do along these lines, however, it may still be true that the investor is "milked of market value," as Samuelson puts it.

III. Capital Structure and Pay-Out Policy

In computing the rate of return on capital it is necessary to know how much debt capital and how much equity capital is involved. The regulatory agency has looked into the debt ratio and has set rates on the basis of a capital structure that includes both debt and equity capital, on the assumption that debt financing is cheaper than equity financing. The company, may, of course, issue more shares if it wishes, but it should not then expect the utility commission to use the actual capital structure in determining how much income should properly be provided: a hypothetical debt ratio is used for that purpose. The California commission, for instance, has rejected the company-set price-earnings ratios and dividend yield as relevant measures in determining the cost of money:

> [E]arnings-price ratios merely reflect the prospective investors' appraisal of the market value of stock and, as such, are influenced by prevailing market and economic conditions and the individual requirements of the purchasers. While it is true that such ratios may indicate the terms under which a new investor might devote his money to the business, it does not mean that they should measure the return the applicant is entitled to receive on its investment in its properties. Certainly, the dividend rate the management has elected to establish for

13. Letter From Professor Samuelson to Harold M. Somers, August 9, 1955, commenting on latter's article, *supra* note 1. The letter is quoted with Professor Samuelson's permission (May 10, 1966). It was not written with a view to publication.

its common shares should not be used in arriving at the return the consumer should pay on the rate base.[14]

Utility commissions have been strongly impressed by the fact that the yield on debt capital has generally been lower than that on equity capital and that corporate dividends are derived from income that is subject to tax while interest expense is deductible. The assumption that debt financing is cheaper than equity financing is not necessarily valid in a growth or inflation oriented market, as we have seen in recent years. The "Cost of Debt and Equity Money" table below shows the change that has occurred in the relation between bond and stock yields. A. T. & T. stock yields (column 2) were greater than bond yields (column 1) in 1953 but the situation was reversed in 1965; similarly with general stock (column 5) and bond (column 4) yields.

COST OF DEBT AND EQUITY MONEY
(In Percentages)

Year	AT&T bond yields (1)	AT&T stock yields (2)	AT&T stock earnings (3)	General bond yields Aaa bonds (4)	General stock yields (5)	General stock earnings (6)
1965	4.89	3.1	5.18	4.50	3.30	5.06
1964	4.43	2.8	4.52	4.42	3.15	4.98
1963	4.48	2.8	4.71	4.27	3.12	4.85
1962	4.24	3.1	4.88	4.35	3.25	5.17
1961	4.51	2.8	4.48	4.37	3.10	4.78
1960	4.43	3.5	5.78	4.47	3.84	5.89
1959	4.86	3.8	6.37	4.49	3.94	5.76
1958	4.55	4.6	6.85	3.87	4.43	6.26
1957	3.86	5.3	7.78	3.96	4.92	6.90
1956	4.43	5.1	6.80	3.39	4.68	6.75
1955	3.22	5.0	6.85	3.09	4.50	6.52
1954	2.97	5.4	6.80	2.93	4.81	6.64
1953	3.26	5.7	7.25	3.24	5.33	7.35

Sources:

Columns	
(1)	AT&T bond yield computed from Moody, Bond Record, (Year End Ed.) for each of the respective years. (In 1953 the figure of 3.26 is obtained after dropping out three short-term bonds with yields close to 1.0%. When these are included the average is 2.75%.)
(2) (3)	AT&T stock yields and stock earnings (converted from price-earnings ratios) from Moody, Handbook of Widely Held Common Stocks.
(4) (5) (6)	General Public Utility bond yields, stock yields, and stock earnings (converted from price-earnings ratios) computed from Moody, Public Utility Manual.
(5) (6)	Moody, 24 Public Utility Stocks (not including AT&T).

Where debt capital costs in the neighborhood of only 3 1/2%, as it did in the fifties, a larger amount of debt in the capital structure gives the appearance of reducing the cost of capital. The cost of money derived through issuance of debt is low relative to the cost of money derived through issuance of equities: debt is "cheap money" and equity is "dear money." For reasons of its own

14. *Re* Southern Cal. Edison Co., 6 P.U.R.3d 161 (Cal. Pub. Util. Comm'n 1954).

the company might nevertheless choose to keep the debt ratio low although that might appear to raise the net cost of money as a whole. For example, if debt cost 3% and equity capital costs 8% (in dividends) the sum of $1,000,000 can be raised at an average cost of 3% with 100% debt; 8% with zero debt; 6 1/3% with 33 1/3% debt; and 5.75% with 45% debt. The current payments to debt and equity holders would be as follows to raise the $1,000,000:

Debt as a Percentage of Total Capital	Interest and Dividend Payments
100%	$30,000
0%	80,000
33 1/3%	63,333
45%	57,500

To take an example, the company's target in the 1954 New York Telephone case was a debt ratio of 33 1/3% while one of the commission's witnesses used a ratio of 45% (the actual ratio at the time being 38%).[15] Using the above hypothetical figures, telephone rates would have to be high enough to produce $63,333 for interest and dividend payments under a 33 1/3% ratio and only $57,500 under a 45% ratio, hence the commission's concern with debt ratio. This concern is aggravated by the fact that interest paid is deductible while dividends paid are not (a factor which is not taken into account in the numerical example). All this assumes that the component debt and equity yields will not be affected by the ratio actually used, a matter which is considered later in this section.

The regulatory body purports not to be telling the company what to do; it is merely making some computations for purposes of rate regulation. The highest court of New Mexico has stated, "Debt ratio is strictly a matter for management, but its evaluation in fixing rates is an item for serious consideration by the rate-making body."[16] But does not the use of a hypothetical debt ratio in rate-making necessarily put pressure on management to change the debt ratio in a direction which (judged by its action) it considers undesirable? The company is treated as if it had a less expensive capital structure than it actually has. It is penalized for its managerial decision.

In sum, one may raise a question concerning a regulatory commission's refusal to accept the utility company's existing or prospective debt ratio as the

15. New York Tel. Co. case at 50 [26-27, 30]. In an earlier case the commission refused to use a hypothetical capitalization: *Re* New York Tel. Co., 84 P.U.R. (n.s.) 267, 290 (1950).

