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NEW REGULATORY FINANCE

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As shown in Table 10-4, the initial book value (rate base) is the net proceeds from the stock issue, which are \$95, that is, the market price of \$100 less the 5% flotation cost. The table demonstrates that only if the company is allowed to earn 11.32% on rate base will investors earn their cost of equity of 11.00%. 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 11.32% times the total common equity base. Dividends start at \$6.00 and grow at 5% thereafter, which they must do if investors are to earn an 11% 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 11.32% on equity do investors earn 11%. For example, if the company is allowed only 11.00%, the stock price drops from \$105.00 to \$104.70 in the second year, inflicting a loss on shareholders. This is shown in Table 10-5. The growth rate drops from 5% to 4.68%. Thus, investors only earn 10.68% 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.

Note also that the 11.32% return must be applied to the total equity capital invested, including the retained earnings component. To see this, consider the following scenario. In year 1, investors require 11% on their \$100 investment, that is, \$11.00. But the company only earns \$10.75, of which it pays out \$6.00 in dividends and retains the balance of \$4.75. To give investors the \$5.00 change in market value (5% capital gain) needed to add to the \$6.00 dividend to produce the \$11.00 total DCF return of 11%, the \$4.75 must earn more than 11%, that is, it must earn 11.32%.

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 8. Recall the extended DCF expression for cost of equity capital under the assumption of continuous external stock financing:

$$K = D_1/P + br + sv \quad (10-5)$$

TABLE 10-4
COMPANY EARNS FLOTATION-ADJUSTED COST OF EQUITY APPLIED ON ALL COMMON EQUITY

Year	Common Stock (1)	Retained Earnings (2)	Total Equity (3)	Stock Price (4)	Market/Book Ratio (5)	EPS (6)	DPS (7)	Payout (8)
1	\$95.00	\$0.000	\$95.000	\$100.000	1.0526	\$10.750	\$6.000	55.81%
2	\$95.00	\$4.750	\$99.750	\$105.000	1.0526	\$11.288	\$6.300	55.81%
3	\$95.00	\$9.738	\$104.738	\$110.250	1.0526	\$11.852	\$6.615	55.81%
4	\$95.00	\$14.974	\$109.974	\$115.763	1.0526	\$12.444	\$6.946	55.81%
5	\$95.00	\$20.473	\$115.473	\$121.551	1.0526	\$13.067	\$7.293	55.81%
6	\$95.00	\$26.247	\$121.247	\$127.628	1.0526	\$13.720	\$7.658	55.81%
7	\$95.00	\$32.309	\$127.309	\$134.010	1.0526	\$14.406	\$8.041	55.81%
8	\$95.00	\$38.675	\$133.675	\$140.710	1.0526	\$15.126	\$8.443	55.81%
9	\$95.00	\$45.358	\$140.358	\$147.746	1.0526	\$15.883	\$8.865	55.81%
10	\$95.00	\$52.376	\$147.376	\$155.133	1.0526 *	\$16.677	\$9.308	55.81%
			5.00%	5.00%		5.00%	5.00%	

**TABLE 10-5
COMPANY DOES NOT EARN FLOTATION-ADJUSTED COST OF EQUITY**

Year	Common Stock (1)	Retained Earnings (2)	Total Equity (3)	Stock Price (4)	Market/Book Ratio (5)	EPS (6)	DPS (7)	Payout (8)
1	\$95.00	\$0.000	\$95.000	\$100.000	1.0526	\$10.450	\$6.000	57.42%
2	\$95.00	\$4.450	\$99.450	\$104.684	1.0526	\$10.940	\$6.281	57.42%
3	\$95.00	\$9.108	\$104.108	\$109.588	1.0526	\$11.452	\$6.575	57.42%
4	\$95.00	\$13.985	\$108.985	\$114.721	1.0526	\$11.988	\$6.883	57.42%
5	\$95.00	\$19.090	\$114.090	\$120.095	1.0526	\$12.550	\$7.206	57.42%
6	\$95.00	\$24.434	\$119.434	\$125.720	1.0526	\$13.138	\$7.543	57.42%
7	\$95.00	\$30.029	\$125.029	\$131.609	1.0526	\$13.753	\$7.897	57.42%
8	\$95.00	\$35.886	\$130.886	\$137.774	1.0526	\$14.397	\$8.266	57.42%
9	\$95.00	\$42.017	\$137.017	\$144.228	1.0526	\$15.072	\$8.654	57.42%
10	\$95.00	\$48.435	\$143.435	\$150.984	1.0526	\$15.778	\$9.059	57.42%
			4.68%	4.68%		4.68%	4.68%	