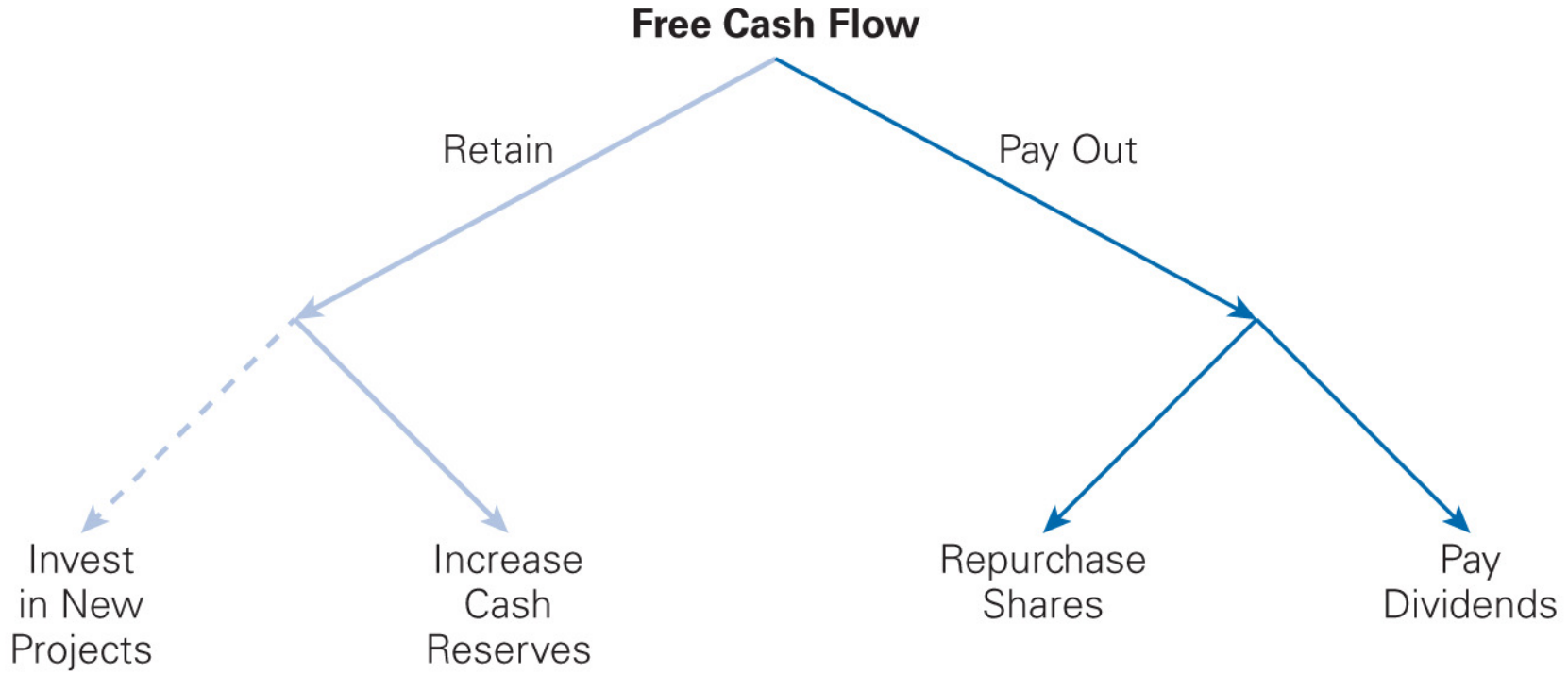
FIN2010 Financial Management
Payout Policy

Payout Policy

- What is payout policy?



Once a firm has taken all positive-NPV investments, it need to decide how to use free cash flows:

- Cash retention or payout?
- If payout: dividends or share repurchase?

