

Payout Policy

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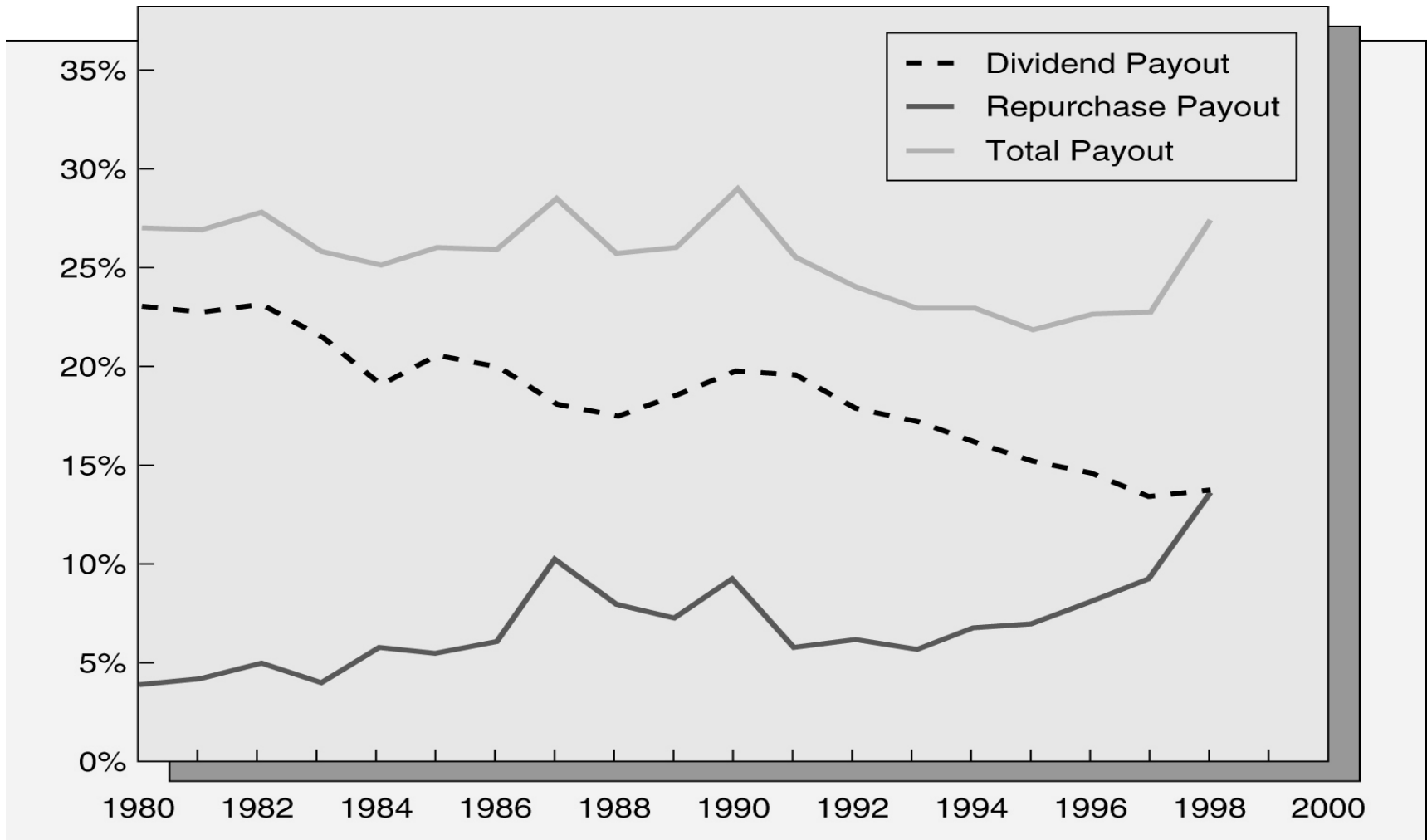
Outline

- How much of U.S. corporate earnings is distributed to shareholders?
- The Miller-Modigliani dividend irrelevancy theorem
- The effects of taxes and transaction costs on payout policy
- Payout policy and expected stock returns
- Dividend taxes and investment policies

Aggregate Share Repurchases and Dividends

- Exhibit 15.1: Dividend and repurchase payout ratios
- The dividend payout ratio (dividend/earnings) declines from 22 to about 14%; repurchase payout rises from 3 to 14%; total payout ratio is stable about 25%
- Exhibit 15.2: Selected dividend yields and payout ratios
- Dividend yield, the ratio of dividend per share to the price per share
- High tech growth firms have low dividend yields and low payout ratios
- Old-economy firms have high dividend yields and high payout ratios

Exhibit 15.1: Dividend and Repurchase Payout Ratios



Source: Gustavo Grullon and roni Michaely, 2000. "Dividends, Share Repurchases and the Substitution Hypothesis" Rice University working paper.