16. State Corp. Comm'n v. Mountain States Tel. & Tel. Co., 58 N.M. 260, 270 P.2d 685 (1954). The actual capital structure is generally favored by Arizona, Arkansas, Colorado and Connecticut according to Rose, *"Cost of Capital" in Public Utility Rate Regulation*, 43 Va. L. Rev. 1079, 1087 n.27 (1957).

A hypothetical capital structure is generally favored by District of Columbia, Illinois, Kentucky, Louisiana, Maryland, Michigan, New Hampshire, New Jersey, New Mexico, North Carolina, Ohio, Pennsylvania, Utah, Vermont, Wisconsin and Massachusetts. *Id.* at 1085-86 n.21.

basis for the computation of rate of return. The commission substitutes its own judgment as to capital structure of the management's judgment. It does not interfere with wages paid, why interfere with the relative amounts of interest and dividends paid? Since debt ratio is unquestionably a matter on which reasonable men may differ, and comes well within the scope of managerial discretion, there is doubt whether the commission should attempt to impose its own judgment in a question of this sort.[17] The problem admittedly becomes more complicated where a holding company decides on the debt-equity ratio of a subsidiary whose rates are regulated.

Another important question is whether the debt and equity yields will stand still while we change the debt/equity ratio. The actual debt ratio may affect the cost of money if investors are influenced by the ratio in deciding how much to pay for a given stock. Perhaps a low debt ratio gives a prospective buyer of stock a greater feeling of confidence in stability of dividends with the result that he is willing to pay a high enough price so that a $10 dividend, say, represents merely a 5% cost of equity capital. Thus a low debt ratio may actually lower the total cost of money if it lowers the cost of equity capital sufficiently. (It may also lower the cost of money by lowering the cost of debt money: the less debt, the more security the creditors have for the debt outstanding.)

It has not been at all evident, therefore, that a regulatory body's insistence on a high debt has actually favored low telephone rates. The New York Commission recognized this possibility by saying, "If, as the company contends, this [constant decline in the debt ratio] produces an added margin of safety, it should also have a tendency to reduce the required rate of return";[18] and "Too high a debt ratio as a long time policy may well be as expensive as too low a one."[19] The more serious problem of reorganization or bankruptcy in case of a serious decline in business should also be considered by regulating agencies. The fixed obligation of debt may lead to drastic legal consequences compared with the flexibility inherent in equity capital. Although a telephone company is relatively invulnerable to such contingencies, they cannot be ignored in rate-making in general.

The hypothetical adjustment of the capital structure by the regulatory agency thus involves more than an interference with the reasonable exercise of managerial discretion. There is a basic fallacy involved, leading to an incorrect answer: The existing debt ratio affects the interest-yield and the earnings-yield. A different debt ratio would result in a different interest-yield and a different earnings-yield. Thus all the components in the cost of money com-

17. Somers, *supra* note 1, at 304; 55 Pub. Util. Fort. at 790.

18. New York Tel. Co. case at 55 [34].

The Pennsylvania commission has stated that the cost of common stock capital generally tends to decrease in relation to significant increases in the proportion of common equity in the capital structure. Pennsylvania Pub. Util. Comm'n v. Ellwood Consol. Water Co., 6 P.U.R.3d 377 (1955).

19. New York Tel. Co. case at 49 [25].

putation would be different, not only the debt ratio. The agencies change the weighting only and apply the existing debt interest-yield and equity earnings-yield to obtain the new hypothetical cost of money on the assumption that this is the cost of money that would exist if the hypothetical debt ratio existed. If the agency is going to change the capital structure (debt ratio) it must seek expert testimony as to what the new interest-yield and earnings-yield would be (if such testimony is available) before making the arithmetic computation that leads to the cost of money figure.[20]

Modigliani and Miller have built on these considerations and carried them to their logical extreme.[21] To them it does not matter what the capital structure is, the overall cost of capital would be the same. For regulated industries, this means that the three elements in the weighted cost of money computation—ratio of debt to equity, debt interest-yield and equity earnings-yield—all adjust to one another for a particular company so that any change in debt-equity ratio leads to offsetting changes in the respective yields so as to leave the weighted computation of cost of money unchanged. If this exact adjustment occurs the regulatory agencies are wasting their time in changing the ratio and getting the appropriate individual debt and equity yields: the answer is the same as the one they started with, the actual cost of money under the management-determined debt ratio. Whether the limiting case of Modigliani and Miller actually prevails in practice is currently the subject of much discussion among economists.[22]

In any case, the regulatory agencies get the wrong answer when they change the debt ratios. They fail to take account of resulting changes in debt and equity yields. If it should happen that those yields always adjust so as to leave the weighted cost of capital unchanged, the agencies would be wasting their time even if they tried to get the right answer. The newly computed cost of capital would always be the same as the existing cost of capital. If it should happen that the yields do change but not in an exactly counteracting manner, the correct answer could be obtained only through expert testimony on the appropriate yields on debt and equity under the hypothetical debt ratio. The

20. Somers, supra note 1, at 304; 55 Pub. Util. Fort. at 790.

21. Modigliani & Miller, *The Cost of Capital, Corporation Finance and the Theory of Investment*, 48 Am. Econ. Rev. 261 (1958).

22. See Rose, *The Cost of Capital, Corporation Finance and the Theory of Investment: Comment*, 49 Am. Econ. Rev. 638 (1959); Durand, *The Cost of Capital, Corporation Finance and the Theory of Investment: Comment*, 49 Am. Econ. Rev. 639 (1959); Modigliani & Miller, *The Cost of Capital, Corporation Finance and the Theory of Investment: Reply*, 49 Am. Econ. Rev. 655 (1959); Weston, *The Management of Corporate Capital: A Review Article*, 34 J. of Bus. 129 (1961); Miller & Modigliani, *Dividend Policy, Growth, and Valuation of Shares*, 34 J. of Bus. 411 (1961); Barges, The Effect of Capital Structure on the Cost of Capital (1963); Modigliani & Miller, *Corporate Income Taxes and the Cost of Capital: A Correction*, 53 Am. Econ. Rev. 433 (1963); Weston, *A Test of Cost of Capital Propositions*, 30 So. Econ. J. 105 (1963); Friend & Puckett, *Dividends and Stock Prices*, 54 Am. Econ. Rev. 656 (1964). The last has references to several other participants in the discussion, including Gordon, Fisher, Benishay, Lintner and Solomon. See also Wippern, *Financial Structure and the Value of the Firm*, 21 J. of Fin. 615 (1966).

practice of changing the debt ratios while using the prevailing interest and earnings yields can only lead to an unrealistic and irrelevant result.