Agenda

- Uses of free cash flows: payout or cash retention?
  - In a perfect world
  - In an imperfect world
- Method of payment: dividend vs. share repurchase
  - Logistics of dividend and share repurchase
  - In a perfect world
  - In an imperfect world
- Stock dividends, splits and spin-offs

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Uses of FCF and Firm Value - Overview

- In perfect capital markets, once a firm has taken all positive-NPV investments, it is indifferent between saving excess cash and paying it out.
  - Another M&M irrelevance theorem: with perfect markets, the cash retention policy is irrelevant for the firm value.
- With market imperfections, there is a trade-off: retaining cash can reduce the issuance and distress costs in the future, but it can also increase taxes and agency costs.

Irrelevance of Uses of FCF in a Perfect World Example

Barston Mining has $100,000 in excess cash. Barston is considering investing the cash in one-year Treasury bills paying 6% interest, and then using the cash to pay a dividend next year. Alternatively, the firm can pay a dividend immediately and shareholders can invest the cash on their own. In a perfect capital market with no taxes, which option will shareholders prefer?

- If Barston pays an immediate dividend
  - The shareholders receive $100,000 today.
  - Investors invest on their own and have $100,000 x (1.06) = $106,000 in a year
- If Barston retains the cash
  - At the end of one year the company will be able to pay a dividend of $100,000 x (1.06) = $106,000
- Thus, shareholders are indifferent about whether the firm pays the dividend immediately or retains the cash.

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Relevance of Uses of FCF in a Real World

With market imperfections, there is a **trade-off**: retaining cash can reduce bankruptcy costs and the costs of raising capital in the future, but it can also increase taxes and agency costs.

- Benefits:
  - Avoid issuance and financial distress costs (bankruptcy costs)
- Costs:
  - Tax effect: corporate taxes make it costly for a firm to retain excess cash.
  - Agency problem: managers may waste cash inside the firm.

Benefits of Retaining Cash

- Generally, firms retain cash balances to cover potential future cash shortfalls.
- Without sufficient cash reserve
  - In difficult times, a firm may experience financial distress and have **financial distress costs** as explained in Lecture 20.
  - When a firm do not have sufficient fund for positive NPV project, it may need to raise money from external sources, which can be costly due to the direct and indirect **issuance costs** as mentioned in Lecture 5.
- Internal funds is an important instrument to overcome these costs.

Benefits of Retaining Cash

- It is not surprising that high-tech and biotechnology firms tend to retain and accumulate large amounts of cash as they need funds to meet various investment opportunities.

Ticker	Company	Cash & Marketable Securities ($ billion)	Percentage of Market Capitalization
AAPL	Apple Inc.	215.7	37%
GE	General Electric	113.8	39%
MSFT	Microsoft Corporation	102.3	23%
GOOGL	Alphabet (Google)	73.1	14%
CSCO	Cisco Systems	59.1	43%
ORCL	Oracle Corporation	52.3	34%
AMGN	Amgen, Inc.	31.4	26%
GM	General Motors	20.3	38%

Firms with large cash balances (2015). Source: Google Finance

Costs of Retaining Cash – Tax Effect

Corporate taxes make it costly for a firm to retain excess cash!

Example: Suppose Barston must pay corporate taxes at a 35% rate on the interest it will earn from the one-year Treasury bill paying 6% interest. Would pension fund investors (who do not pay taxes on their investment income) prefer that Barston use its excess cash to pay the $100,000 dividend immediately or retain the cash for one year?

- If Barston pays an immediate dividend
  - Shareholders receive $100,000 today.
  - They can invest at 6% and have $106,000 by the end of the year.
- If Barston retains the cash for one year
  - It will earn an after-tax return on the Treasury bills of 6% x (1 - 0.35) = 3.90%
  - Thus, at the end of the year, Barston will pay a dividend of $100,000 X (1.039) = $103,900.
- Due to corporate tax, pension fund investors will prefer dividend now.

Costs of Retaining Cash – Agency Costs

- Agency costs: when firms have excessive cash, managers may use the funds inefficiently by paying excessive executive perks, over-paying for acquisitions, etc.
- Paying out the free cash flows to investors can greatly reduce the wasteful investments.