Exhibit 15.2: Selected Dividend Yields and Payout Ratios, 1993 and 1999

<i>Company</i>	1993		1999	
	<i>Dividend Yield</i> (%)	<i>Payout Ratio</i> (%)	<i>Dividend Yield</i> (%)	<i>Payout Ratio</i> (%)
AT&T	2.51%	44.92%	1.73%	49.72%
Apple Computer	1.64	64.39	0	0
Boeing	2.31	27.34	1.35	22.22
Deere	2.70	92.74	2.43	85.44
Disney	0.54	18.35	0.20	8.25
Dow Chemical	4.58	110.82	2.60	57.81
General Motors	1.46	23.36	2.75	22.99
Hewlett-Packard	1.14	19.32	0.86	20.78
McDonalds	0.74	13.82	0.48	13.54
Microsoft	0	0	0	0
Minnesota Mining & Mfg.	3.05	56.45	2.29	51.03
Philip Morris	4.67	63.91	8.00	57.32
Safeway	0	0	0	0
Texaco	4.94	65.84	3.31	84.11
Wal-Mart	0.52	12.81	0.37	16.00

Note: These ratios were calculated with data taken from COMPUSTAT.

The MM Dividend Irrelevancy Theorem

- Fix the amount of distribution, choose the form: dividend or repurchase
- Assume no taxes, no transaction costs, fixed investment and financing policies
- Then the choice between dividend/repurchase is irrelevant
- Proof. Firms exist in two periods, t and $t+1$, firm value $V_t = \text{PV}(\text{payouts})$ where payouts include dividend and repurchase
- At time t , a firm has earnings Π_t , decide on investment I_t , dividend D_t , and amount of repurchase S_t (negative S_t implies equity issuance)
- Future earnings, $\Pi_{t+1} = \Pi(I_t, \theta_{t+1})$, where θ_{t+1} captures shocks to productivity

- Constant discount rate, r
- The sources of funds = the uses of funds

$$\Pi_t = I_t + D_t + S_t$$

- Firm value

$$V_t = D_t + S_t + E_t \left[\frac{1}{1+r} \Pi(I_t, \theta_{t+1}) \right] = \Pi_t - I_t + E_t \left[\frac{1}{1+r} \Pi(I_t, \theta_{t+1}) \right]$$

- Given Π_t , the only determinant of firm value is investment policy
- Dividend irrelevancy: D_t can take any value because S_t can take corresponding value so that D_t and S_t sum up to $\Pi_t - I_t$

Optimal Payout Policy in Frictionless Markets

- Consider the choice between paying out earnings to shareholders versus retaining earnings for investment
- Assume no taxes, no transaction costs, symmetric information (the choice does not convey any information to investors)
- Then how much to pay out depends on whether there are positive NPV projects that can be financed by retained earnings; if no such projects, pay out earnings

The Classical Tax System

- Dividends taxed as ordinary income, the maximum federal rate 39.1% in 2001
- Capital gains taxed at a lower rate, for investments held at least one year, 20%
- Double taxation on corporate profits, shareholders do not receive tax credits to offset taxes paid by corporations (they do in imputation system)
- Example 15.2: The effective tax rate on MGI's profits. \$100 mil in pretax profits in '96, corporate tax rate 34%, Cliff owns 10% shares, personal marginal tax rate 33.33%. What's Cliff's effective tax rate if \$100 paid out as dividend?

- MGI pays \$34 mil in corporate tax and distributes \$66 mil. Cliff will receive \$6.6 mil and pays \$2.2 mil in personal taxes
- The sum of corporate and personal taxes out of Cliff's share of \$10 mil pretax profits is $\$3.4 + 2.2 = \5.6 , the effective tax rate is 56%

How Taxes Affect Dividend Policy

- In the U.S., taxes favor share repurchase over dividends, the difference depends on differential rate rate between capital gain and ordinary income, the tax basis/size and the timing of the capital gain
- Example. A firm intends to distribute \$100 mil in either dividend or repurchase, the investor keeps 10% ownership of the shares, original share price \$38, repurchase price \$50, 35% tax rate on dividend and 20% on capital gain
- Exhibit 15.4: Tax consequences — dividend versus repurchase

