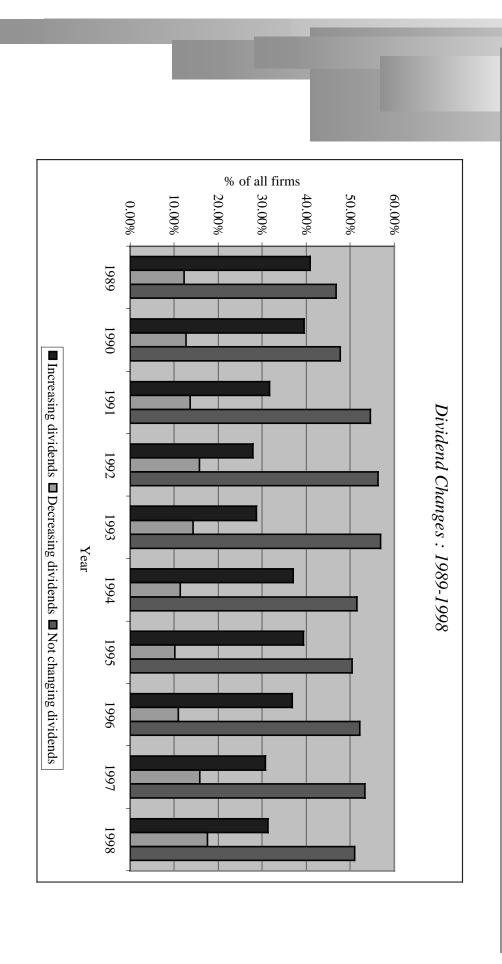
Returning Cash to the Owners: Dividend Policy

First Principles

- acceptable hurdle rate Invest in projects that <u>yield a return greater</u>than the <u>minimum</u>
- The hurdle rate should be higher for riskier projects and reflect the <u>financing mix</u> used - owners' funds (equity) or borrowed money (debt)
- and the timing of these cash flows; they should also consider both positive and negative side effects of these projects Returns on projects should be measured based on cash flows generated
- Choose a <u>financing mix</u> that <u>minimizes the hurdle</u> rate and <u>matches the</u> assets being financed
- return the cash to stockholders. If there are not enough investments that earn the hurdle rate,
- upon the stockholders' characteristics The form of returns - dividends and stock buybacks - will depend

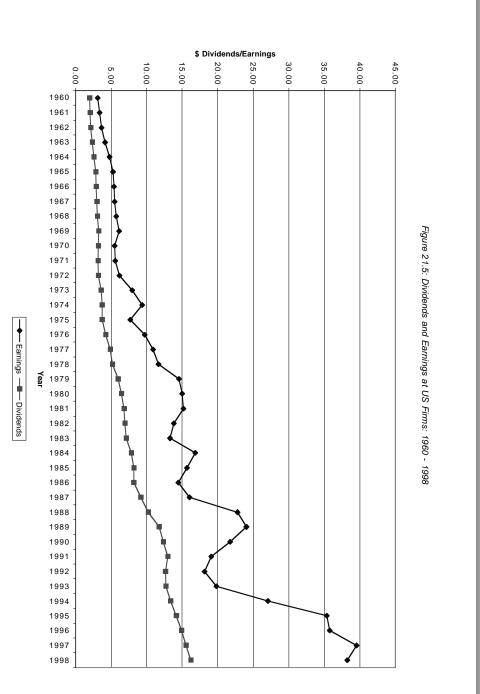
Objective: Maximize the Value of the Firm

Dividends are sticky

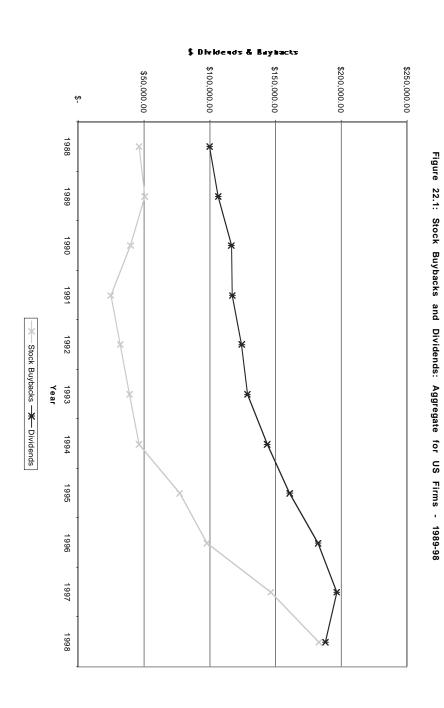


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Dividends tend to follow earnings