Another factor related to the cost of money is the surplus to be accumulated, *i.e.*, the earnings that are to be permitted over and above the dividends paid out: "[I]t is very unlikely that utility management would be permitted to dictate its own rate of return by the automatic process of dividend declaration—thus equating the common dividend rate paid with the cost of equity capital."[23]

A commission witness argued for an 80% pay-out in the New York Telephone case of 1955, a company witness for a 65% pay-out. If it is settled how much has to be paid out, such as $9 per share (at that time), the 80% figure would require net earnings of about $11 per share while the 65% figure would require net earnings of approximately $14 per share. The crucial question is this: Will the prospective investor be influenced by the amount of reserve that is being built up, *i.e.*, by the surplus being accumulated, in short, by the pay-out ratio? For example, would he not be willing to invest $100 on the basis of receiving $8 a share if he knows that surplus of $6 is being reserved; even though he insists on $9 a share if only $3 is being reserved? In short, does not the pay-out ratio affect the cost of money? This is a question of fact, and one that is difficult to settle. One would certainly expect an investor to be influenced by the surplus, which increases the book value of the shares, but to what extent is he actually influenced? The New York commission says, "All witnesses agree that the principal consideration governing the market price of the company's stock is the amount of dividends paid (coupled of course with a reasonable assurance that payment will be continued) and that retained earnings do not substantially contribute to the market price of the stock."[24]

The commission undertook a detailed examination of the surplus necessary to ensure reasonable stability in the $9 dividend which then prevailed. For instance, it questioned the conservative investment policy of the pension fund. This might appear remote from the question of cost of capital but the commission justified its approach by stating that the company's payments to the fund are increased as a result of the conservative investment policy and the increased payments cut into potential surplus. The company asks, in effect, that the cost of accumulating the surplus be taken into account in setting utility rates. The commission said, "Under the law we can properly disallow in fixing rates any wasteful or unnecessary expense of operation. Clearly, since the cost of capital is such an expense, it is our duty to determine what costs in obtaining money lie within the realms of reason."[25]

The above discussion is in terms of market price of the stock but it can readily be translated into the amount of dividend that has to be paid per share

23. Nichols & Welch, Ruling Principles of Utility Regulation: Rate of Return [hereinafter cited *Ruling Principles*] Supplement A, 71 (1964).
24. New York Tel. Co. case at 51 [29].
25. *Id.* at 49 [29].

in any new financing. If the market price goes up because of a large surplus, the cost of money is lower because the company is receiving more dollars for each share for which it pays the given dividend. If the market price goes down the cost of money is higher because the company is receiving fewer dollars for each share for which it pays the given dividend.

The difficulty in tampering with the pay-out ratio, like tampering with the debt ratio, is that a change in the ratio may change the relevant variables. Retained earnings affect stock prices and dividends affect stock prices. The relative strengths of the two effects has been the subject of continuing investigation.[26] We cannot blithely change the dividends/earnings ratio and ignore the possible effects on the market price of the stock, hence on the relevant yields in a rate-of-return computation of cost of money. The hypothetical pay-out ratio is inconsistent with the actual stock prices—hypothetical stock prices would also have to be used.

Paul Samuelson foreshadowed some of the recent statistical results in 1955:

> I believe there is some considerable reason to think that plowed back earnings do add materially to a stock's present price by enhancing its future attractiveness . . . [M]y final impression based on investigation and reading is something like the following:
>
> People like present and future dividends; if they have reason to think that withholding present dividends from them will give them substantial future dividends which will be reflected in higher future prices (and in lightly taxed capital gains!), they will gladly forego present dividends and bid up the present price of a heavy plow-backer of earnings. (*E.g.*, Amerada Petroleum, IBM, etc. etc.)[27]

It is interesting to contrast the "hands-off" policy in the matter of wages with the commissions' willingness to intervene in company decisions on capital structure (debt ratio and reserves) affecting the cost of money. The New York commission says,

> when an obligation has been incurred under which the employees of any company have vested rights, this Commission has no authority in law to revise the bargain and to take from labor that to which it is contractually entitled.
>
> * * * *
>
> Here [with respect to reduced telephone rates to employees], as in the discussion on pensions, interference with the judgment of management would be injecting the Commission into what amounts to the company's present contract of employment.
>
> * * * *
>
> This Commission has repeatedly asserted its position that it not interfere with the collective bargaining rights which have become inherently

26. See, *e.g.*, Johnson, Shapiro & O'Meara, *Valuation of Closely-Held Stock for Federal Tax Purposes: Approach to an Objective Method*, 100 U. Pa. L. Rev. 166 (1951); Friend & Puckett, *Dividends and Stock Prices*, *supra* note 22.

27. See Letter, *supra* note 13.

> part of our American system and that any payment or benefit given labor, in the absence of proof of bad faith, is presumptively a proper expenditure for fixing rates.[28]

One may commend an agency for the respect it accords wage commitments and managerial judgment concerning them. Is it clear, however, that similar respect should not be accorded managerial judgment in "cost of money" items such as capital structure, debt ratio, pay-out ratio and the like?

