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WITNESS: ROGER A. MORIN

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION, **Complainant,** **v.** **PUGET SOUND ENERGY, INC.,** **Respondent.**	**Docket No. UE-060266** **Docket No. UG-060267**

FIRST EXHIBIT (NONCONFIDENTIAL) TO THE PREFILED REBUTTAL TESTIMONY OF ROGER A. MORIN ON BEHALF OF PUGET SOUND ENERGY, INC.

AUGUST 23, 2006

REGULATORY FINANCE:

UTILITIES' COST OF CAPITAL

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Chapter 6
Flotation Cost Adjustment

This chapter demonstrates that an adjustment to the market-based cost of capital is necessary for flotation costs associated with the procurement of equity capital, and discusses the mechanics and controversies involved in applying this adjustment.

A typical utility is continuously issuing stock through its dividend reinvestment plan and employee stock option plan, or is selling new shares to the public on a regular basis in order to maintain its construction program and meet its mandated service requirements. The costs of issuing these securities are just as real as operating and maintenance expenses or costs incurred to build utility plants, and fair regulatory treatment must permit the recovery of these costs.

6.1 Flotation Cost Allowance

The simple fact of the matter is that common equity capital is not free. Flotation costs associated with stock issues are exactly like the flotation costs associated with bonds and preferred stocks. Flotation costs are incurred, and if they are not expensed at the time of issue, they must be recovered through a rate of return adjustment. This is routinely done for bond and preferred stock issues by most regulatory commissions. The flotation cost allowance to the cost of common equity capital is routinely discussed and applied in most corporate finance textbooks.

Flotation costs are very similar to the closing costs on a home mortgage. In the case of issues of new equity, flotation costs represent the discounts that must be provided to place the new securities. Flotation costs have three components: (1) the direct component, which is the compensation to the security underwriter for his marketing/consulting services, for the risks involved in distributing the issue, and for any operating-administrative expenses associated with the issue (printing, legal, prospectus, registration, etc.); (2) the indirect component, or market pressure, which represents the downward pressure on the stock price as a result of the increased supply of stock from the new issue, reflecting the basic economic fact that when the supply of securities is increased following a stock or bond issue, the price falls; and (3) the potential market price decline related to external market variables; this is often referred to as the allowance for "market break."

To prevent the dilution of existing shareholders' investment resulting from these three factors, an amount must be added to the rate of return on

common equity to obtain the final cost of equity financing.[1] This incremental return is referred to as the "flotation cost allowance," and is the sum total of direct flotation expenses, market pressure, and market break.

To demonstrate the need for adjusting the market-determined return on equity for flotation costs, consider the following simple example. Shareholders invest $100 of capital on which they expect to earn a return of 10%, or $10, but the company nets $95 because of issuance costs. It is obvious that the company will have to earn more than 10% on its net book investment (rate base) of $95 to provide investors with a $10 return on the money actually invested. To provide the same earnings of $10 on a reduced capital base of $95 clearly requires a return higher than the shareholder expected return of 10%, namely $10/$95 = 10.53%. This is because only the net proceeds from an equity issue are used to add to the rate base on which the investor earns.

6.2 Magnitude of Flotation Costs

The flotation cost allowance requires an estimated adjustment to the return on equity of approximately 5% to 10%, depending on the size and risk of the issue. A more precise figure can be obtained by surveying empirical studies on utility security offerings.

According to empirical studies by Borum and Malley (1986) and Logue and Jarrow (1978), underwriting costs and expenses average 4% - 5.5% of gross proceeds for utility stock offerings in the U.S. Eckbo and Masulis (1987) found an average flotation cost of 4.175% for utility common stock offerings, and found that flotation costs increased progressively for smaller size issues.

