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Rate-of-Return Regulation and Utility Capital Structure Decisions

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A CORPORATION'S capital structure is a means for partitioning its return stream among different classes of securityholders and across different states of nature. The primary thrust of capital structure theory has been to determine whether and how this partitioning affects the total value of the firm.[1]

For a firm subject to rate-of-return regulation, however, the capital structure decision may take on an additional dimension. Under such regulation, the firm's output price is set by an outside agency so as to yield a "fair" return to providers of capital, and, if effective, this process reduces monopoly profits. But if the regulator's price-setting rule depends on the firm's capital structure in some predictable way, the firm may be able to influence price and hence reap additional profits by judiciously choosing its financing mix. The purpose of this paper is to analyze possible "price-influence" effects of a regulated firm's capital structure and to illustrate regulators' attempts to combat them.

The determinants of a regulated firm's capital structure have been touched upon in previous papers (Gordon [8], Elton and Gruber [5], Gordon and McCallum [9], Jaffe and Mandelker [11], Meyer [14] and Sherman [24], for example), but that issue has not been their primary concern. The present paper differs from those mentioned above by focusing its attention more directly on the capital structure decision. This issue is of interest in its own right in view of the important position occupied by regulated firms' securities in the capital market, but the approach taken here also serves to highlight and extend some common threads in the previous papers. In particular the results of these papers emerge as straightforward applications of the price-influence principle, and differences among them can be attributed to differing perceptions of the regulator's price-setting behavior.

Section I of the paper discusses the price-influence principle in general terms and describes the circumstances under which it will alter a regulated firm's financing choice. Section II presents three illustrations of how the general principle might work in practice, depending on the price-setting behavior of the regulatory agency. Section III discusses regulators' attempts to thwart the price-influence effect, and conclusions are drawn in Section IV.

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[1] If the capital markets offer a full range of competitive investment opportunities, this partitioning has been shown (by Modigliani and Miller [17] and others) to be redundant and of no consequence to the firm's total value. In a less idealized setting, however, the firm's capital structure may assume greater importance.

I. Financing Decisions and Their Influence on Regulated Prices: General Considerations

Suppose that a monopoly firm is subject to the following regulatory process: the firm chooses an initial capital stock, K_0, as well as a means for financing this capital stock, and a regulatory agency then sets an output price, p, such that the firm can expect to earn a fair return on its investment. To simplify the analysis, it is assumed that the firm does not revise its capital stock, so K_0 prevails for the duration of the model. Similarly, the financing mix is assumed to be set, once and for all, initially. If only debt and equity financing are used, then given K_0, the firm's capital structure is completely specified by the level of debt, D_0.

The regulatory agency sets the price before the true demand, q, is known, and the firm is obligated to satisfy whatever demand occurs at that price. The regulator may revise the price through time, however, so p is actually a sequence of prices, $p_1, p_2, \cdots, p_T$, and demand in any given period, t, is a function, $q_t = q_t(p_t, \theta_t)$, of the price in that period and the state of nature, θ_t, which is unknown as of the beginning of the period. The firm's after-tax operating profits, π_t, for any period are then

$$\pi_t = (p_t q_t(p_t, \theta_t) - C(q_t, K_0))(1 - \tau), \tag{1}$$

where C represents operating expenses for a given output and capital stock, and τ is the corporate tax rate.