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Cash Dividends - Logistics

- Declaration Date
  - The date on which the board of directors announces the payment of a dividend.
- Ex-dividend Date (除息日/除权日) (股价会降)
  - A date on or after which anyone buying the stock will not be eligible for the dividend
  - US: one trading day prior to a dividend's record date; China: the day after the record date
- Record Date
  - When a firm pays a dividend, only shareholders on record on this date receive the dividend.
- Payable Date (Distribution date)
  - A date, generally within a month after the record date, on which a firm mails dividend checks to its registered stockholders

Share Repurchases –Logistics

- An alternative way to pay cash to investors is through a share repurchase or buyback in which the firm uses cash to buy shares of its own outstanding stock.
- Different ways of share repurchases:
  - **Open Market Repurchase** (about 95% of repurchases): when a firm repurchases shares by buying shares in the open market.
  - **Tender Offer**: a firm makes an offer to all existing security holders to buy back a specified amount of outstanding securities at a pre-specified price over a pre-specified period of time.
  - **Targeted Repurchase**: When a firm purchases shares directly from a specific shareholder.

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Payout Policy and Firm Value - Overview

- MM Dividend Irrelevance
  - In perfect capital markets, holding fixed the investment policy of a firm, the firm's choice of dividend policy is irrelevant and does not affect the initial share price.
- In reality, capital markets are not perfect, and it is these imperfections that should determine the firm's payout policy.
  - Tax effect
  - Clientele effect
  - Information asymmetry

Irrelevancy of Payout Policy in a Perfect World- Example

- Consider Genron Corporation. The firm's board is meeting to decide how to pay out $20 million in excess cash to shareholders.
- Genron has no debt, and its equity cost of capital equals its unlevered cost of capital of 12%.
- With 10 million shares outstanding, Genron will be able to pay a $2 dividend immediately.
- The firm expects to generate future free cash flows of $48 million per year; thus, it anticipates paying a dividend of $4.80 per share each year thereafter.
- Firm value = cash + PV(future cash flows)=$20M+$\frac{\$48M}{12\%} = \$420\text{M}$

Policy 1: Pay Dividend

- Cum-dividend price: before the ex-dividend date, buyers of a stock receives the current dividend. Thus, the stock price will include the current dividend.
  - The cum-dividend price of Genron will be

$$P_{cum} = Current\ Dividend + PV(Future\ Dividends) = 2 + \frac{4.80}{0.12} = 2 + 40 = \$42$$

- Ex-dividend price: after the ex-dividend date, buyers will not receive the current dividend. Thus, share price does not include the current dividend.

$$P_{ex} = PV(Future\ Dividends) = \frac{4.80}{0.12} = \$40$$

- In a perfect capital market, when a dividend is paid, the share price drops by the amount of the dividend when the stock begins to trade ex-dividend.

	Cum-Dividend	Ex-Dividend
Cash	20	0
Other assets	400	400
Total market value	420	400
Shares (millions)	10	10
Share price	*$42*	$40

Policy 2: Share Repurchase

- Suppose that instead of paying a dividend this year, Genron uses the $20 million to repurchase its shares on the open market.
  - # of shares can be repurchased = $20M ÷ $42 per share = 0.476M shares
  - Remaining # of shares after repurchase= 10 M − 0.476 M = 9.524 M
  - Future dividend = $48 M ÷ 9.524 M shares = $5.04/share
  - Stock price after the share repurchase= $\frac{\$5.04}{0.12} = \$42/share.$

	Before Repurchase	After Repurchase
Cash	20	0
Other assets	400	400
Total value of assets	420	400
Shares (millions)	*10.00*	9.52
Share price	42	42

- In perfect capital markets, an open market share repurchase has no effect on the stock price, and the stock price is the same as the cum-dividend price if a dividend were paid instead.

Comparison

- Assume Mary holds 2,000 shares before the payout. Her holding after a dividends payment or share repurchase are as follows:
  - When firms buy back shares, an investor can choose to sell or not sell.