As far as the market pressure effect is concerned, empirical studies clearly show that the market pressure effect is real, tangible, and measurable. Appendix 6-A describes one method of measuring the market pressure effect. Logue and Jarrow (1978) found that the absolute magnitude of the relative price decline due to market pressure was less than 1.5%. Bowyer and Yawitz (1980) examined 278 public utility stock issues and found an average market pressure of 0.72%. In a classic and monumental study published in the *Journal of Financial Economics,* which reviewed the aggregate empirical evidence on market pressure from several studies, Smith (1986) found a market pressure effect of 3.14% for industrial stock

[1] An alternate way of stating this requirement is that the utility's stock must be maintained at some minimum market-to-book ratio in such a way that the proceeds from new stock issues will not decline below book value per share.

issues and 0.75% for utility common stock issues. Other studies of market pressure are reported in Logue (1973), Pettway (1984), and Reilly and Hatfield (1969). In Pettway's study, the market pressure effect for a sample of 368 public utility equity sales was in the range of 2% to 3%. Eckbo and Masulis (1987) found that the relative price decline due to market pressure in the days surrounding the announcement amounted to slightly more than 1.5%.

The Eckbo and Masulis study also confirmed that the percentage flotation cost allowance is higher for small issues than for large issues in view of the high fixed cost component of total costs involved in the process of security underwriting. Although total costs of issuing securities vary according to size of the issue and the degree of risk, there are certain expenses that are fixed, regardless of issue size. These include legal fees and prospectus preparation. With respect to the balance, or underwriting costs, there is greater risk assumed with smaller issues.

In summary, based on empirical studies of U.S. utility security offerings, total flotation costs including market pressure conservatively amount to 5% of gross proceeds for U.S. security offerings. This is consistent with the fact that several utilities raise a substantial portion of their external equity every year through an automatic dividend reinvestment plan and offer a 5% discount, suggesting that the savings from abstaining from a public issue of common stock are at least 5%. The flotation cost allowance of 5% is likely to be conservative, since no explicit allowance for market break is incorporated. If negative events should occur during the time period from announcement of a public issue to actual pricing, the price could fall below book value unless a sufficient margin is maintained. Moreover, the 1% allowance for market pressure is probably conservative for large stock issues.

6.3 Application of the Flotation Cost Adjustment

This section formally demonstrates: (1) how and why it is necessary to apply a flotation cost allowance to the dividend yield component of the DCF model in order to obtain the fair return on equity capital; (2) why the flotation adjustment is permanently required to avoid confiscation even if no further stock issues are contemplated; and (3) why flotation costs are only recovered if the rate of return is applied to total equity, including retained earnings, in all future years.

An analogy with bond issues, as discussed in Brigham, Aberwald, and Gapenski (1985), is useful here in order to understand the treatment of issue costs in the case of common stock issues. In the case of bonds,

flotation costs are recovered over the life of the bond in two steps: (1) flotation costs are amortized over the life of the bond and the annual amortization charge is incorporated into revenue requirements, in much the same way that funds invested in utility plant is recovered through depreciation charges; (2) the unamortized portion of flotation costs is included in rate base, and a return is earned on the unamortized costs, in the same way that a return is earned on the undepreciated portion of a utility's plant. The recovery continues year after year until the recovery process is terminated, regardless of whether the utility raises new debt capital. This is analogous to the process of depreciation, which allows the recovery of funds invested in utility plant. The recovery continues whether the utility constructs new facilities or not.

Unlike the case of bonds, common stock has no finite life so that flotation costs cannot be amortized and must therefore be recovered by way of an upward adjustment to the allowed return on equity.

In theory, underpricing costs could be expensed and recovered through rates as they are incurred. This procedure is not considered appropriate, however, because the equity capital raised in a given stock issue remains on the utility's common equity account and continues to provide benefits to ratepayers indefinitely. It would be unfair to burden the current generation of ratepayers with the full costs of raising capital when the benefits of that capital extend indefinitely. The common practice of capitalizing rather than expensing eliminates the intergenerational transfers that would prevail if today's ratepayers were asked to bear the full burden of flotation costs of bond/stock issues in order finance capital projects designed to serve future as well as current generations. Moreover, expensing flotation costs requires an estimate of the market pressure effect for each individual issue, which is likely to prove unreliable. A more reliable aproach is to estimate market pressure for a large sample of stock offerings rather than for one individual issue.