Samuelson has presented a persuasive argument that tends to support the distinction made by regulatory agencies:

> It may be right for a judge to let a utility decide its wage policies. But if the judge is guaranteeing the utility a certain fixed return on its equity capital, or a fixed return on all its capital, then it is manifestly in the utility's self-interest to inch up on the amount of its equity capital and to play down its loan capital. Why? To answer this ask why equity capital rates have to be higher than debt rates [in 1955]. Obviously, because of the extra risks. What increases the risks on equity capital so as to justify a higher rate? Pyramiding debt capital on top of it. I assure you that as a rational investor who requires an 8 per cent return on my investment when it is margined by say an equal amount of debt, I would love to have a judge let me invest more at the same high rate, substituting it for debt. The overall costs to the consumer of course would go up—the increase in my happiness can come from no other source. Admittedly, it is hard to know where to draw the exact line. . . . But to let an interested party draw the line defining his own advantage —that's bad economics and, I dare say, bad law. (In the case of wages, we think that it is to the interest of the employer to strike the same bargain that the judge would have him strike; otherwise we'd become paternalistic and refuse him the right to make this decision.)[29]

IV. The "End Result" Approach

The Tenth Circuit Court of Appeals has said: "fair value is the end product and not the means of the rate-making process."[30] This conclusion is fully consistent with the "end result" approach under which the emphasis is on setting earnings at an appropriate level rather than on finding an appropriate base.

In the exercise of the state's police power, the commission is bound to determine rates that are "just and reasonable." It is restrained by the requirements of substantive as well as procedural due process. Does a "just and reasonable" rate necessarily have to be based on investment cost, fair value or other specific base? The Supreme Court of Utah has answered this question in the negative. The court has said:

> The statute cannot be construed as requiring the Commission to fix utility rates on a value rate base. The legislature gave full rate-making power to the Commission subject only to the limitations of procedural

28. New York Tel. Co. case at 57-58 [39].
29. See Letter, *supra* note 13.
30. Cities Service Gas Co. v. Federal Power Comm'n, 155 F.2d 694, 701 (10th Cir.), *cert. denied*, 329 U.S. 773 (1946).

> due process and the requirement that the rate established be just and reasonable. This standard "just and reasonable" has been held to be the same as the constitutional standard. Federal Power Commission v. Natural Gas Pipeline Co. (1942) 315 U.S. 575 . . . At the time of Smyth v. Ames a rate could not be just and reasonable in the constitutional sense unless it permitted a fair return on fair value. This concept has, as pointed out above, been overruled. It would be contrary to common sense to hold that the legislature meant "just and reasonable" only as defined by the courts at the time of Smyth v. Ames and to hold that the legislature would, in order to authorize the Commission to use prudent investment, be required to reenact the statute saying that it meant "just and reasonable" as that term is construed today. To the contrary, it must be assumed that the legislature contemplated that the concept of that which is "just and reasonable" might change with social trends.[31]

Does this emphasis on "just and reasonable" rates open the field wide to an almost unlimited use of discretion by the commission? Is there no need for the commission to bother with a rate base and rate of return; can it go directly to a "just and reasonable" utility rate structure? Considerable authority can be garnered for an affirmative answer to these questions.

We must caution that the *Hope* case was concerned with a federal regulatory body and with a federal statute which prescribed "just and reasonable" rates. The likelihood is strong that in such a situation the rigamarole of rate base and rate of return might be dispensed with. What the Supreme Court would do in reviewing a state court's review of a state administrative agency's application of a state statute requiring consideration of "value of property," "cost of property," "rate of return" or "rate base" might be another matter.

If our interpretation of the *Hope* decision is valid, that decision cannot be considered a bar to the simpler approach to rate-making suggested here: first to determine the number of dollars of income required to ensure adequate capital and then to set utility rates that will yield that income. Rate base and rate of return would be ignored in the absence of an explicit statutory requirement that they be considered.

It is submitted that the United States Supreme Court might find that a total absence of rate base is consistent with its decision in the *Hope* case and safeguards both procedural and substantive due process, provided that an adequate factual basis exists otherwise for the utility rates that are established. The Court said in that case,

> the Commission was *not bound to the use of any single formula* or combination of formulae in determining rates . . . And when the Commission's order is challenged in the courts, the question is whether that order "viewed in its entirety" meets the requirements of the [Natural Gas] Act . . . Under the statutory standard of "just and reasonable" it is the *result reached* not the method employed which is controlling . . . It is not the theory but the impact of the rate order which counts.

31. Utah Power & Light Co. v. Public Serv. Comm'n, 107 Utah 155, 152 P.2d 542 (1944).

> If the *total effect* of the rate order cannot be said to be unjust and unreasonable, judicial inquiry under the Act is at an end.[32]

The rate base and rate of return are supposed to be determined independently. But a hint that the New York Commission has one eye on the rate base while it is independently computing the rate of return was contained in a case in which it said, "Under all the facts and circumstances we find that a return computed on an original cost rate base less depreciation reserves as of this time would be in the vicinity of 6 per cent. We make no finding as to the proper rate of return upon any other form of rate base."[33]

But if the commission wished to take account of the necessity of attracting capital in determining the proper rate of return on original cost, the earnings and dividends in relation to the market prices of the equity securities are pertinent, rather than earnings or dividends as a percentage of original cost. "Cost of money" cannot be determined initially in relation to original cost even if it is to be translated later into a rate of return on the original cost.

Once we take as our aim the attraction of future capital to the utilities we are in the complicated realm of the inducement to invest. What induces a person to invest in a particular line of business? To what extent will a future investor be influenced by how past investors have been treated?[34] There is no denying that the two are closely related. Bygones are gone in economic theory but they are not forgotten by investors.[35] The final test is what the investor does when he is offered utility shares. It is a difficult test yet it is the one which must be met in setting the prices of utility services with due regard to the problem of keeping or attracting capital.

A case in point is the treatment of inflation. To say that evidence of inflation will be used in setting the rate of return to be applied to the cost of the property does not guarantee that the inflation in plant and equipment is actually taken into account in any way by reference to the capital market. High percentage rates of return on equities do not necessarily accompany high plant and equipment prices. The fundamental difference is this: the current rate of return on equity capital is influenced by *future* inflationary and growth prospects among other things; the fact that prices of plant and equipment are now high compared with some past period may not be reflected fully or at all in the current rate of return on equities; and there may even be an inverse relation between the two. Thus consideration of current equipment price levels compared with past price levels

32. Federal Power Comm'n v. Hope Natural Gas Co., 320 U.S. 591, 602 (1944) (Emphasis added and citations omitted.).

33. *Re* New York Tel. Co., 91 P.U.R. (n.s.) 231, at 267 (N.Y. Pub. Serv. Comm'n 1951). *Cf. id.* at 269 [N.Y. Comm'n print (Case 15235) p. 40. *Cf. id.* at 42] (Emphasis added.).