In general, the initial market value of the firm will depend on its capital stock, its capital structure, and the sequence of operating profits:

$$V_0 = V_0(K_0, D_0, \pi_1, \pi_2, \cdots, \pi_T). \tag{2}$$

If the firm's objective is to maximize value, its incentive to substitute debt for equity financing, given the capital stock, may be analyzed by differentiating (2) with respect to D_0, holding K_0 constant:

$$\left.\frac{dV_0}{dD_0}\right|_{\overline{K_0}} = \left(\frac{\partial V_0}{\partial D_0} + \sum_t \frac{\partial V_0}{\partial \pi_t}\frac{\partial \pi_t}{\partial D_0}\bigg|_{\overline{p_t}}\right) + \sum_t \frac{\partial V_0}{\partial \pi_t}\frac{d\pi_t}{dp_t}\frac{dp_t}{dD_0}. \tag{3}$$

It is convenient to divide expression (3) into two terms, the first of which, in parentheses, will be labeled the "pure" capital structure effect; or the impact of debt on the firm's market value apart from any changes in the sequence of regulated prices. Although there is little professional concensus on its exact characteristics, there does seem to be agreement that any pure capital structure effect that might exist must be attributable to capital market imperfections or frictions of some sort. The partial term, $\partial V_0/\partial D_0$, might represent tax savings from debt (Modigliani and Miller [18]), or the costs of dealing with agency problems (Jensen and Meckling [12]), or signalling effects (Ross [23]), for example, while the effect on future operating profits, $\sum_t \frac{\partial V_0}{\partial \pi_t}\frac{\partial \pi_t}{\partial D_0}\Big|_{\overline{p_t}}$, might be associated with actions taken to avoid bankruptcy (Robichek and Myers [22]).[2] Re-

[2] The importance of these effects is a subject of controversy, however. See, for instance, Miller [15] on taxes, Haugen and Senbet [10] on bankruptcy costs, and Fama [7] on agency costs.

gardless of its precise origin, the pure capital structure effect may be thought of as analogous to the impact of debt in the absence of regulation.[3]

The last term in expression (3) will be labeled the "price-influence" effect. This effect is peculiar to the regulated firm, since it stems from the firm's perceived ability to influence the regulated price by altering its capital structure. Several points about the price-influence effect follow immediately from (3).

First, the magnitude of the effect depends on the specific details of the regulator's price-setting procedure. If regulation is ineffective, for example, the firm will already have found some way to induce the regulator to set prices at their value-maximizing levels, so there is no need to try to further influence price by altering capital structure. Also, if the regulator sets price independent of the firm's capital structure, $dp_t/dD_0 = 0$, and again there is no price-influence effect. Another possibility is that lags or uncertainties in the regulator's reaction to the firm's capital structure decision decrease the potential change in current firm value. In brief, the firm's incentive to manipulate its capital structure in an attempt to influence output price will be strongest when regulation is effective in curtailing monopoly profits and at the same time the regulator can be expected to respond in an immediate and predictable way to changes in the firm's financing mix.

The second point is that the price-influence effect creates at least a presumption that a regulated firm's capital structure will differ from that of an otherwise equivalent unregulated firm. For an unregulated monopolist, $\partial V_0/\partial p_t = 0$, so for small changes in capital structure there is no price-influence effect. If the price-influence effect is nonzero for the regulated firm, then the two will have identical incentives to substitute debt for equity only if the pure capital structure effect differs between the two firms by exactly enough to offset the price-influence effect. While it is possible, as has been noted above, that the pure capital structure effect may differ between a regulated and an unregulated firm, a precise offset would seem highly coincidental.

The third point is that the price-influence effect can lead to an interaction between financing and investment decisions, even if one would not exist on the basis of the pure capital structure effect. Under idealized capital market conditions, there is a separation between investment and financing decisions for an unregulated firm, but if the firm has the ability to influence the regulated price, it must determine its financing and investment simultaneously. Furthermore, as Sherman [24] has pointed out, the regulated firm's financing decision can potentially affect the Averch-Johnson [1] input bias.[4] If the firm's investment decision influences the sequence of allowed profits, it may have an incentive to employ more capital relative to labor than would be technically efficient for its level of output. It has also been shown (Baumol and Klevorick [3]) that a loosening of

[3] The pure capital structure effect for a regulated firm need not be quantitatively equal to that for an unregulated firm, however. Jensen and Meckling [12] have argued that marginal agency costs associated with debt will be smaller for the regulated firm because the regulatory agency aids bondholders in their monitoring of the firm's actions.