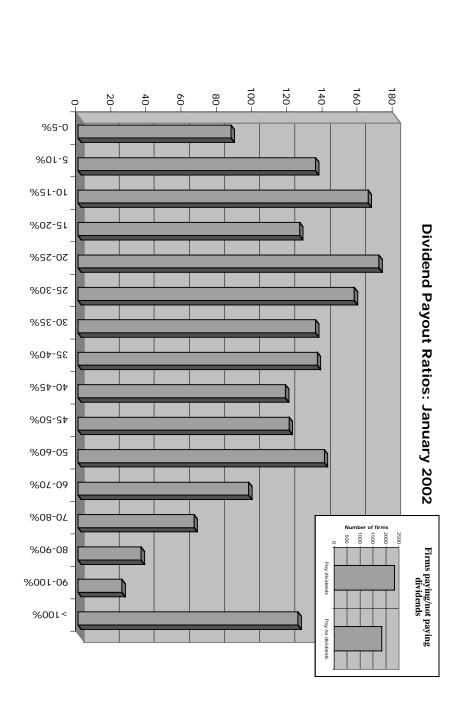
More and more firms are buying back stock, rather than pay dividends...



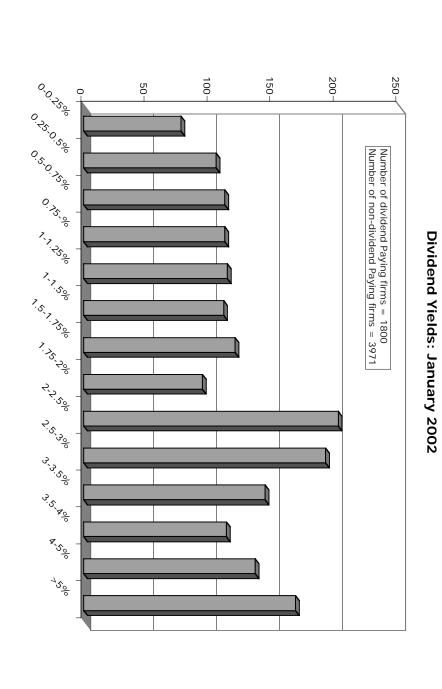
Measures of Dividend Policy

- Dividend Payout:
- measures the percentage of earnings that the company pays in dividends
- = Dividends / Earnings
- Dividend Yield
- measures the return that an investor can make from dividends alone
- = Dividends / Stock Price

Dividend Payout Ratios: January 2002



Dividend Yields in the United States: January 2002



Three Schools Of Thought On Dividends

- 1. If
- (a) there are no tax disadvantages associated with dividends
- (b) companies can issue stock, at no cost, to raise equity, whenever needed
- Dividends do not matter, and dividend policy does not affect value.
- 2. If dividends have a tax disadvantage,
- Dividends are bad, and increasing dividends will reduce value
- 3. If stockholders like dividends, or dividends operate as a signal of future prospects,
- Dividends are good, and increasing dividends will increase value

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The balanced viewpoint

- returning money to stockholders (dividends or stock repurchases) is If a company has excess cash, and few good projects (NPV>0).
- stock repurchases) is BAD. If a company does not have excess cash, and/or has several good projects (NPV>0), returning money to stockholders (dividends or GOOD

Why do firms pay dividends?