An alternative regulatory treatment is to incorporate flotation costs into the rate base as an intangible asset. While this solves the intergenerational problem and compensates investors fairly for their investment, the method clashes with the "used and useful" principle of rate base inclusions. An intangible asset related to flotation costs is unlikely to be viewed as a used and useful asset in the public service by regulators.

The conventional approach to flotation cost adjustment can be derived as follows. From the standard DCF model, the investor's required return on equity capital is expressed as:

$$K = D_1/P_0 + g \qquad (6\text{-}1)$$

If P_0 is regarded as the proceeds per share actually received by the company from which dividends and earnings will be generated, that is, P_0 equals B_0, the book value per share, then the company's required return is:

$$r = D_1/B_0 + g \qquad (6\text{-}2)$$

Denoting the percentage flotation costs f, proceeds per share B_0 are related to market price P_0 as follows:

$$P - fP = B_0$$

$$P(1 - f) = B_0 \qquad (6\text{-}3)$$

Substituting Equation 6-3 into 6-2, we obtain:

$$r = D_1/P(1-f) + g \qquad (6\text{-}4)$$

which is the utility's required return adjusted for underpricing.[2]

Equation 6-4 is often referred to as the "conventional approach" to flotation cost adjustment. Its use in regulatory proceedings by cost of capital witnesses is widespread. The formula is discussed in several college-level corporate finance textbooks, such as Brigham and Gapenski (1991).

EXAMPLE 6-1

For flotation costs of 5%, dividing the expected dividend by 0.95 will produce the adjusted cost of equity capital. For a dividend yield of 6%, for example, the magnitude of the adjustment is 32 basis points: .06/.95 = .0632.

2 Another way to look at it is that in order to prevent dilution of book value per share, the market-to-book ratio must be at least $1/(1 - f)$. The Target Market-to-Book method discussed in Chapter 10 can be used to translate the DCF cost of equity figure into an appropriate allowed return on book equity. As shown in Chapter 10, the allowed return consistent with a target M/B ratio that allows for the recapture of flotation costs is:

$$r = M/B(K - g) + g$$

Brigham, Aberwald, and Gapenski (1985) performed an excellent analysis regarding the need for a flotation cost adjustment.

The following illustration adapted from Brigham, Aberwald, and Gapenski (1985) shows that: (1) even if no further stock issues are contemplated, the flotation adjustment is still permanently required to keep shareholders whole, and (2) flotation costs are only recovered if the rate of return is applied to total equity, including retained earnings, in all future years, even if no future financing is contemplated.

The flotation cost adjustment process is shown here in Tables 6-1 through 6-3 using illustrative market data.

The assumptions used in the computation are shown in Table 6-1. The stock is selling in the market for $25, and investors expect the firm to pay a dividend of $2.25, which will grow at a rate of 5% thereafter. The traditional DCF cost of equity is thus $k = D/P + g = 2.25/25 + .05 = 14\%$, or $3.50 in the first year. Nine percent of the 14%, or $2.25, will come from dividends, so that the remaining 5%, or $1.25, must then come from capital gains. To get a capital gain of $1.25 from $1.188 of retained earnings, the earnings retained must clearly earn more than 14%. Therefore, if the firm sells one share of stock, incurring a flotation cost of 5%, the traditional DCF cost of equity adjusted for flotation cost is thus $ROE = D/P(1-f) + g = .09 \div .95 + .05 = 14.47\%$.

TABLE 6-1
ASSUMPTIONS

Issue Price =	$25.00
Flotation Cost =	5.00%
Dividend Yield =	9.00%
Growth =	5.00%
Equity Return = (D/P = g)	14.00
Allowed Return on Equity = (D/P(1-f) + g)	14.47%

As shown in Table 6-2, the initial book value (rate base) is the net proceeds from the stock issue, which are $23.75, that is, the market price less the 5% flotation costs.