34. Rose, *The Bell Telephone System Rate Cases*, 37 Va. L. Rev. 699, 715 n.57 (1951), labels as "sound economic principle" a statement that "the only significant cost at the present time is that economic cost which is established by the marginal productivity of the capital in alternative employment in the immediate future."

35. Somers, *A Theory of Income Determination*, 58 J. Pol. Econ. 523, 539 (1950).

does not necessarily show up in the rate of return nor does it give the utilities relief from the problems caused by inflation.

In summary, equipment price increases that have occurred are not reflected in the regulated rate of return insofar as the latter is based on the "cost of money."[36] If an original cost rate base is also used, inflation in plant and equipment prices appears nowhere in the computation unless the rate of return is somehow "adjusted" with an eye to the problem of inflation by achieving an appropriate "end result."

The New York Commission has alluded to this in saying:

> If a rate base be used which is a matter of speculative judgment to which is applied a rate of return which is always a matter of opinion, both are arguable variables. With the use of an investment rate base, the property account is rarely in dispute. *The answer as to the required number of dollars of income should be the same irrespective of the formula used.* We think the end result can be more accurately reached by the method we have used.[37]

Here there is a clear admission of the fact that the "required number of dollars of income" is the figure to be determined. Since the needed end result, the "required number of dollars of income" has to be determined independently anyway, why bother with going through the process subsequently of rationalizing that number by setting a rate base and rate of return?

The commission is right in saying that the use of an investment base reduces the number of items to be argued about; or one might say that it concentrates the argument into the rate of return. Since the only ground on which to argue about rate of return stems from the desired level of utility income, the total amount of argument is set by the latter. The only remaining question is how to distribute the argument, whether to split it between the base and the rate of return or whether to use a non-arguable base and therefore concentrate the argument on the rate of return. The futility of this process is clear. Since the "required number of dollars of income" is considered necessary and the only thing necessary to set the utility rates, the subsequent hindsight derivation of those dollars by applying some rate of return to some rate base is so much wasted motion.

The question that arises is whether *any* rate base is needed in a consistent application of the "flight of capital" rule of rate-making. The aim is to set a rate which will result in earnings which will prevent a flight of capital from the business. The process of setting a rate base and then a rate of return is an unnecessary carryover from the old "fair value" days. Whatever the base, the rate of return will presumably be set so as to result in sufficient earnings to meet the "flight of capital" test. Why then go through the unnecessary motions of setting a base and

36. See Bonbright, *Utility Rate Control Reconsidered in the Light of the Hope Natural Gas Case*, 38 Am. Econ. Rev. 465 (1948). *Cf.* 2 Bonbright, Valuation of Property 1078-1165 (1965 reprint).

37. New York Tel. Co. case at 46 [20] (Emphasis added.).

a rate of return? Why not just decide on the level of earnings which will pay interest on debt and give an adequate return to the equity securities so as to make them sufficiently attractive in the capital market? Much wasted effort would be eliminated and all parties would understand clearly what is involved. Motions for introduction of evidence on reproduction cost would no longer have to be denied—they would not have to be made in the first place. The evidence to be submitted and considered would be concerned with "cost of money," *i.e.*, the yield on equity securities that would be necessary to attract capital. From that, together with data on the capital structure (actual or hypothetical—a point to be settled) could be determined the total desirable earnings. This could then be translated into a structure of prices of utility services.

It should be pointed out that the device of going directly to the amount of return instead of using a rate base and rate of return should not be confused with the procedure of setting utility rates without any factual basis whatever. Under the *Hope* decision, the precise path taken by the administrative agency is left open (barring a controlling statutory requirement) as long as there is no abuse of the police power. Just as both original cost and reproduction are consistent with the *Hope* decision, so are other reasonable methods of arriving at the "end result."

Some state courts have held that some rate base is still necessary.[38] There is nevertheless much emphasis on the "end result." In a New Hampshire case, for example, the Public Service Commission set utility rates after a balancing of a great many factors. The court stated, "We know, however, that as a practical matter *it is the number or amount of dollars that a utility is permitted to earn that is important*. Rate bases and rates of return are without significance except as related to each other."[39]

The court denies that the commission is no longer bound to disclose the "method employed." It refers to the fact that in the *Hope* case and in subsequent decisions, "the findings of the regulatory body whose orders were sustained disclosed a rational process by which a rate base and a rate of return were determined and applied, to produce the return translated into rates. . . ."[40] The emphasis is on a "rational process" and on a disclosure of "method employed" to reach the prescribed rates, so that "the validity of its conclusions may be tested upon judicial review."[41] There is actually no requirement in this case that the old formula of rate base and rate of return be used.

The "cost of money" approach is surely a rational process capable of

38. Rose, *supra* note 34, at 702 n.12, cites a number of cases which indicate that "some rate base appears still essential." See *Ruling Principles* at 80-86, for states in which cost of money is only one of the factors considered.

39. New England Tel. & Tel. Co. v. State, 95 N.H. 353, at 355, 64 A.2d 9, at 12 (1949) (Emphasis added.). See Note, *State Public Service Commission Required To Adopt Rate Base Method in Determining Telephone Rates*, 62 Harv. L. Rev. 1247 (1949).