[4] Indeed, the Averch-Johnson bias may be interpreted as arising because the firm's investment decision has a price-influence effect of its own. This line of reasoning is further developed in Baron and Taggart [2].

the regulator's allowed rate of return constraint can mitigate this bias. Hence, if the firm's capital structure choice can ease this constraint, it may also serve to alleviate the Averch-Johnson bias. In the extreme, if the firm can achieve the monopoly price by properly choosing its financing mix, the input bias can even be eliminated altogether.

The full extent of the interaction between financing and investment for a regulated firm, however, depends on the nature of the pure capital structure effect. Under imperfect capital market conditions the pure capital structure effect could also lead to such interaction, even in the absence of regulation. Since the nature of the pure capital structure effect remains an unsettled issue, the interaction between financing and investment under regulation will not be pursued beyond these general remarks.

II. Illustrations of the Price-Influence Effect

While the price-influence effect provides a general framework for looking at capital structure decisions in regulated industries, its applicability cannot be assessed without a more concrete description of regulatory agencies' price-setting behavior. The purpose of this section is to show specific instances in which a price-influence effect may plausibly be anticipated.

A. *Tax Effects*

The aspect of regulated firms' financing decisions that has received the most attention in previous literature is the regulator's treatment of corporate taxes. It seems generally agreed that regulators view corporate taxes as a business expense and that they try to pass through to consumers the benefits of any tax savings the firm may achieve. The major source of disagreement in previous papers has been whether or not such attempts on the part of regulators will completely negate the firm's incentive to issue debt.

Gordon [8] has argued that they will; that is, any tax advantage the firm gains by issuing debt will be taken away through reductions in the regulated price, so the firm is rendered indifferent to its capital structure. To see the conditions under which this assertion holds, let us modify the general model of Section I to make it consistent with Gordon's. In particular, assume that the regulator sets price once and for all at the outset and that the pure capital structure effect of debt consists solely of the present value of the tax saving. The analogue of equation (3) in this context is then

$$\left.\frac{dV_0}{dD_0}\right|_{K_0} = \tau + \frac{\partial V_0}{\partial \pi}\frac{d\pi}{dp}\frac{dp}{dD_0}. \tag{4}$$

It is clear from (4) that Gordon's contention is correct if the price-influence effect is exactly equal to $-\tau$, but in order for that to occur, the regulator must be able to predict the effect of changes in p on the market value of the firm and gear his price adjustment to changes in the firm's capital structure accordingly.

The counterargument of Elton and Gruber [5] rests on the observation that the regulatory pricing rule implicit in Gordon's analysis does not coincide precisely

with the market valuation process, and hence the tax advantage to debt is not completely offset under that rule. Gordon assumes that regulators set price so that *expected* after-tax operating revenues for a levered firm are lower than those of an otherwise equivalent unlevered firm by just the amount of the annual tax saving from debt. But if expected revenues are viewed by investors as riskier than the tax saving from debt, they will discount those revenues at a higher rate, and the reduction in the firm's value from the price-influence effect will be less than the present value of the tax saving. Thus the marginal value of a dollar of debt is lower than for an unregulated firm, but it is still positive under the assumed pricing rule.[5]

Both the Gordon and Elton and Gruber models, then, may be seen as price-influence models, and their differences hinge on the effect of a specific price-setting rule. It is possible to construct alternative models of the regulatory process that yield different predictions about the magnitude of the price-influence effect, but the same basic principles remain intact.[6] First, regulators' attempts to pass through capital structure tax benefits to consumers will typically lessen the attractiveness of debt to regulated firms. Second, the capital structure decision will only become a matter of indifference if the regulator's pricing rule interacts with market value in such a way as to just offset the pure capital structure effect. In the case at hand, the price influence effect must net out to a change in market value of exactly $-\tau$ per dollar of additional debt to render the firm indifferent.