- The Miller-Modigliani Hypothesis: Dividends do not affect value
- Basis:
- If a firm's investment policy (and hence cash flows) don't change, the dividends or capital gains. personal taxes, investors have to be indifferent to receiving either value of the firm cannot change with dividend policy. If we ignore
- Underlying Assumptions:
- (a) There are no tax differences between dividends and capital gains
- (b) If companies pay too much in cash, they can issue new stock, with no flotation costs or signaling consequences, to replace this cash
- (c) If companies pay too little in dividends, they do not use the excess cash for bad projects or acquisitions

The Tax Response: Dividends are taxed more than capital gains

Basis:

therefore prefer to receive capital gains over dividends. Dividends are taxed more heavily than capital gains. A stockholder will

Evidence:

whether dividends are perfect substitutes for capital gains. Examining ex-dividend dates should provide us with some evidence on

Price Behavior on Ex-Dividend Date

Let P_b = Price before the stock goes ex-dividend

P_a=Price after the stock goes ex-dividend

D = Dividends declared on stock

 $t_{\rm o},\,t_{\rm cg}\!=\!$ Taxes paid on ordinary income and capital gains respectively



Cashflows from Selling around Ex-Dividend Day

■ The cash flows from selling before then are-

$$P_b - (P_b - P) t_{cg}$$

The cash flows from selling after the ex-dividend day are-

$$P_a - (P_a - P) t_{cg} + D(1-t_o)$$

Since the average investor should be indifferent between selling before the ex-dividend day and selling after the ex-dividend day -

$$P_b - (P_b - P) t_{cg} = P_a - (P_a - P) t_{cg} + D(1-t_o)$$

Moving the variables around, we arrive at the following:

Price Change, Dividends and Tax Rates

$$\frac{\mathbf{P}_{b} - \mathbf{P}_{a}}{\mathbf{D}} = \frac{(1-t_{o})}{(1-t_{cg})}$$

$$\begin{aligned} P_b - P_a &= D & then & t_o &= t_{cg} \\ P_b - P_a &< D & then & t_o > t_{cg} \\ P_b - P_a > D & then & t_o < t_{cg} \end{aligned}$$

The Evidence on Ex-Dividend Day Behavior

		٩			
1994.	1991-1993	1986-1990	1981-85	Before 1981	
39 6 %	33 %	28 %	50 %	70 %	Od nary Income
28 %	28 %	28 %	20 %	28 %	Capit d Gáns
0.90	0 92	0 90	0 85	0 78 (1966-69)	$(P_b - P_a)/D$

Dividend Arbitrage

- would you exploit this differential? price drop on the ex-dividend day is only 90% of the dividend. How Assume that you are a tax exempt investor, and that you know that the
- Invest in the stock for the long term
- Sell short the day before the ex-dividend day, buy on the ex-dividend day
- Buy just before the ex-dividend day, and sell after.

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Example of dividend capture strategy with tax factors

- (from past examination of the data) is only 90% of the dividend XYZ company is selling for \$50 at close of trading May 3. On May 4, XYZ goes ex-dividend; the dividend amount is \$1. The price drop
- arbitrage are as follows: The transactions needed by a tax-exempt U.S. pension fund for the
- 1. Buy 1 million shares of XYZ stock cum-dividend at \$50/share
- 2. Wait till stock goes ex-dividend; Sell stock for \$49.10/share (50 1*
- 3. Collect dividend on stock.
- Net profit = -50 million +49.10 million +1 million = \$0.10 million

The wrong reasons for paying dividends The bird in the hand fallacy

- **Argument**: Dividends now are more certain than capital gains later. Hence dividends are more valuable than capital gains.
- dividend day.) today and price appreciation today. (The stock price drops on the ex-Counter: The appropriate comparison should be between dividends

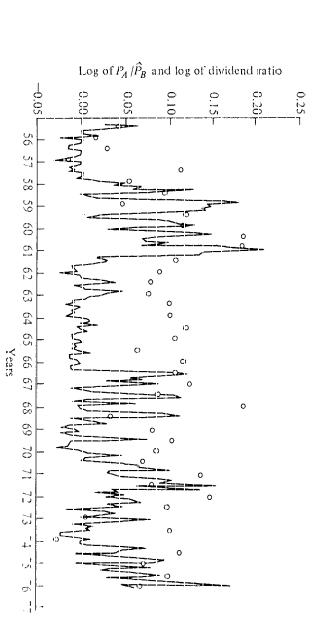
The excess cash hypothesis

- investment projects this year and wants to give the money back to **Argument**: The firm has excess cash on its hands this year, no
- stockholders Consider the cost of issuing new stock: phenomenon, the firm has to consider future financing needs. **Counter:** So why not just repurchase stock? If this is a one-time