Dividend	Repurchase	
	If she sells	If she does not sell
$40*2000=$80,000 stock $2 *2000=$4,000 cash	$42*2000=$84,000 cash	$42*2000=$84,000 worth of stock

- In perfect capital markets, investors are indifferent between the firm distributing funds via dividends or share repurchases.

Investors' Preferences are Irrelevant

- If investors prefer certain payout method over the other, he/she can replicate either payout method on their own. Thus, their preferences do not affect firm value.
  - In the case of Genron, if the firm repurchases shares and Mary wants dividends of $2/share, the investor can raise cash by selling shares.
    - To have $4000 cash, she sell 95 shares ($\frac{\$4000}{\$42/\text{share}}$=95 shares)
    - # of shares she holds = 2000-95 = 1905 shares
    - Value of the stock = 1905*$42=$80,000
    - The outcome is the same as if the firm pays $2/share as cash dividend.
    - This is called a *homemade dividend.*
  - If the firm pays a dividend and Mary prefers stock, she can use the dividend to purchase additional shares.
    - Use dividends $4000 to purchase additional shares: $4000/$40=100 shares
    - Total value of stock: $40*(2000+100)=$84,000

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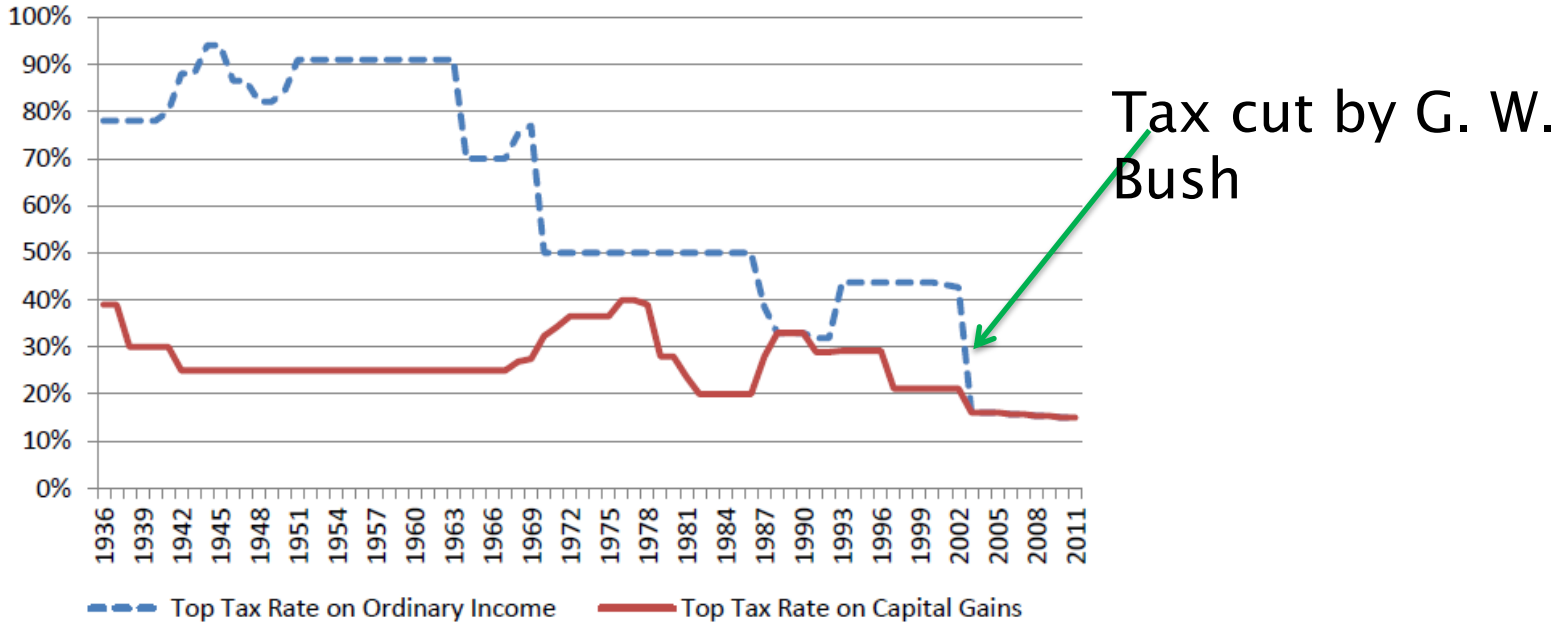
Tax Effect