B. *Allowed Returns to Equity and Debt*

Another aspect of public utility regulation that may create an incentive to alter the financing mix is the determination of allowed returns to capital. It is this aspect that forms the basis for work by Sherman [24] and Meyer [14] and their results may also be viewed as an illustration of the price-influence effect.

As we have seen above, the typical approach to public utility pricing is to allow the firm sufficient revenue to cover operating expenses plus a fair return to providers of capital. When both debt and equity financing are employed, this implies that the price, p, will be set so that

$$(p\bar{q} - C(\bar{q}, K_0))(1 - \tau) + \tau i D_0 = eE_0 + iD_0, \tag{5}$$

[5] Using the notation of this paper, the total value of the levered firm in Elton and Gruber's model is given by $V = (p_L\bar{q} - C(\bar{q}, K_0))(1 - \tau)/\rho + \tau D_0$ where p_L is the price set by the regulator, $\bar{q}$ is expected annual demand and ρ is the discount rate applicable to the after-tax net operating revenues. The regulator is assumed to set price so that expected net operating revenue, after taxes but before interest, will be the same for levered and unlevered firms, so $(p_u\bar{q} - C(\bar{q}, K_0))(1 - \tau) = (p_L\bar{q} - C(\bar{q}, K_0))(1 - \tau) + \tau i D_0$, where p_u is the regulated price for the unlevered firm, and i is the interest rate on debt. Thus $dp/dD_0 = -i\tau/(1 - \tau)\bar{q}$, and expression (4) in the text can be evaluated as $dV/dD_0 = \tau + (\bar{q}(1 - \tau)/\rho)(-i\tau/(1 - \tau)\bar{q}) = \tau(\rho - i)/\rho$, which is less than τ but still strictly positive as long as $\rho > i$. Unfortunately, as Jaffe and Mandelker [11] have pointed out, Elton and Gruber's exact valuation formula is of limited applicability because of their strong implicit assumptions about the demand curve. In particular, expected demand, $\bar{q}$, is assumed to remain unchanged even when the regulator changes price.

[6] Gordon and McCallum [9], for example, countered Elton and Gruber with a model in which the regulator changes the allowed rate of return through time in some uncertain way and showed that Gordon's original contention could hold under these circumstances.

where $\bar{q}$ is the regulator's estimate of average annual demand, E_0 is the amount of equity funds (usually taken at book value), and e is the allowed return to equity. If both sides of (5) were divided by K_0, the overall allowed return to capital could be represented as simply a weighted average of the allowed return to equity and debt.

The allowed returns to equity and debt are, in turn, separately determined. The return to debt is usually taken as an average of contractual interest payments (the "imbedded" interest cost) and because this can be determined in an objective fashion, it rarely evokes controversy. The cost of equity, on the other hand, must be estimated on subjective grounds and is the primary source of contention over capital costs between regulators and firms. Because of its subjective basis, Sherman argues that regulators are more likely to make mistakes in determining the cost of equity, and one such mistake he regards as prevalent is for e to be invariant to the firm's actual capital structure decision. That is, even though changes in capital structure alter the true financial risk borne by shareholders and hence the required return to equity, these changes may not be reflected in e.

If Sherman's description of the regulatory process is correct, the firm has an opportunity to influence price. From (5), the effect on price of an increase in equity, holding total capital constant, is[7]

$$\frac{dp}{dE} = \frac{e - i(1 - \tau)}{\bar{q}(1 - \tau)}, \tag{6}$$

and as long as the allowed return to equity exceeds the after-tax imbedded cost of debt, the firm can induce price increases by substituting equity for debt.[8] Unless there were some offsetting advantage to debt, in fact, equity would be the preferred form of public utility financing.[9]

There is a basic similarity between this illustration and the one preceding it. In both cases, an important source of price effects is some discrepancy between the regulator's price-setting rule and the market valuation process. With tax effects, we have seen that such a discrepancy might stem from the regulator's preoccupation with expected revenues rather than the market value of these revenues. In the case at hand, the discrepancy might arise because the regulator determines allowed returns to equity and debt separately and fails to account for their interaction. In both cases the gap between the implicit perception on which the regulator acts and the perception of investors in the market gives the firm an opportunity to capture additional profits by manipulating its capital structure.