TABLE 6-2
$D/P\,(1-f) = g$ APPLIED ON ALL COMMON EQUITY
BEGINNING OF YEAR: 14.47 % ALLOWED RETURN

Year	Common Stock (1)	Retained Earnings (2)	Total Equity (3)	Stock Price (4)	Market/ Book Ratio (5)	EPS (6)	DPS (7)	Payout (8)
1	$23.75	$0.00	$23.75	$25.00	1.0526	$3.44	$2.25	65.45%
2	$23.75	$1.19	$24.94	$26.25	1.0526	$3.61	$2.36	65.45%
3	$23.75	$2.43	$26.18	$27.56	1.0526	$3.79	$2.48	65.45%
4	$23.75	$3.74	$27.49	$28.94	1.0526	$3.98	$2.61	65.45%
5	$23.75	$5.12	$28.87	$30.39	1.0526	$4.18	$2.74	65.45%
6	$23.75	$6.56	$30.31	$31.91	1.0526	$4.39	$2.87	65.45%
7	$23.75	$8.08	$31.83	$33.50	1.0526	$4.61	$3.02	65.45%
8	$23.75	$9.67	$33.42	$35.18	1.0526	$4.84	$3.17	65.45%
9	$23.75	$11.34	$35.09	$36.94	1.0526	$5.08	$3.32	65.45%
10	$23.75	$13.09	$36.84	$38.78	1.0526	$5.33	$3.49	65.45%
			5.00%	**5.00%**		**5.00%**	**5.00%**	

The table demonstrates that only if the company is allowed to earn 14.47% on rate base will investors earn their cost of equity of 14%. Column 1 shows the initial common stock account, while Column 2 shows the cumulative retained earnings balance, starting at zero, and steadily increasing from the retention of earnings. Total equity in Column 3 is the sum of common stock capital and retained earnings. The stock price in Column 4 is obtained from the seminal DCF formula: $D_1/(k-g)$. Earnings per share in Column 6 is simply the allowed return of 14.47% times the total common equity base. Dividends start at $2.25 and grow at 5% thereafter, which they must do if investors are to earn a 14% return. The dividend payout ratio remains constant, as per the assumption of the DCF model. All quantities, stock price, book value, earnings, and dividends grow at a 5% rate, as shown at the bottom of the relevant columns.

Only if the company is allowed to earn 14.47% on equity do investors earn 14%. For example, if the company is allowed only 14%, the stock price drops from $26.25 to $26.13 in the second year, inflicting a loss on shareholders. This is shown in Table 6-3. The growth rate drops from 5% to 4.53%. Thus, investors only earn 9% + 4.53% = 13.53% on their investment. It is noteworthy that the adjustment is always required each and every year, whether or not new stock issues are sold in the future, and that the allowed return on equity must be earned on total equity, including retained earnings, for investors to earn the cost of equity.

TABLE 6-3
$D/P(1-f)+g$ APPLIED ON ALL COMMON EQUITY
BEGINNING OF YEAR: 14% ALLOWED RETURN

Year	Common Stock (1)	Retained Earnings (2)	Total Equity (3)	Stock Price (4)	Mrkt/Book Ratio (5)	EPS (6)	DPS (7)	Payout (8)
1	$23.75	$0.00	$23.75	$25.00	1.0526	$3.33	$2.25	67.67%
2	$23.75	$1.08	$24.83	$26.13	1.0526	$3.48	$2.35	67.67%
3	$23.75	$2.20	$25.95	$27.31	1.0526	$3.63	$2.46	67.67%
4	$23.75	$3.37	$27.12	$28.55	1.0526	$3.80	$2.57	67.67%
5	$23.75	$4.60	$28.35	$29.84	1.0526	$3.97	$2.69	67.67%
6	$23.75	$5.88	$29.63	$31.19	1.0526	$4.15	$2.81	67.67%
7	$23.75	$7.23	$30.98	$32.61	1.0526	$4.34	$2.94	67.67%
8	$23.75	$8.63	$32.38	$34.08	1.0526	$4.53	$3.07	67.67%
9	$23.75	$10.09	$33.84	$35.62	1.0526	$4.74	$3.21	67.67%
10	$23.75	$11.63	$35.38	$37.24	1.0526	$4.95	$3.35	67.67%
			4.53%	**4.53%**		**4.53%**	**4.53%**	