The Cost of Raising Funds

- costs and investment banking fees companies that are already publicly traded, in terms of transactions Issuing new equity is much more expensive than raising new debt for
- 25-\$ 50 million might be prohibitively expensive) amounts, for both equity and debt. Making a small equity issue (say \$ Raising small amounts is much more expensive than raising large

Are firms perverse? Some evidence that they are not



The natural log of P_A/P_B (the connected monthly observations) and the natural log of the semi-annual ratio of Series A to Series B dividends (the unconnected 0's) for the period 1956–1976. P_B is the price per share of Series B stock with dividends reinvested during each half-year prior to payment of the semi-annual Series A dividend. The unconnected points representing the log of the dividend ratio are placed in the figure at the end of the half-years to which they refer.

.....

Evidence from Canadian Firms

Company	Premium for Cash dividend over Stock Dividend Shares
Consolidated Bathurst	19.30%
Donfasco	13.30%
Dome Petroleum	0.30%
Inperial Oil	12.10%
Newfoundland Light & Power	1.80%
Royal Trustco	17.30%
Stelco	2.70%
TransAlta	1.10%
Average	7.54%

A clientele based explanation

- dividends and those in low tax brackets may invest in dividend paying stocks. **Basis**: Investors may form clienteles based upon their tax brackets. Investors in high tax brackets may invest in stocks which do not pay
- found that their portfolio positions were affected by their tax brackets. The study Evidence: A study of 914 investors' portfolios was carried out to see if
- (a) Older investors were more likely to hold high dividend stocks and
- (b) Poorer investors tended to hold high dividend stocks

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Results from Regression: Clientele Effect

<u>D</u> .
Dividend
$Yield_t =$
=a+b
$\beta_t + c$
Aget +
d Incom e
+e Differ
ferential
Tax Ra
tet + et

Variable	Coefficient	Implies
Constant	4.22%	
Beta Coefficient	-2.145	Higher beta stocks pay lower dividends.
Age/100	3.131	Firms with older investors pay higher
		dividends.
Income/1000	-3.726	Firms with wealthier investors pay lower
		dividends.
Differential Tax Rate	-2.849	If ordinary income is taxed at a higher rate
		than capital gains, the firm pays less
		dividends.

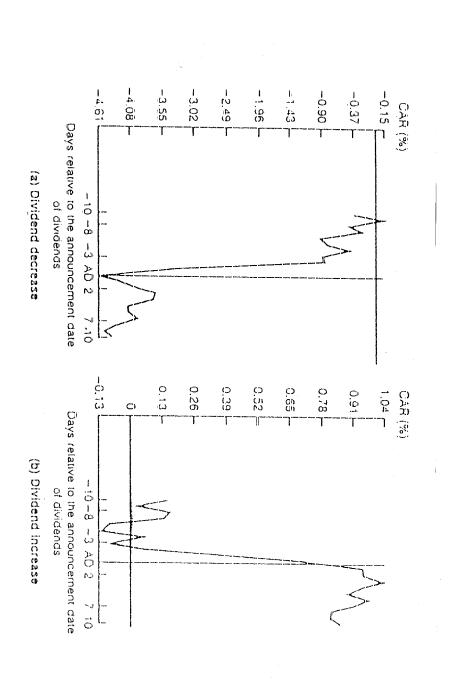
Dividend Policy and Clientele

- are you most likely to follow? telecommunications and media markets. Which of the following paths paid large dividends. You are now planning to enter the Assume that you run a phone company, and that you have historically
- dividends and invest in the new markets Courageously announce to your stockholders that you plan to cut
- Continue to pay the dividends that you used to, and defer investment in the new markets
- Continue to pay the dividends that you used to, make the investments in the new markets, and issue new stock to cover the shortfall