- Dividends
  - Taxed as ordinary income in the US
    - China has a separate tax for dividends (红利税)
  - Taxed in the year the dividend is paid
- Share Repurchases
  - If stock price goes up, profit is taxed as capital gain tax
  - Taxed when the shares are sold (more flexible in when to realize the tax burden)

Tax Rate on Dividend and Capital Gains

- US: higher tax rates on dividends than on capital gains.
  - US investors pay higher capital gain tax rate if they hold a stock for short term (<1 year) than if they hold a stock for long term



- China:
  - Dividend taxes: 5% (if held >1 year); 10% (if held between 1 month and 1 year); 20% (if held <1 month)
  - No capital gain taxes.

Optimal Dividend Policy with Taxes

- **The optimal dividend policy depends on the differential tax treatment of capital gain v.s. dividend**
  - When the dividend tax rate > capital gain tax rate: optimal policy is to use share repurchase and pay no dividends.
  - When the dividend tax rate < capital gain tax rate: optimal policy is to pay dividend.
- The value of a firm will increase if the firm uses the method that allow them to pay less taxes and retain more money in the pocket.

Signaling Effect of Repurchases

- Repurchasing stocks when they are undervalued is beneficial for long-term shareholders.
- Signaling effect: if investors believe that managers have better information regarding the firm's prospects and act on behalf of long-term investors, then investors will react favorably to share repurchase announcements
- In reality, average stock return reaction to the announcement of
  - An open market share repurchase program: 3%.
  - A fixed-price tender offers: 12%

Signaling Effect of Repurchases– Example

Clark Industries has 200M shares outstanding, a current share price of $30, and no debt. Its management believes that the shares are underpriced, and that the true value is $35/share. Clark plans to spend $600M to repurchase shares at the current market price. Suppose that soon after the transaction is completed, new information comes out that causes investors to revise their opinions and agree with management's view of Clark's value.

- How would the share price differ if Clark waited until after the new information came out to repurchase the shares?

- Clark's TRUE market value = $35/share X 200M shares = $7B
- If the firm wait until the new information comes out, it can buy back at $35/share.
  - # of shares repurchased = $\frac{\$600M}{\$35/share}$ = 17.1428M shares
  - Remaining # of shares = 200M – 17.142M = 182.857 M
  - Remaining true market value = 7B – 0.6 B = 6.4 B
  - Value per share = $\frac{\$6.4B}{182.857M}$ = $35/share

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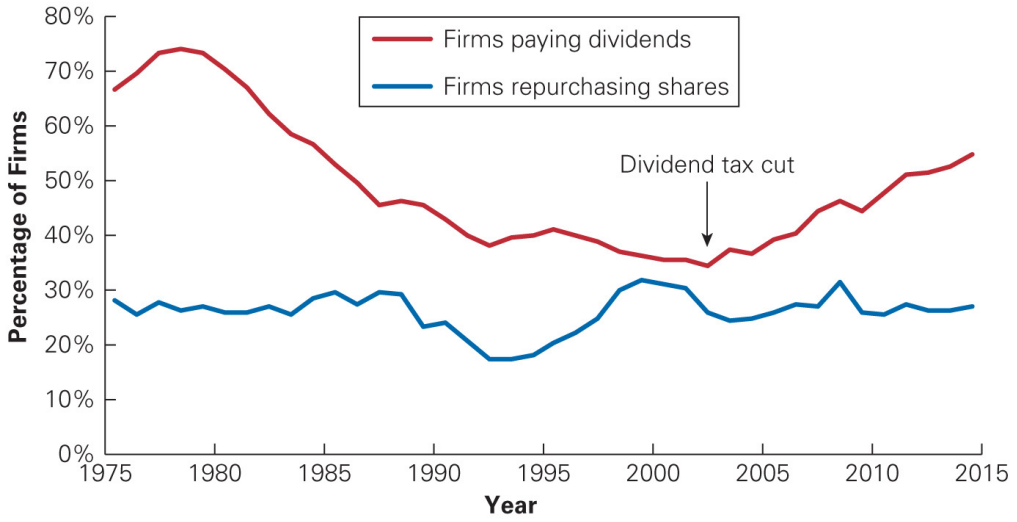
神 到时间赶下课吧！