Flotation Cost and the Extended DCF Model

The flotation cost adjustment can also be approached in the context of the more general extended DCF model discussed in Chapter 4. Recall the extended DCF expression for cost of equity capital under the assumption of continuous external stock financing:

$$K = D_1/P + br + sv \tag{6-5}$$

The expression for v was $v=1 - B/P$. To incorporate underpricing, v needs to be redefined as:

$$v = 1 - B/P(1-f) \tag{6-6}$$

where $P(1-f)$ is the net proceeds from a stock issue. This recognizes that when a utility engages in external financing, it is the net proceeds per share that have an impact on existing shareholders rather than the full market price. To avoid any dilution in the existing shareholders' claim, v must be set equal to zero. Setting Equation 6-6 equal to zero, we obtain $B = P(1-f)$. By substituting Equation 6-6 into Equation 6-5, and by recognizing also that setting $v = 0$ implies $g = br$, Equation 6-5 is restated as follows to incorporate the effect of underpricing:

$$r = D_1/P(1-f) + g \tag{6-7}$$

The latter expression is identical to that obtained from the standard DCF model adjusted for underpricing in Equation 6-4.

The more practical version of the extended DCF model cast in terms of G, the growth rate in total book equity, also collapses to an identical expression:

$$r = G + (M/B)(K-G) \tag{6-8}$$

To avoid dilution, $v = 0$, which in turn implies $G = g = br$. Equation 6-8 reduces to Equation 6-7 under the condition that $M/B = 1/(1-f)$:

$$\begin{aligned} r &= g + (1/(1-f))(K-g) \\ &= g + (1/(1-f))\, D_1/P \\ &= D_1/P\,(1-f) + g \end{aligned}$$

6.4 Flotation Cost Controversies

Several important controversies have surfaced regarding the underpricing allowance. The first is the contention that an underpricing allowance is inappropriate if the utility is a subsidiary whose equity capital is obtained from its parent. This objection is unfounded since the parent-subsidiary relationship does not eliminate the costs of a new issue, but merely transfers them to the parent. It would be unfair and discriminatory to subject parent shareholders to dilution while individual shareholders are absolved from such dilution. Fair treatment must consider that if the utility subsidiary had gone to the capital marketplace directly, flotation costs would have been incurred.

A second controversy is whether a flotation cost allowance should be allowed because a company can always obtain equity from sources other than a public issue of common stock, such as a rights issue for example. There are several sources of equity capital available to a firm, including: public common stock issues, conversions of convertible preferred stock, dividend reinvestment plans, employees' savings plans, warrants, and stock dividend programs. Each carries its own set of administrative costs and flotation cost components, including discounts, commissions, corporate expenses, offering spread, and market pressure.

Equity capital raised through a public issue is typically more expensive than alternate sources of equity. Rights issues, when available, are less expensive, but direct costs would still be incurred. Of course, a rights issue assumes that a willing underwriter and a willing market could be found

for such offerings in the first place, an unlikely event in public capital markets for small unproven companies. Internal sources of equity, including dividend reinvestment and/or employee stock option plans, are also typically less expensive, unless a discount on the purchase price is inherent in the plan, in which case they are often equivalent to a public issue. Direct costs are also incurred in an employee stock savings plan and/or a shareholder dividend reinvestment plan.

The flotation cost allowance is still warranted, however, because it is a composite factor that reflects the historical mix of all these sources of equity. The flotation cost allowance factor is a build-up of historical flotation cost adjustments associated and traceable to each component of equity source, and more specifically, is a weighted average cost factor designed to capture the average cost of various equity vintages and types of equity capital raised by the company. It is impractical and prohibitive to start from the inception of a company and source all present equity. A practical solution is to rely on the results of the empirical studies discussed earlier that quantify the average flotation cost factor of a large sample of utility stock offerings.