☐ Other

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The Signaling Hypothesis



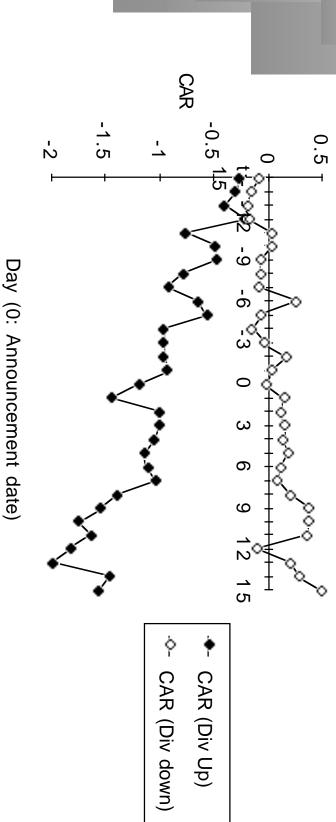
An Alternative Story..Dividends as Negative Signals

Earn Growth I ڼ -2 -1 1 2 Year Relative to First-Time Dividend Payment Ü

'In our original research we compare earnings performance as earnings changes standardized by stock prices. Here we convert these values to earnings growth ratios by assuming that the average price-earnings ratio for the sample firms is ten.

The Wealth Transfer Hypothesis

EXCESS RETURNS ON STRAIGHT BONDS AROUND DIVIDEND CHANGES



Management Beliefs about Dividend Policy

- A firm's dividend payout ratio affects its stock price
- Dividend payments operate as a signal to financial markets
- Dividend announcements provide information to financial markets.
- Investors think that dividends are safer than retained earnings
- Investors are not indifferent between dividends and price appreciation.
- Stockholders are attracted to firms that have dividend policies that they

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Determinants of Dividend Policy

- Dividends *Investment Opportunities*: More investment opportunities - > Lower
- Stability in earnings: More stable earnings -> Higher Dividends
- Alternative sources of capital: More alternative sources -> Higher Dividends
- Constraints: More constraints imposed by bondholders and lenders -> Lower Dividends
- Signaling Incentives: More options to supply information to financial markets - Lower need to pay dividends as signal
- Stockholder characteristics: Older, poorer stockholders -> Higher dividends

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Questions to Ask in Dividend Policy Analysis

- question? How much could the company have paid out during the period under
- question? How much did the the company actually pay out during the period in
- cash? How much do I trust the management of this company with excess
- How well did they make investments during the period in question?
- How well has my stock performed during the period in question?

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A Measure of How Much a Company Could have Afforded to Pay out: FCFE

firm's assets and future growth. stock) have been paid, and after any reinvestment needed to sustain the is left in the business after non-equity claimholders (debt and preferred The Free Cashflow to Equity (FCFE) is a measure of how much cash

Net Income

- + Depreciation & Amortization
- = Cash flows from Operations to Equity Investors
- Preferred Dividends
- Capital Expenditures
- Working Capital Needs
- Principal Repayments
- + Proceeds from New Debt Issues
- = Free Cash flow to Equity

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Estimating FCFE when Leverage is Stable

Net Income

- (1- δ) (Capital Expenditures Depreciation)
- (1- δ) Working Capital Needs
- = Free Cash flow to Equity
- δ = Debt/Capital Ratio For this firm,
- Proceeds from new debt issues = Principal Repayments + δ (Capital Expenditures - Depreciation + Working Capital Needs)

An Example: FCFE Calculation

- Microsoft's FCFE was: Consider the following inputs for Microsoft in 1996. In 1996,
- Net Income = \$2,176 Million
- Capital Expenditures = \$494 Million
- Depreciation = \$ 480 Million
- Change in Non-Cash Working Capital = \$ 35 Million
- Debt Ratio = 0%
- FCFE = Net Income (Cap ex Depr) (1-DR) Chg WC (!-DR) \$ 2,176 - (494 - 480) (1-0) - \$ 35 (1-0)
- = \$2,127 Million

Microsoft: Dividends?

dividends/stock buybacks in 1996. They paid no dividends and bought By this estimation, Microsoft could have paid \$2,127 Million in balance sheet? back no stock. Where will the \$2,127 million show up in Microsoft's

Dividends versus FCFE: U.S.