Exhibit 15.4: Tax Consequences: Dividend versus Share Repurchase (in \$ millions)

Dividend Alternative

Dividend	\$100.0
Tax rate	<u>x 35%</u>
Immediate tax liability	\$ 35.0

Share Repurchase Alternative

Proceeds from sale of 2 million shares	\$100.0
Less original cost (at \$38/share)	<u>- 76.0</u>
Taxable capital gain	\$ 24.0
Tax rate	<u>x 20%</u>
Immediate tax liability	\$ 4.8

Dividend Clienteles

- The tax advantage of a share repurchases do not apply to tax-exempt investors, pension funds, university endowments
- Tax-exempt investors prefer dividends because of transaction costs of repurchase such as underwriting fees, registration costs
- Clientele effects: Investors with high marginal tax rates tend to select stocks with low dividend yields and vice versa; firms do not appear to vary their dividends to cater for the demands of different tax clienteles

The Dividend Puzzle

- Black (1976): Why do corporations pay out so much in taxed dividends?
- The dividend policy in the 60s and 70s was simply wrong
- Improved understanding the tax advantage of repurchases might underly the repurchase waves in the past three decades

How Dividend Policy Affects Expected Stock Returns

- To compensate for tax disadvantage, stocks with higher dividend yields should offer higher expected returns than similar stocks with lower dividend yields
- Ex-dividend stock price movements — measures stock returns around the date that the stock trades ex-dividend; the ex-dividend date is the first date on which purchasers of new shares will not be entitled to receive the forthcoming dividend
- A dividend paid on February 15 might have an ex-dividend date of February 5
- The decline in stock price on the ex-dividend date provides a measure of how much the market values the dividend

- Example 15.4: Trevtex Corporation plans to pay a dividend of \$1 per share, tomorrow is the ex-dividend date, price is \$20 per share today is \$19.20 tomorrow
- Should an investor with 33% marginal tax rate, who is not taxed on capital gains, purchase the stock today or tomorrow?
- Purchasing today costs $\$20 - 1 + .33 = \$19.33 > 19.20$, do it tomorrow
- A tax-exempt investor would prefer to purchase today $\$20 - 1 = \$19 < 19.20$
- A \$1 dividend is worth less than \$1 because of personal taxes, stock prices drop by less than the amount of dividend on the ex-dividend date

Dividend Taxes and Investment Policy

- Dividend taxes and financing policy, see previous lecture
- The personal tax on dividends affects the choice between paying out earnings and retaining them for internal investment
- Exhibit 15.5. Background: Continental, \$1 mil earnings, pay out or retain, you own 10% of shares, 50% marginal tax rate
- Payout, the after-tax cash flows = $$(1,000,000 \times 10\% \times .50) \times .07 \times .50 = \$1,750$
- Retain, the after-tax cash flows = $$(1,000,000 \times 10\%) \times .06 \times .50 = \$3,000$
- Tax-paying investors prefer retaining earnings than receiving dividends

Exhibit 15.5: After-Tax Cash Flows for a Taxable Investor

Alternative 1: Investment of after-tax dividend of \$50,000 in Treasury bonds.

After-Tax Cash Flows					
<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	<i>Year 5</i>	<i>Principal Payment</i>
\$1,750	\$1,750	\$1,750	\$1,750	\$1,750	\$50,000

Alternative 2: Retain earnings and invest internally for five years, which returns 6 percent to stockholders per year with a final dividend in year 5.

After-Tax Cash Flows					
<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	<i>Year 5</i>	<i>Deferred Dividend</i>
\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$50,000

- Exhibit 15.6: But tax-exempt investors prefer cash dividends
- Payout, the after-tax cash flows = $\$(1,000,000 \times 10\%) \times .07 = \$7,000$
- Retain, the after-tax cash flows = $\$(1,000,000 \times 10\%) \times .06 = \$6,000$

Exhibit 15.6: Cash Flows for a Tax Exempt Investor

Alternative 1: Investment of \$100,000 dividend in Treasury bonds.

Cash Flows

<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	<i>Year 5</i>	<i>Principal Payment</i>
\$7,000	\$7,000	\$7,000	\$7,000	\$7,000	\$100,000

Alternative 2: Retain earnings and invest internally for five years, which returns 6 percent to stockholders per year with a final dividend in year 5.

Cash Flows

<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	<i>Year 5</i>	<i>Deferred Dividend</i>
\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$100,000