Richter (1982) demonstrated that the flotation cost allowance applicable to all the company's book equity is a weighted average of the current allowances required for each past financing, and suggested some practical means of circumventing the problem of vintaging each equity source. Richter essentially suggested sourcing book equity by broad categories of equity, such as dividend reinvestment plan equity, stock option equity, and public issue equity, and calculating a weighted average underpricing factor.

A third controversy centers around the argument that the omission of flotation cost is justified on the grounds that, in an efficient market, the stock price already reflects any accretion or dilution resulting from new issuances of securities and that a flotation cost adjustment results in a double counting effect. The simple fact of the matter is that whatever stock price is set by the market, the company issuing stock will always net an amount less than the stock price due to the presence of intermediation and flotation costs. As a result, the company must earn slightly more on its reduced rate base in order to produce a return equal to that required by shareholders.

It has also been argued that a flotation cost allowance is inequitable since it results in a windfall gain to shareholders. This argument is erroneous. As stated previously, the company's common equity account is credited by an amount less than the market value of the issue, so that the company must earn slightly more on its reduced rate base in order to produce a return equal to that required by shareholders.

The suggestion that the flotation cost allowance is unwarranted because investors factor this shortcoming in the stock price implies that it is appropriate to use a deficient model because such a deficiency is reflected in stock prices. In other words, it is appropriate to use a deficient model because investors are aware of this. Such circular reasoning could be used to justify any regulatory policy. For example, under this reasoning, it would be appropriate to authorize a return on equity of 1% because investors reflect this fact in the stock price. This is clearly illogical and erroneous. Any regulatory policy, as irrational as it may be, can be justified using this argument.

Another controversy is whether the underpricing allowance should still be applied when the utility is not contemplating an imminent common stock issue. Some argue that flotation costs are real and should be recognized in calculating the fair return on equity, but only at the time when the expenses are incurred. In other words, the flotation cost allowance should not continue indefinitely, but should be made in the year in which the sale of securities occurs, with no need for continuing compensation in future years. This argument implies that the company has already been compensated for these costs and/or the initial contributed capital was obtained freely, devoid of any flotation costs, which is an unlikely assumption, and certainly not applicable to most utilities. If the flotation costs of past stock issues have been fully recovered, the argument has merit. If that assumption is not met, the argument is without merit. The flotation cost adjustment cannot be strictly forward-looking unless all past flotation costs associated with past issues have been recovered.

A related controversy is whether or not the retained earnings component of equity requires a flotation cost adjustment. There is no flotation cost allowance made to retained earnings because it is implicitly embedded and recognized in the flotation cost adjustment formula. The conventional flotation cost adjustment formula deals with the fact that flotation costs are incurred only when new stock is sold, and not when earnings are retained. This is done by applying the flotation adjustment only to the dividend yield of the DCF formula and not to the growth component. The larger the fraction of earnings retained, the higher the growth rate, the lower the dividend yield component, and the smaller the flotation cost adjustment. In other words, larger retained earnings result in lower flotation costs adjustments as the costs are postponed into the future.

Some have argued that underwriters' discounts are not out-of-pocket expenses and thus should not be included in rates. On the basis of this argument, one might be foolish enough to believe that depreciation of utility plant should not be included in rates on the same grounds that depreciation is not an out-of-pocket expense. Obviously, the argument is without merit.

Lastly, some suggest that the flotation cost allowance should be based on a company's own actual flotation cost experience rather than on empirical studies that pertain to a large sample of stock offerings. To base a flotation cost allowance on a one-company sample, although company specific, would not provide a sufficiently reliable statistical and economic basis to infer a utility's appropriate flotation cost allowance. While it is conceptually correct to rely on the particular company circumstances in quantifying the flotation cost allowance, it is not a practical alternative. As discussed earlier, the flotation cost allowance is a weighted average cost factor designed to capture the average cost of various equity vintages and types of equity capital raised by the company.