C. *The Regulator's Response to Financial Distress*

In a recent book on economic regulation, Owen and Braeutigam [20] argue that, "One of the worst fears of a regulatory agency is the bankruptcy of the firm

[7] For simplicity, it is assumed that $\bar{q}$ is determined exogenously on the basis of some test-year, so that the regulator does not take into account possible effects of a change in price on expected demand.

[8] Meyer's results are implicitly attributable to the same description of the regulatory process, since he holds e constant when differentiating with respect to financing proportions.

[9] Sherman avoids this corner solution by assuming that investors' required return on equity, like e, is also invariant to changes in capital structure (the so-called "net income" approach to valuation).

it supervises, resulting in 'instability' of service to the public or wildly fluctuating prices." This fear may in turn form the basis for another kind of price-influence effect.

To illustrate, suppose that there are two periods, demarcated by three points in time, $t = 0$, $t = 1$, and $t = 2$. The regulated firm chooses its capital stock and financing proportions at $t = 0$, and, as above, these are not altered for the duration of the model. Any debt issued is assumed to be two-period debt with the first coupon, rD_0, payable at $t = 1$, and the second coupon plus principal, $(1 + r)D_0$, payable at $t = 2$.

Using some fair rate-of-return rule, the regulator chooses a price, p_1, that prevails for the first period, and this, in conjunction with the firm's demand function, q_1, cost function, C, the first-period state of nature, θ_1, and the capital stock, K_0, determines the firm's first-period operating profit:[10]

$$\pi_1 = p_1 q_1(p_1, \theta_1) - C(q_1, K_0). \tag{7}$$

At $t = 1$, the regulator then has the opportunity to revise the price if he wishes. It is assumed that he behaves in a passive manner, so that if the firm is not "in trouble" at the end of the first period, he leaves the price unchanged, and the firm's second-period operating profit is[11]

$$\pi_2 = p_1 q_2(p_1, \theta_2) - C(q_2, K_0). \tag{8}$$

On the other hand, if first-period results indicate that the firm's "financial integrity" may be threatened, it is assumed that the regulator allows a price increase for the second period. A possible regulatory rule of thumb might be to adjust price if the firm doesn't maintain a fixed charge coverage ratio of at least z in the first period. Thus, since first-period fixed charges consist of the coupon payment, rD_0, price is adjusted upward for the second period whenever $\pi_1 < zrD_0$.

The range of the first-period states of nature, θ_1, may then be partitioned at two points between its low value of a and its high value of b.[12] First, there may be some value, θ_1^*, so low that the firm defaults on its debt at $t = 1$. Second, there will be some higher state, θ_1^{**}, below which the regulator adjusts price for the second period. The range of second period outcomes, θ_2, is partitioned at only one point, θ_2^*, below which the firm defaults on its debt at $t = 2$. Even though θ_1 and θ_2 are assumed to be independent and identically distributed, however, the location of θ_2^* is still conditional on the realization of θ_1, since the point of default at $t = 2$ depends on whether or not price was adjusted at $t = 1$.

Given this assumed regulatory behavior, the firm's optimal capital structure may be investigated by differentiating initial market value, V_0, with respect to debt, D_0. To simplify the expressions, it is assumed that all capital market participants are risk-neutral and have identical expectations, that capital markets are competitive, that the risk-free interest rate for both one and two periods is r_f, and that, in the event of default, the bondholders take over the firm's assets

[10] Throughout this example, taxes are ignored for simplicity.

[11] Support for the realism of this kind of passive behavior may be found in Joskow [13].