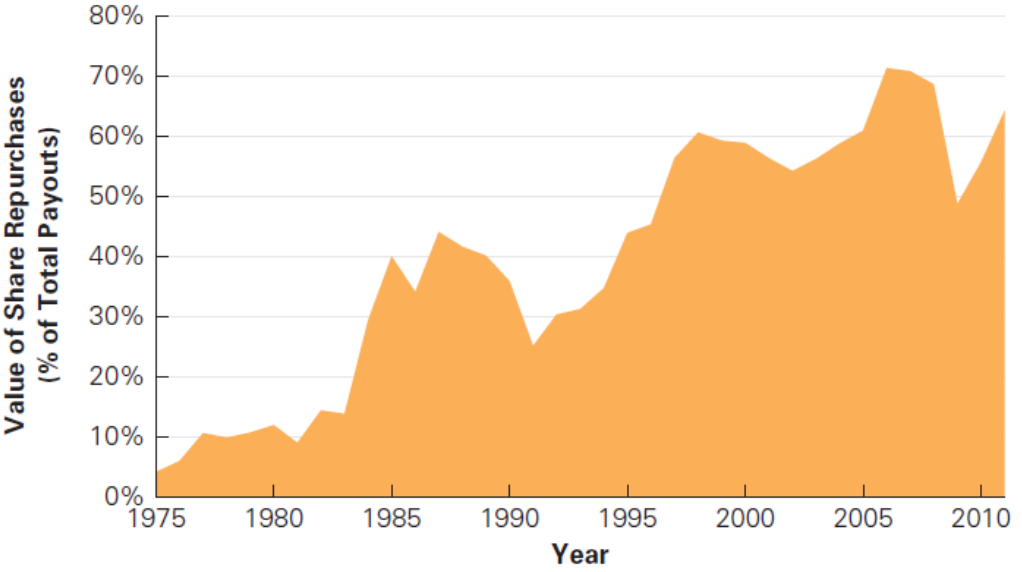
Signaling Effect of Repurchases– Example

- If the firm repurchase before the new information comes out, it can buy back at $30/share
  - # of shares repurchased = $\frac{\$600M}{\$30/share}$ = 20M shares
  - Remaining # of shares = 200M – 20M = 180 M
  - Remaining true market value = 7B – 0.6 B = 6.4 B
  - Price per share after the information comes out= $\frac{\$6.4B}{180M}$ = $35.56/share
  - Gains for the long term shareholders = $35.56/share - $35/share = $0.56/share

- Implications:
  - The gain from buying shares when the stock is underpriced leads to an increase in the firm's long-run share price.
  - Similarly, buying shares when the stock is overpriced will reduce the long-run share price.
  - The firm may therefore try to time its repurchases appropriately. Anticipating this strategy, shareholders may interpret a share repurchase as a signal that the firm is undervalued.

Payouts in the Real World





Source: Compustat (US mid to large firms)

- Dividend puzzle: firms continue to issue dividends despite their tax disadvantage and the signaling effect of repurchases
- Potential explanations:
  - Tax clientele effect
  - Signaling of dividends

Tax Clientele Effect

- The dividend policy of a firm reflects the tax preference of its investor clientele. This is called the *Clientele Effect*.
  - The effective dividend tax rate differs across investors for a variety of reasons.
    - Income level: investors of different income have different average tax rates.
    - Investment horizon: investors pay lower tax rate if they hold for long term than if they hold for short term.
    - Type of investor or investment account: certain investors (e.g. pension funds, endowments) do not need to pay income and capital gain tax
  - Therefore, individuals in the highest tax brackets prefer stocks with 0 or low dividends, whereas tax-free investors and corporations may prefer high dividend stocks.

