



APPENDIX

13A

ILLUSTRATION OF THE THREE
DIVIDEND POLICY THEORIES

Figure 13A-1 illustrates the three alternative dividend policy theories: (1) Miller and Modigliani's dividend irrelevance theory, (2) Gordon and Lintner's bird-in-the-hand theory, and (3) the tax preference theory. To understand the three theories, consider the case of Hardin Electronics, which has from its inception plowed all earnings back into the business and thus has never paid a dividend. Hardin's management is now reconsidering its dividend policy, and it wants to adopt the policy that will maximize its stock price.

Consider first the data presented below the graph. Each row shows an alternative payout policy: (1) Retain all earnings and pay out nothing, which is the present policy; (2) pay out 50 percent of earnings; and (3) pay out 100 percent of earnings. In the example, we assume that the company will have a 15 percent ROE regardless of which payout policy it follows, so with a book value per share of \$30, EPS will be $0.15(\$30) = \4.50 under all payout policies.¹ Given an EPS of \$4.50, dividends per share are shown in Column 3 under each payout policy.

Under the assumption of a constant ROE, the growth rate shown in Column 4 will be $g = (\% \text{ Retained})(\text{ROE})$, and it will vary from 15 percent at a zero payout to zero at a 100 percent payout. For example, if Hardin pays out 50 percent of its earnings, then its dividend growth rate will be $g = 0.5(15\%) = 7.5\%$.

Columns 5, 6, and 7 show how the situation would look if MM's irrelevance theory were correct. Under this theory, neither the stock price nor the cost of equity would be affected by the payout policy—the stock price would remain constant at \$30, and k_s would be stable at 15 percent. Note that k_s is found as the sum of the growth rate in Column 4 plus the dividend yield in Column 6.

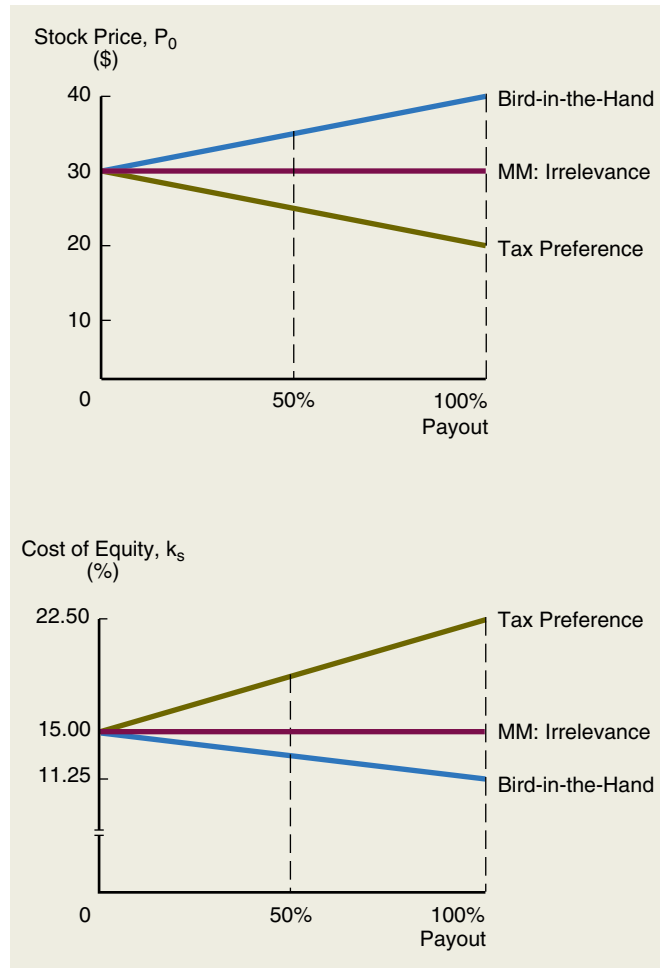
Columns 8, 9, and 10 show the situation if the bird-in-the-hand theory were true. Under this theory, investors prefer dividends, and the more of its earnings the company pays out, the higher its stock price and the lower its cost of equity. In our example, the bird-in-the-hand theory indicates that adopting a 100 percent payout policy would cause the stock price to rise from \$30 to \$40, and the cost of equity would decline from 15 percent to 11.25 percent.

Finally, Columns 11, 12, and 13 show the situation if the tax preference theory were correct. Under this theory, investors prefer companies that retain earnings and thus provide returns in the form of lower-taxed capital gains rather than higher-taxed dividends. If the tax preference theory were correct, then an increase in the dividend

¹ When the three theories were developed, it was assumed that a company's investment opportunities would be held constant and that if the company increased its dividends, its capital budget could be funded by selling common stock. Conversely, if a high-payout company lowered its payout to the point where earnings exceeded good investment opportunities, it was assumed that the company would repurchase shares. Transactions costs were assumed to be immaterial. We maintain those assumptions in our example.

FIGURE 13A-1

Dividend Irrelevance, Bird-in-the-Hand, and Tax Preference Dividend Theories



POSSIBLE SITUATIONS (ONLY ONE CAN BE TRUE)

ALTERNATIVE PAYOUT POLICIES				POSSIBLE SITUATIONS (ONLY ONE CAN BE TRUE)								
PERCENT PAYOUT (1)	PERCENT RETAINED (2)	DPS (3)	g (4)	MM: IRRELEVANCE			BIRD-IN-THE-HAND			TAX PREFERENCE		
				P ₀ (5)	D/P ₀ (6)	k _s (7)	P ₀ (8)	D/P ₀ (9)	k _s (10)	P ₀ (11)	D/P ₀ (12)	k _s (13)
0%	100%	\$0.00	15.0%	\$30	0.0%	15.0%	\$30	0.00%	15.00%	\$30	0.0%	15.0%
50	50	2.25	7.5	30	7.5	15.0	35	6.43	13.93	25	9.0	16.5
100	0	4.50	0.0	30	15.0	15.0	40	11.25	11.25	20	22.5	22.5

NOTES:

1. Book value = Initial market value = \$30 per share.
2. ROE = 15%.
3. EPS = \$30(0.15) = \$4.50.
4. $g = (\% \text{ retained})(ROE) = (\% \text{ retained})(15\%)$. Example: At payout = 50%, $g = 0.5(15\%) = 7.5\%$.
5. $k_s = \text{Dividend yield} + \text{Growth rate}$.

payout ratio from its current zero level would cause the stock price to decline and the cost of equity to rise.

The data in the table are plotted to produce the two graphs shown in Figure 13A-1. The upper graph shows how the stock price would react to dividend policy under each of the theories, and the lower graph shows how the cost of equity would be affected.