As an additional practical matter, the market pressure effect is difficult to measure accurately for a specific issue. This is because one must disentangle the downward effect on stock price resulting from the increased supply of stock from the effect of general movement in the stock market. One must also measure the actual stock price following a common stock issue in relation to a hypothetical benchmark price without the issue over some arbitrary time period. This can be performed more reliably and more rigorously using a sample of utility stock offerings.

Alternative Flotation Cost Adjustment Formulas

Arzac and Marcus (1981) developed an alternative approach to accounting for flotation costs in regulatory hearings. To avoid dilution of the initial shareholders' equity, the allowed rate of return should equal:

$$R = \frac{K}{1 - \frac{fh}{1-f}} \qquad (6\text{-}9)$$

where h = *external equity financing rate*, as a percentage of earnings, and the other symbols are as before.

Patterson (1983A and 1983B) formally compared the properties of the Arzac and Marcus adjustment with those of the conventional adjustment, and showed that the former is equivalent to expensing issue costs in each period when a stock issue occurs. In other words, if Equation 6-9 is consistently applied, the utility is reimbursed for its flotation costs in each year as they are incurred. Patterson also showed that the present value of flotation cost adjustments received by the utility is the same for both the

conventional and the Arzac and Marcus adjustments.[3] The only difference between the two methods, if properly applied, is in the intergenerational allocation of flotation costs. The conventional approach amortizes them over an infinite period, while the Arzac and Marcus approach expenses them. The choice of method is a matter of public policy. It is important that whatever method is selected be applied consistently over the life of the utility.

It should be pointed out that the Arzac and Marcus method is based on the assumption that the flotation costs of past stock issues have been fully recovered, and hence, the recovery of future flotation costs is the primary basis for adjustment. The method is inappropriate if that assumption is not met.

On grounds of fairness alone, the conventional approach would seem preferable. Since the equity capital has long-term implications for both the company and ratepayers, imputing the flotation costs to ratepayers who happen to be extant at the time of each specific stock issue appears unreasonable. The conventional approach in effect normalizes the potential dilution issue over a period of years. To charge ratepayers for the full magnitude of stock issue costs at the time of each stock issue would impose an unfair burden on ratepayers at that time.

Hunter (1989) suggested an alternative formula to quantify the flotation cost allowance. In contrast to the conventional formula, however, the Hunter formula is cumbersome and laborious. It requires several inputs, some of which are highly arbitrary and difficult to quantify, and requires solving a complex quadratic equation involving a multitude of terms to obtain the stock price. As a practical matter, the Hunter formula produces the same order of magnitude of flotation cost adjustment as the conventional formula.

Howe and Beranek (1992) proposed a "weighted average" approach for adjusting ROE for flotation cost that provides solutions for a wide variety of operating conditions and circumstances. They also showed that the conventional formula is a special case of their approach, which weighs the pure equity rate by the retention ratio b and the adjusted equity rate by its converse $1-b$. The Howe and Beranek procedure consists of three steps: (1) obtain the cost of each individual source of equity financing; (2) determine the present value of each source; and (3) fix the weights by forming the ratio of each present value to their sum.

[3] Howe (1984) also compared the two flotation cost adjustment methods, and provided guidance for implementation. He showed that the conventional method actually slightly underestimates the adjustment, and that the Arzac and Marcus method slightly overestimates the magnitude of the adjustment.

While this procedure is theoretically correct, it has several operational difficulties. The main thrust of the Howe and Beranek approach is to source the equity. As discussed earlier, it is impractical and prohibitive to start from the inception of a company and source all present equity. The Howe and Beranek approach also implies that it is incorrect to apply a flotation cost adjustment to retained earnings. The conventional flotation cost adjustment formula deals with the fact that flotation costs are incurred only when new stock is sold, and not when earnings are retained. This is because the flotation adjustment is only applied to the dividend yield of the DCF formula, and not the growth component. This was discussed earlier.

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