Dividend Smoothing

- In a survey in Brav, Graham, Harvey, and Michaely (2005), CFOs expressed their views about dividend policy:
  - Agree or Strongly Agree
    - 93.8% Try to avoid reducing dividends per share
    - 89.6% Try to maintain a smooth dividend from year to year
  - Important or Very Important
    - 84.1% Maintaining consistency with historic dividend policy
    - 71.9% Stability of future earnings
- Research has found that
  - Managers believe that investors prefer smooth dividends with sustained growth, and thus they desire to maintain a long-term target level of dividends as a fraction of earnings.
  - As a result, firms raise their dividends only when they perceive a long-term sustainable increase in the expected level of future earnings and cut them only as a last resort.

Dividend Smoothing - Example

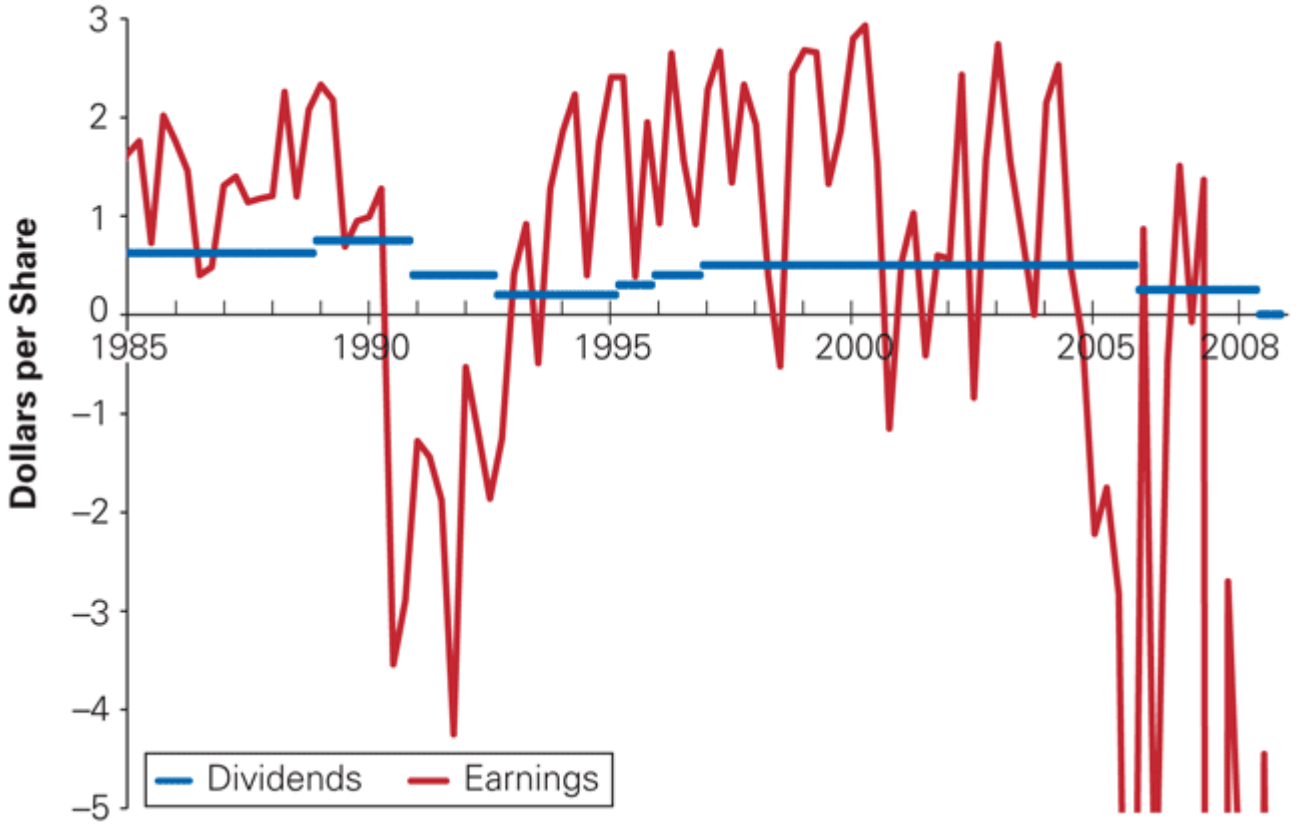


Figure GM's Earnings and Dividends per Share, 1985–2008

- Although GM's earnings is quite volatile, its dividend payment is quite stable.

Dividend Signaling

- Dividend Signaling Hypothesis
  - Dividend changes reflect managers' views about a firm's future earning prospects.
- When a firm increases its dividend
  - It sends a positive signal to investors that management expects to be able to afford the higher dividend for the foreseeable future.
  - It might also signal a lack of investment opportunities.
- When a firm decreases its dividend
  - It may signal that management has given up hope that earnings will rebound in the near term and so need to reduce the dividend to save cash.
  - It may also signal that firms need cash to exploit new positive-NPV investment opportunities
- As a result, the dividend change might lead to a positive or negative stock price reactions.
- Bottom line: investors must interpret dividends as a signal in the context of the type of new information managers are likely to have.

Relevance of Payout Policy in the Real World- Summary

- In summary, a firm's payout policy in an imperfect world is shaped by market imperfections
  - Tax effect
    - Clientele effect
  - Asymmetric information (the signaling effects)

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Stock Dividends, Splits, and Spin-Offs

- Stock dividends and splits
  - With a stock dividend or stock splits, a firm does not pay out any cash to shareholders.