[12] Without loss of generality the states of nature may be arrayed so that low values of θ_1 correspond to low operating profits and high values to high operating profits.

without bearing any bankruptcy costs. Under these assumptions, V_0 is given by

$$V_0 = \int_a^b \frac{(p_1 q_1(p_1, \theta_1) - C(q_1, K_0))}{1 + r_f} dF(\theta_1)$$

$$+ \int_{\theta_1^{**}}^b \int_a^b \frac{(p_1 q_2(p_1, \theta_2) - C(q_2, K_0))}{(1 + r_f)^2} dF(\theta_2)\, dF(\theta_1)$$

$$+ \int_a^{\theta_1^{**}} \int_a^b \frac{(p_2 q_2(p_2, \theta_2) - C(q_2, K_0))}{(1 + r_f)^2} dF(\theta_2)\, dF(\theta_1), \tag{9}$$

where F represents the cumulative distribution function of θ_1 and θ_2. Differentiating (9) with respect to D_0, holding K_0 constant and noting that $p_2(\theta_1^{**}) = p_1$, yields

$$\left.\frac{dV_0}{dD_0}\right|_{\overline{K_0}} = \int_a^{\theta_1^{**}} \int_a^b \frac{\frac{d\pi_2}{dp_2}\frac{dp_2}{dD_0}}{(1 + r_f)^2} dF(\theta_2)\, dF(\theta_1). \tag{10}$$

In the context of this simple model, then, the firm's incentive to substitute debt for equity stems solely from the price-influence effect, since capital market conditions are essentially those of Modigliani and Miller [17]. By substituting debt for equity, the firm increases the probability that its operating profits will not be sufficient to cover its fixed charges at least z times, and this in turn widens the range of states of nature over which price will be adjusted upward for the second period without at the same time increasing the chance that price will be lowered. As long as the original price, p_1, is less than the monopoly price for the second period, it will thus pay the firm to issue more debt in order to increase the chance that p_1 will be raised. Because of the existence of a reserve of untapped monopoly profits, the firm is thus able to shift some of its risk to consumers through the price-influence effect.[13]

III. Regulatory Efforts to Combat the Price-Influence Effect

The possibility for the kinds of price-influence incentives illustrated in Section II is supported by the fact that utility regulators devote considerable effort to combating these incentives. Prior to the 1930's, it was common for state regulatory

[13] Although larger debt proportions increase the chance of bankruptcy, this has no impact on firm valuation in this model. Changes in the probability of bankruptcy are simply reflected in changes in the interest rate on the firm's debt and do not affect total firm value. The price influence effect would also work in the same direction even in the presence of bankruptcy costs. Interest rate negotiations between shareholders and bondholders give the firm an incentive to economize on such costs, but the possibility of influencing the regulated price would lead the firm to issue more debt than it otherwise might.

[14] See Troxel [25] for an extensive discussion of this period.

commissions to exert no influence over utilities' capital structure decisions, on the grounds that such decisions should be exclusively subject to management expertise.[14] In the wake of the financial difficulties experienced by utilities during the Great Depression, however, the feeling became widespread that utility capital structures had been previously manipulated to the detriment of the public. A common charge was that many utilities had "overcapitalized" by issuing securities in excess of the replacement value of their real assets in an attempt to inflate their rate bases and hence induce regulators to allow them higher prices. Furthermore, it was charged, these inflated capital structures were usually top-heavy with debt and preferred stock. Utilities were thought to have purposely burdened themselves with heavy fixed charges, so that any attempt to reduce prices would threaten the utilities with bankruptcy, a contingency the regulators were presumably eager to avoid. The price-influence effect envisioned was thus of the type illustrated in Section II C., and in an effort to combat it, commissions began limiting the debt proportions of utility capital structures through their power to disapprove new securities issues. Limits on utility debt proportions were even written into the laws of some states.