40. New England Tel. & Tel. Co. v. State, *supra* note 39 at 357, 64 A.2d at 12 (Citations omitted.).

41. *Ibid.*

judicial review. It is only after reference to the New Hampshire Revised Statutes Annotated section 292.28 (1966) which speaks of "a reasonable return on the cost of the property" that the court decides, "in this case, a definite finding by the commission of the base upon which the company is entitled to a return is required by New Hampshire law."[42] Again, when the court speaks more generally it merely says, "In our opinion, the relief furnished by the *Hope* case from the constitutional restrictions of a formula, do not operate to relieve the Commission of the duty to make findings of fact essential to permit review of its conclusions."[43] There is no reference here to rate base or rate of return. There is even a suggestion that another method might be acceptable if an adequate record were made: "The record appears to afford no basis for determination of a proper return by any process other than the usual rate base method."[44]

In a Wisconsin case the commission's findings of fact were simply the following:

1. That the existing rates applicable to the service furnished by Commonwealth Telephone Company by and through the facilities of its Two Rivers exchange afford an excessive profit to said utility and are therefore unreasonable.
2. That the rates herein prescribed for such services are just and reasonable.[45]

It need hardly be pointed out that the court is not here holding that the traditional method of rate base and rate of return is necessary. The court did make a reference to rate base by asking, "How can the Commission or the reviewing court or the utility or the public determine whether the profit is proper unless the Commission makes specific findings of the 'relevant facts and circumstances'? The Commission must determine what those are and set them forth as required by law. Those essential facts which control each case will then determine the rate base."[46]

The reference to "rate base" here appears to be incidental, the main plaint being that there were no specific findings of the "relevant facts and circumstances." The final holding is that "the present method of the Commission is improper and must be abandoned."[47] There is no specific holding that there must be a rate base and rate of return.

In a Vermont case the court also referred to the necessity of a rate base. Much of its concern was, however, with the commission's failure to make adequate findings on matters of expense. This is not a problem of rate base but one which arises under an "end-result" approach as well, since the expense item is the

42. *Ibid.*
43. *Id.* at 359, 64 A.2d at 15.
44. *Id.* at 360, 64 A.2d at 16.
45. Commonwealth Tel. Co. v. Public Serv. Comm'n, 252 Wis. 481-82, 32 N.W.2d 247 (1948).
46. *Id.* at 484, 32 N.W.2d at 248.
47. *Id.* at 485, 32 N.W.2d at 249. *But see* Milwaukee & Suburban Transp. Corp. v. Wisconsin Pub. Serv. Comm'n, 13 Wis. 2d 384, 108 N.W.2d 729 (1961), requiring rate base upon which to calculate return.

connecting link between the amount of return (however arrived at) and the utility prices themselves (since the amount of net profit plus expenses equals gross receipts). The *Hope* case was cited simply to the effect that it "did not change this rule [a proper rate base and allowable expenses] for . . . this case did not reject judicial right of review as to reasonableness of rates and, obviously, if it be held that no yardstick is necessary whereby to test this question then judicial review as to reasonableness of rates would become utterly meaningless."[48] It cannot be assumed that the Vermont court would have insisted on a determination of rate base if the other parts of the commission's findings of fact were adequate to an evaluation of the reasonableness of the rates.

In recent years, the Louisiana commission has held that the use of a cost of money approach may dispense with rate of return and rate base,[49] except where shares are not traded in the open market.[50]

Florida apparently has accepted this interpretation fully:

> The Florida commission has never been greatly concerned over the rate of return. It has been much more interested in the dollar requirements of the utility. *How many dollars does the utility require* in order to meet its operating expenses, depreciation charges, taxes, maintenance expense, debt service, dividend requirements, and transfer a reasonable amount to surplus? When the commission has been able to determine the answer to this question then the rate of return becomes a simple matter of computation.[51]

The wasted motion involved in the traditional procedure was demonstrated in a very frank and open manner in a Nebraska decision which first set the earnings and then computed various possible rates of return on various possible rate bases. It found that:

> 1. Annual net telephone earnings in the amount of $2,127,022 is a fair and reasonable return to the applicant and would enable the company to pay its debt charges and a reasonable dividend on its stock and provide a reasonable amount for surplus and that such a return upon investment would attract the capital required for plant additions and improvements.
> 2. An annual return of $2,127,022 is equivalent to a rate of return of 5.97 per cent on a rate base of $35,635,849 or 4.44 per cent on a rate base of $47,868,640, or 6.05 per cent on a rate base of $35,157,936, or 6.27 per cent on a rate base of $33,916,742, and that the respective rate of return on any of these bases is fair and reasonable.[52]

These findings should be framed and hung on the wall in the offices of all public

48. *Re* New England Tel. & Tel. Co., 115 Vt. 494, at 499, 66 A.2d 135, at 138 (1949).
49. Louisiana Pub. Serv. Comm'n v. Southern Bell Tel. & Tel. Co., 14 P.U.R.3d 146 (1956); *Ex parte* Oak Grove Water Co., 26 P.U.R.3d 549 (1958); *Re* United Gas Pipe Line Co., 38 P.U.R.3d 209 (1961).
50. *Ex parte* Morehouse Nat. Gas Co., 48 P.U.R.3d 375 (1963).
51. Petteway, *supra* note 11 at 569 (Emphasis added.).
52. *Re* Northwestern Bell Tel. Co. (Nebraska State Ry. Comm'n) 5 P.U.R.3d 24, 30 (1954).

utility commissions. They might save the parties a great deal of expense and mental anguish.

The suspicion that many commissions have recently been adopting an "end result" approach without openly admitting it is confirmed by the following observers.

Bonbright says:

> In the opinions that accompany their rate orders, commissions seldom attempt to disclose the reasons why they find, say, 5.85 per cent fair in one case and 6.2 percent fair in another. Especially in fair-value jurisdictions, some of the decisions lead one to suspect that the commissions have first reached a conclusion as to reasonable revenue requirements in terms of dollars per annum and then have proceeded to translate these requirements into whatever combination of a rate base and a percentage rate of return will be likely to pass muster with the appellate courts or with public sentiment.[53]

Phillips says: "I suspect that many commissions come close to using such an approach at the present time, *i.e.*, that the rate base and rate of return are determined after the cost of capital. (At least one West Virginia commissioner told me recently that his Commission follows such a procedure.)"[54]

V. Problems With the "End Result" Approach

Our proposed rule is, decide on the level of earnings which will pay interest on debt and give an adequate return to the equity securities. There are several steps that have to be taken to make this rule operational.

(1) The "cost of money" (*e.g.*, earnings-price ratio) should be averaged over some period, as in prevailing practice where cost of money evidence is used in deciding on the appropriate rate of return (to be applied to a rate base). The momentary cost of money or the cost of money which happens to prevail at the time of the rate hearings is certainly not appropriate. Otherwise the frequent changes that occur in overall interest rates and in business expectations would make a shambles of utility price-making. Changing monetary policy will still leave its mark, as it does under prevailing practice.