  - Total equity value stays constant while # of shares increase→ per share price decreases.
  - Suppose Genron paid a 50% stock dividend (a 3:2 stock split).
    - A shareholder who owns 100 shares ($42/share) before the dividend has a portfolio worth $4,200: $42 × 100 = $4,200
    - After the dividend, the shareholder owns 150 (100*3/2=150) shares. Because the portfolio is still worth $4,200, the stock price will fall to $28 ($4,200 ÷ 150 = $28)

Stock Dividends, Splits, and Spin-Offs

- Stock dividends and splits
  - The typical motivation for a stock split is to keep the share price in a range thought to be attractive to small investors.
  - If the share price rises “too high,” it might be difficult for small investors to invest in the stock.
  - Keeping the price “low” may make the stock more attractive to small investors and can increase the demand for and the liquidity of the stock, which may in turn boost the stock price.
  - On average, announcements of stock splits are associated with a 2% increase in the stock price.
- Reverse Split
  - When the price of a company’s stock falls too low and the company reduces the number of outstanding shares

Spin-Offs 股票拆分

- Spin-off
  - A spinoff is the creation of an independent company through the sale or distribution of new shares of an existing business or division of a parent company.
- Potential reasons for spin-offs
  - A company may wish to get rid of less important businesses so that it can better focus on other divisions with more long-term potential.
  - When a subsidiary heads in a different direction and has different strategic priorities from the parent company, it may be spun off so it can create more value as an independent operation.

Summary

- A firm needs to decide how to use free cash flows:
  - Payout or cash retention?
  - If payout, dividend or repurchase?
- In a perfect world, paying out vs. cash retention does not affect firm value.
- In an imperfect world
  - Cash retention is costly due to tax reasons and agency costs
  - Cash retention can reduce distress costs and issuance costs.
- In a perfect world, how firms pays is irrelevant.
- In a imperfect world, the method of payment affects firm value
  - Tax
  - Clientele effect
  - Information asymmetry (signaling effect)
- Stock dividends, splits and spin-offs

TRADING GAME

trading game