In recent years, regulatory attempts to influence utility capital structures have been aimed more at the type of incentive problem illustrated in Section II B. Commissions appear to have been concerned more that utilities have too much equity rather than too little and have pressured firms to issue more debt on the grounds that the deductibility of interest makes debt cheaper and that higher debt proportions will thus lead to lower prices for consumers. It has even become a common practice to set prices on the basis of an "ideal" capital structure containing more debt than the utility actually has outstanding.[15]

This practice, it might be noted, provides a simple way for regulators to eliminate price-influence effects associated with capital structure. As long as the ideal capital structure on which the regulator bases output price is not affected by the firm's actual capital structure decision, the firm will have no incentive to manipulate its financing mix because such manipulation will have no influence on the regulated price. Hence the firm will choose whatever capital structure it deems optimal on the basis of other factors, such as taxes, costs of bankruptcy, and the like. Furthermore, any ideal capital structure the regulator may choose will serve this purpose, as long as the independence condition is satisfied.

The problem, however, is that if the regulator's ideal capital structure does not coincide with the firm's true optimum, the regulated price may not yield a fair return relative to the firm's optimal capital structure. This may in turn lead the firm to alter other decisions, such as its real input mix, in an attempt to find different means for influencing the regulated price. If the regulator is to set a price that is consistent with both efficient production and financing decisions by the firm, then the regulator must know as much about the firm's operations as its managers. That is, the regulator must be able to predict the whole set of optimal decisions and choose a corresponding price so that the firm can then do no better than to make that optimal set of decisions.

[15] See, for example, Nichols [19].

IV. Conclusions

This paper has shown that rate-of-return regulation may create incentives for regulated firms to alter their capital structures. How these incentives might arise has been illustrated with a variety of examples, the unifying element of which has been the price-influence effect. That is, if the regulator's price-setting rule depends in some predictable way upon the firm's capital structure, the firm may be able to exploit that rule by judiciously choosing its financing mix and thus induce the regulator to move closer to the monopoly price. The magnitude and even the direction of this price influence effect has been seen to depend on the specific details of regulatory price-setting procedures, and examples can be constructed in which the firm is motivated to issue either more debt or more equity than it otherwise would.

One generalization that does appear warranted, however, is that the problem of rate-of-return regulation is more difficult than simply finding the fair rate of return and hence the appropriate price that corresponds to a given set of firm decisions. The difficulty is that this set of decisions by the firm may itself have been predicated upon influencing the regulated price.

Regulators have shown an awareness of such strategic behavior by firms and have responded with counteracting strategies of their own. Regulation that yields a fair return to investors and at the same time induces efficient production and financing decisions by firms, however, has been shown to place a heavy information burden on the regulators.

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DISCUSSION

A. W. SAMETZ*: Kane's analysis of the post-1960's causes of the decreasing effectiveness of banking regulation is first rate, and his framework of the "regulatory dialectic" is insightful and useful towards explaining the 1970's surge of de-regulation. However, I would add to the list of basic causes and would consider their durability. And more importantly, I find Kane's "dialectic" far less useful towards explaining or predicting the re-regulation phase of the regulatory cycle.

It should also be noted that when the unshackling process is celebrated as well as analyzed, issues of tone and emphasis are introduced that are likely to put off the very "non-believers" one may wish to reach. For example, there are, of course, costs of de-regulation as well as benefits of regulation; why neglect them? And not all bankers are heroic "can-doers" to be contrasted to cloddish regulatory "bureaucrats" even during a period of de-regulatory euphoria.

Kane's excellent overview of the rapidly changing financial environment of the last two decades would gain from the explicit addition of the factor of the increased financial and business risk that has accompanied the primary dynamos of the increasing rate and unpredictability of inflation and rapid change in financial technology. Furthermore, the addition of the factor of increased internationalization of both the economy and its finance would further strengthen Kane's argument that traditional domestic regulatory protectionism has been undermined by extensive change in the financial environment given the superior adaptability of the regulatees.

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