(2) The "cost of capital" will partly be a function of the amount of capital involved; hence, there is no single cost of capital. Paul Samuelson has put this point well:

> Suppose we agree to concentrate on cost of money Z. Is Z a constant? Or is it rather a variable—a function of many complicated things? Thus, there is not one definite Z needed to raise money from investors. Surely investors have some sort of a supply schedule of funds against the quantity Z. Only a stupid judge could believe that an award of Z = $100,000 will be exactly enough to raise the needed amount of new capital—wha' dat?—and anything less will raise nothing. Also, as we

53. Bonbright, Principles of Public Utility Rates 281 (1961).

54. Charles F. Phillips, Jr., author of Economics of Regulation (1965), in a letter to the author dated June 7, 1966. Quoted with permission of Professor Phillips.

> economists know, even for a public utility, which is required to provide certain standards of service, there is no unique needed amount of new capital. If you keep people waiting for single lines, if you make them tolerate a certain number of delays, you can do with much less expansion capital in the phone industry during the next ten years. If you desire to give every back farmer electricity, you will need much more capital than the utilities have ever thought of raising. So not only is Z a function of the new capital, but there is fundamental economic ambiguity as to the point along this function at which things are to be evaluated.[55]

(3) There may appear to be an element of circularity in the proposed rule inasmuch as the market's capitalization of present earnings is in part a function of prospective commission policy. It is true that there is an element of "interdependence" but this is not the same as "circularity" in the logical sense (as in a tautology). Interdependent relationships are common in economics and are handled frequently through the use of simultaneous equations. The same problem exists at the present time when cost of money evidence is used to determine the rate of return. The cost of money will certainly depend on the commission's final rate of return on the given rate base.

An approximation to the solution of a set of simultaneous equations is to get a schedule of costs of money, not just a single ratio, with various assumptions as to what the final commission action will be. Each cost of money witness would be asked, "What earnings-price ratio would be required to raise $\$X$ if the commission sets an earnings level sufficient to pay $\$Y$ on each presently outstanding (*i.e.*, old) share?" Similarly for $\$Y_{\text{I}}$, $\$Y_{\text{II}}$, etc. within the relevant range. If the commission is undecided (as it should be, until the cost of money evidence is in) as to how much expansion to encourage, there might be a series of $\$X_{\text{I}}$, $\$X_{\text{II}}$, etc.

The interdependence is inherent in the regulatory process. What the company has to pay for money is strongly affected by what the commission does, which in turn is strongly affected by what the company has to pay for money. This is true at the present time and will remain true under our proposal. We are not able to remove the interdependence but are merely proposing the removal of certain abortive steps in the existing process (separate determination of rate base and rate of return).

(4) An additional practical problem arises in separating a utility's earnings from utility and non-utility business. James C. Bonbright has kindly brought this matter to the author's attention:

> I am much interested in your point that there is really no need for a rate base under a cost-of-capital or flight-of-capital standard of an adequate rate of return. No doubt a scheme of rate making could be devised—in fact, any of several schemes—which calls for no rate base: for example, a maximum-dividend or sliding-scale dividend scheme under which a utility may charge whatever rates will cover fixed charges plus, say, 10% dividends on par value. But, short of an arrangement

55. See *supra* note 13.

> under which the rate of dividends is set at a fixed amount . . . , any attempt to avoid a rate base would run into difficulties. Among these difficulties would be that of distinguishing between company capital invested in the utility business and company capital invested in a non-utility business (as with the Canadian Pacific Railway). Even assuming no such complication due to non-utility property, there would arise the problem how to compute the total equity entitled to a return. Suppose, for example, that a commission were to find that an anticipated return of 10% will attract new equity capital. Without a rate base (or, at least, without a balance sheet determination of the equity component of the invested capital), I do not see how to determine the total allowable earnings on the company's existing outstanding stock. But perhaps there is some aspect of the problem which has escaped me.[56]

(5) There is also a question whether the rate structure that would ensure an adequate inflow of capital is the same as that which would prevent a flight of capital.[57] It is the former that is important in a growing economy. The commission presumably wishes the utilities to expand as the needs arise and as innovations become available. Merely to prevent a flight of capital is to ensure stagnation. Because of the factor of inertia it is reasonable to assume that a higher return is necessary to attract capital than to prevent its flight. Thus the test should not be "flight of capital" but the higher return of "inflow of capital."

The Supreme Court said in the *Hope* case, "The return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and *to attract capital.*"[58] This supports the "inflow of capital" approach.

A New Mexico case is noncommittal on this point: "[W]hile the return for the utility should be sufficient to enable it to obtain funds in the capital markets in competition with other businesses of like risk, that return should be no greater than necessary for that purpose."[59]

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56. Letter From Professor Bonbright to Harold M. Somers, July 12, 1955, commenting on the latter's article, *"Cost of Money" as the Determinant of Public Utility Rates*, 4 Buffalo L.R. 289 (1955). The letter is quoted with Professor Bonbright's permission (May 24, 1966). It was not written with a view to publication.

57. *Cf. Ruling Principles* at 73: "There is a prospective element in the term 'attract capital' which may be lacking in the designation of 'cost of capital.'"

The embedded cost of money must be considered as well as the cost of money required for future construction, according to the Nevada commission: *Re* Sierra Pac. Power Co., 49 P.U.R.3d 76 (1963). Similarly, the Oregon commission: *Re* Portland Gen. Elec. Co., 32 P.U.R.3d 497 (1960).

Even more than the cost of money has been allowed to provide an incentive for continued improvement: New England Tel. & Tel. Co. v. New Hampshire, 44 P.U.R.3d 498 (1962). A strong dissent against paying more than the cost of money is voiced in Rose, *supra* note 16, at 1100-02.

58. Federal Power Comm'n v. Hope Natural Gas Co., 320 U.S. 591, 603 (1944) (Emphasis added.). Similarly, *Re* American La. Pipe Line Co., 28 F.P.C. 482, 45 P.U.R.3d 78 (1962) and cases in many of the states which follow the phraseology of the *Hope* decision. See *Ruling Principles* at 76 n.14; Pegrum, Public Regulation of Business 678-82 (1965).

