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Flotation Cost Allowance in Rate of Return Regulation: Comment

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WHEN A PUBLIC UTILITY sells new equity securities, it incurs "flotation costs." In most regulatory jurisdictions, these costs are not considered to be expenses for purposes of computing revenue requirements and must therefore be accounted for in some other manner.[1] There are two consistent approaches to accounting for flotation costs which have been advocated in regulatory hearings. The first consists in reimbursing the utility in each period for flotation costs actually incurred during that period. The second approach increases the allowed return on equity in all future periods to compensate the equity investor for the erosion of his initial equity contribution due to flotation costs.

Arzac and Marcus (A-M), in the December 1981 issue of this journal, have analyzed the effect of an allowance for flotation costs on the allowed rate of return on equity and argued that in order to avoid dilution of the initial shareholders' equity the allowed rate of return, r, should be equal to

$$r = \frac{k}{1 - \dfrac{fh}{1 - f}} \tag{1}$$

where

k = the investors' required rate of return;
f = flotation costs, expressed as a fraction of the value of the issue; and
h = external equity financing rate, expressed as a fraction of earnings

The authors also argue, based on Equation (1), that r increases with the rate of external financing.

An alternative approach to that proposed by A-M, which I refer to as the "conventional approach," is to set the allowed rate of return equal to[2]

$$r' = \frac{D_t}{P_{t-1}(1 - f)} + g \tag{2}$$

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[1] Flotation costs may take the form of temporary "price pressure" due to the increased supply of shares and/or out-of-pocket expenses. The latter are generally deducted directly from retained earnings and thus reduce book value per share unless they are recovered in some manner. Price pressure, if it exists, causes book value per share after the stock issue to be lower than it would have been if the new shares could have been sold at the pre-pressure price. This type of flotation cost, being an opportunity cost, is not accounted for at all in the firm's financial statements.

[2] The derivation of Equation (2) can be found in most standard corporate finance textbooks. Its use in regulatory hearings by financial witnesses is widespread. For a recent example, see testimony by Irwin Friend and David Kosh in FCC Docket No. CC79-63 re American Telephone and Telegraph Company (May 1981).

where D_t/P_{t-1} is the dividend yield in year t and g is the perpetual dividend growth rate expected by investors. Substituting k for $(D_t/P_{t-1}) + g$ gives

$$r' = k + \frac{D_t}{P_{t-1}}\left[\frac{f}{1-f}\right] \tag{3}$$

In this approach, r' is independent of the rate of external financing and is applied to the equity base in every year whether new financing is contemplated or not.

In this comment, we compare the properties of Expression (1) with those of Expression (2). It is shown that if the allowed rate of return is determined consistently according to Expression (1), as recommended by A-M, the utility is reimbursed its flotation costs in each year as they are incurred. For this reason, the allowed rate of return in each year is a function of the external equity financing rate in the A-M model. If the allowed rate of return is determined by Expression (2), the present value of flotation cost adjustments received by the utility is the same as in the previous case. However, the two methods generally differ in their intergenerational allocation of those costs since application of Expression (2) amortizes them over an infinite horizon while application of Expression (1) effectively expenses them.

To show that determination of the allowed rate of return according to Expression (1) is equivalent to expensing issue costs in each period when a stock issue occurs, let $s = hr$ be the amount of new equity financing required each year, N_t, expressed as a fraction of existing equity, K_{t-1}. Then Equation (1) becomes

$$r = \frac{k}{1 - \dfrac{fs}{r(1-f)}} \tag{4}$$

Solving for r and substituting $s = N_t/K_{t-1}$ we obtain

$$r = k + \frac{N_t}{K_{t-1}}\left[\frac{f}{1-f}\right] \tag{5}$$

Let P_t be the value of the new issue before flotation costs so that $N_t = P_t(1-f)$. Then by multiplying Equation (5) through by K_{t-1}, we obtain

$$rK_{t-1} = kK_{t-1} + fP_t \tag{6}$$

In other words, the regulatory process implied by Expression (1) permits investors to receive in each year t their required return on existing equity, kK_{t-1}, plus a full recovery of the flotation expenses, fP_t, incurred in that year.