59. State Corp. Comm'n v. Mountain States Tel. & Tel. Co., 58 N.M. 260, 270 P.2d 685 (1954).

VI. Some Economic Implications

There is a departure from the social welfare optimum and the maximum efficiency of the economic system if a rate of return is arbitrarily set at a level which results in a return on capital which is different from the prevailing cost of capital. If the rate of return permitted is too high, an excessive amount of capital will be devoted to the enterprise; if too low, an insufficient amount. It has been argued that the "fair rate of return" commonly used in regulatory control induces a serious deviation from the optimal allocation of inputs.[60] As a result, a proposal has been made for a "graduated fair return" whereby the rate of return (assuming it is too high to begin with) is adjusted downward with successively larger amounts of capital until it equals the (marginal) cost of capital.[61] The great research effort involved in making a correct adjustment is recognized.[62]

My proposal[63] has been to go the whole hog and have the prevailing market cost of capital determine the "end result" at the very beginning. There is no point in devoting a great amount of energy to computing a rate base if the rate of return is adjusted anyway to whatever extent is needed to obtain the desired end result. By estimating the total amount of capital that is needed and what it would cost to keep or attract it, we get the desired "end result" which is the actual starting point for utility price-making.

We are dealing with industries which for one reason or another are regulated and not allowed to make voluntary decisions tending to maximize profits. Certain logical consequences follow from that fact. To ignore them is to encourage the wasteful and abortive exercises that the regulatory bodies and their wards go through day after day.

Most of the problems that arise in the use of cost of money stem from attempts to employ it as a method of estimating the fair rate of return. The latter is then to be applied to the rate base. If we drop the "rate base-rate of return" approach most of the problems disappear. We need not find a percentage cost of money, *e.g.*, 5%, which will help set the fair rate of return which will be applied to the rate base. The dividend yield (dividend/price expressed as a percentage) and earnings yield (earnings/price expressed as a percentage), both controversial items in this approach, relate dividends and earnings, respectively, to the market price of the securities involved. The fair rate of return is applied to another value entirely, the rate base. Only in extraordinary circumstances will the market value of securities equal the rate base. It is not surprising, therefore, that the rate of return determined from the cost of money leads to innumerable

60. Averch & Johnson, *Behavior of the Firm Under Regulatory Constraint*, 52 Am. Econ. Rev. 1052 (1962). See also Wellisz, *Regulation of Natural Gas Pipeline Companies: An Economic Analysis*, 71 J. of Pol. Econ. 30 (1963); Lerner, *Conflicting Principles of Public Utility Price Regulation*, 7 J. of Law & Econ. 61 (1964).

61. Klevorick, *The Graduated Fair Return—A Regulatory Proposal*, 56 Am. Econ. Rev. 477 (1966).

62. *Ibid.* See also Shepherd, *Regulatory Constraints and Public Utility Investment*, 42 Land Econ. 348 (1966).

63. See Somers, *"Cost of Money" as the Determinant of Public Utility Rates*, 4 Buffalo L. Rev. 289; 55 Pub. Util. Fort. 787 (1955).

contradictions and problems.[64] In order to get a single cost of money percentage figure, like 5%, we must be concerned with proper weighting, hence capital structure and all the resulting complexities and inconsistencies mentioned above.

Under the pure cost of money approach proposed here we avoid these problems. We do not seek a single percentage figure. What we seek is a *total number of dollars* that will meet the market's requirements for existing and needed capital. This does not ignore the capital already sunk in the utility. The owners of that capital are the owners of the outstanding securities. If we provide adequately for the owners of securities we are ipso facto providing adequately for the owners of the capital sunk in the business. We need not be concerned with the *original* sinkers of capital. These may be long dead and gone or may have sold their interests to others; or if they are still owners, they hold securities currently and are adequately taken care of in the pure cost of money approach.

This is not to deny that there are problems even with the latter. If there is a thin market for the securities involved it may be difficult to determine the cost of money for the whole of the securities outstanding. This is a common problem in the valuation of securities (*e.g.*, for death tax purposes).[65] The problems are great but they are different from those involved in using cost of money for determining the fair rate of return to be applied to a rate base. At least the problems involved in the pure cost of money approach deal with the crux of the issues confronting a price-regulating body and not with a lot of irrelevant and abortive issues such as what is the proper rate base and what is the proper rate of return.

In retreating to an "end result" approach based on "cost-of-money-alone" we are actually relying on the old-fashioned rate of interest, the price paid for capital. But the existence of regulation reverses the usual maximization process. In an unregulated industry, the interaction of the functions of the marginal rate of return on capital and the marginal price of capital will indicate the amount of capital to be devoted to the enterprise together with the marginal (inferentially also the average) price to be paid for the capital. In a regulated industry, the amount of capital desired is somehow arrived at by the industry and somehow modified by the regulatory agency, and only then is the price of that amount of capital determined by the regulatory agency and used to set regulated rates which will produce funds sufficient to pay that price. The cart is put before the horse. But that does not necessarily make it unworkable. Have we not all seen one little locomotive *pushing* a long string of railroad cars? That's the regulatory process.

64. See Morrissey, *A Reconsideration of Cost of Capital and a Reasonable Rate of Return*, 31 Land Econ. 229 (1955). See also Morrissey, *Dividend Payout and Utility Common Stock Value*, 55 Pub. Util. Fort. 583 (1955); *Relation of Growth and Rate of Return for Utilities*, 60 Pub. Util. Fort. 361 (1957); *Current Aspects of the Cost of Capital to Utilities*, 62 Pub. Util. Fort. 217 (1958); *Inflation and Public Utility Regulation*, 1 Calif. Management Rev. 74 (1959). See also Kolb & Lipstreau, New Concepts and Current Issues in Public Utility Regulation (1963); Shepherd & Gies, Utility Regulation: New Directions in Theory and Policy (1966); and the highly critical review of the latter in Hellman, Book Review, 57 Am. Econ. Rev. 308 (1967).

65. See Somers, *The Case for a Capital Gains Tax at Death*, 52 A.B.A.J. 346 (1966).