We now show that the conventional approach also provides for adjustments whose present value is fP_t in each year in which there is a stock issue. Assume a single stock issue in year t which adds an amount N_t to the book value of the firm's equity. The conventional approach applies an incremental return on equity which, from Equation (3), is equal to $D_t/P_{t-1}[f/(1-f)]$ to N_t, and to all future earnings on N_t which are retained at the rate b and reinvested at r', in perpetuity. The present value of this perpetual future stream of return increments at time t,

V_t, is equal to

$$V_t = \sum_{T=t}^{\infty} \frac{N_t(1 + br')^{T-t}}{(1 + k)^{T-t+1}} \cdot \frac{D_t}{P_{t-1}} \left[\frac{f}{1 - f}\right] \tag{7}$$

Since $N_t = P_t(1 - f)$ and, under the assumptions of the model, $g = br'$ so that $k = (D_t/P_{t-1}) + br'$, Equation (7) can be restated as[3]

$$V_t = \frac{P_t(1 - f)}{k - br'} \cdot (k - br')\left[\frac{f}{1 - f}\right]$$

$$= fP_t \tag{8}$$

Comparison of Equation (6) with Equation (8) shows that consistent application of either method will serve to recover the costs of every stock issue, fP_t, $t = 1 \cdots \infty$, and thus avoid dilution of existing shareholders' investment. However, the models differ in that the flotation costs are recovered immediately under the A-M proposal but are amortized over an infinite period under the conventional approach.

It is important to note that the present value of the cost adjustments under the conventional method will only amount to fP_t if r' is applied to cumulative retained earnings as well as issued common stock and if it is applied in every future year whether or not there is a stock issue in that year. In the extreme case where a company had only one initial stock issue in year 1, for example, the costs of the issue would only be recovered if r' were applied consistently to total equity, including retained earnings, in all future years even though no future financing was contemplated. Under the conventional approach, in other words, the flotation cost adjustment is not made to reflect current or future financing costs, as in the A-M model; it is made to compensate investors for costs incurred in *preceding* stock issues.[4]

In summary, we have shown that the present value of the adjustment for flotation costs is the same whether Expression (1) is used or whether Expression (2) is used. Where the two methods differ is in the intergenerational allocation of the costs. Expression (1) effectively expenses issue costs as incurred, while Expression (2) effectively amortizes them over an assumed infinite equity life.[5]

[3] Since the purpose of the flotation cost adjustment is to avoid dilution of existing investors' equity by maintaining the market value, net of flotation costs, equal to book value, there is no additional contribution to g from the issue of new stock whose net proceeds exceed book value. Under the same conditions, the present value of the flotation cost adjustment is independent of b and therefore the assumption made in the derivation of Equation (8) that b is the same in every period is sufficient but not necessary for the equality of V_t and fP_t.

[4] Confusion over the purpose of the adjustment in the conventional approach can lead to inappropriate "strawman" criticisms of its application. See for example A-M's footnote 4.

It is perhaps troubling that current investors should receive compensation for expenses incurred by previous investors. However, the treatment is analogous to the conventional inclusion of amortized bond issue expenses in the current embedded cost of debt.

[5] It can be seen from a comparison of Equations (3) and (5) that sufficient conditions for the two methods to result in identical adjustments in each year, as well as identical present values, are that market price be equal to book value and s be equal to $r'(1 - b)$. For other equity growth rates, the adjustments in any year t will in general be different.

Which is "correct" is a policy decision with respect to intergenerational fairness and the smoothing of revenue requirements over time. The principal policy constraint is that, whichever method is chosen, it must be used consistently over the life of the utility. If a switch from the use of Expression (2) to the use of Expression (1) is made, then investors will never fully recover the flotation costs incurred in acquiring equity capital prior to the switchover. Conversely, if a switch is made in the other direction and Expression (2) is applied to all equity, rather than being restricted to new equity and its associated retained earnings added after the switchover, then investors will be compensated twice for pre-switchover flotation costs.

REFERENCES

1. E. R. Arzac and M. Marcus. "Flotation Cost Allowance in Rate of Return Regulation: A Note." *Journal of Finance* 36 (December 1981), 1199–1202.