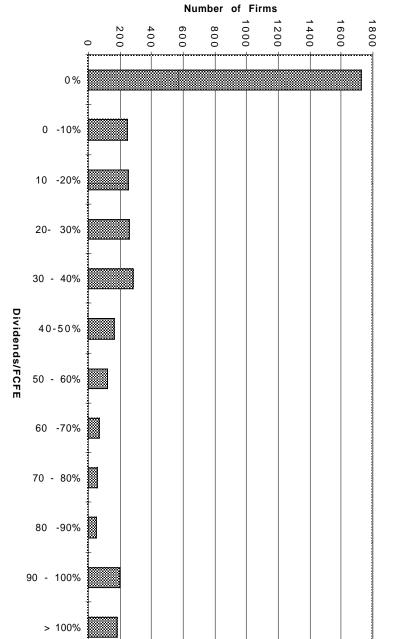
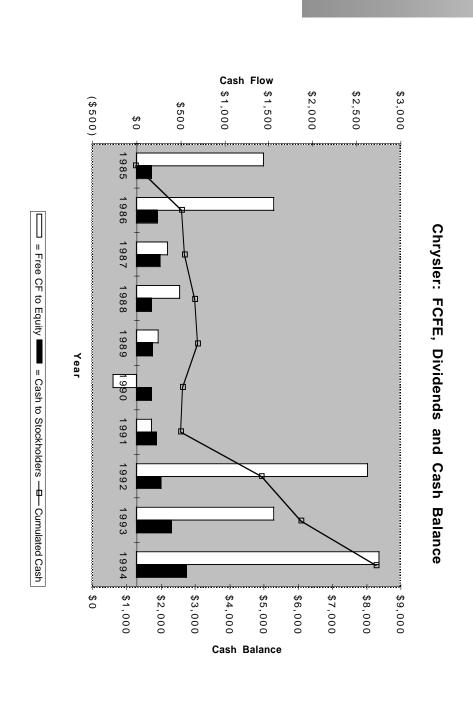


Figure 11.1: Dividends/FCFE: NYSE Firms in 1996

The Consequences of Failing to pay FCFE



Application Test: Estimating your firm's FCFE

n General,

Net Income

- + Depreciation & Amortization
- Capital Expenditures
- Change in Non-Cash Working Capital
- Preferred Dividend
- Principal Repaid
- + New Debt Issued
- = FCFE

Compare to

Dividends (Common)

+ Stock Buybacks

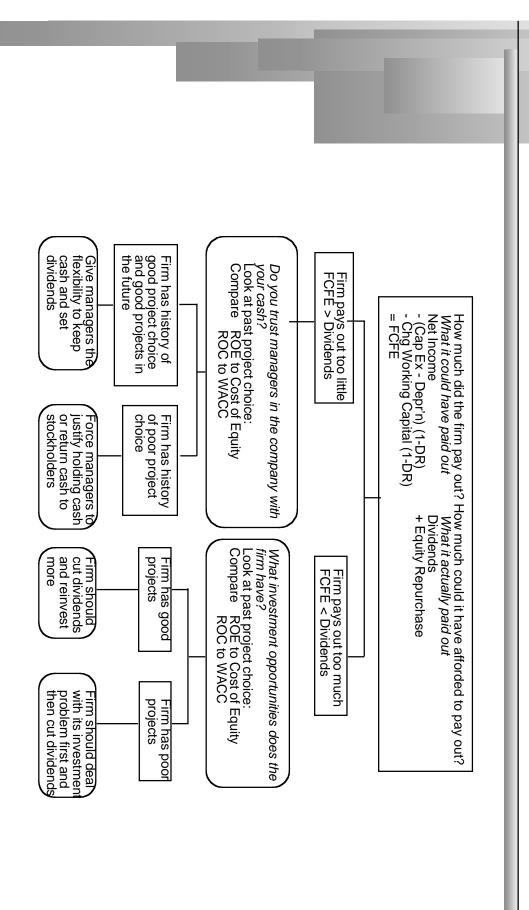
If cash flow statement used Net Income

- + Depreciation & Amortization
- + Capital Expenditures
- + Changes in Non-cash WC
- + Preferred Dividend
- + Increase in LT Borrowing
- + Decrease in LT Borrowing
- + Change in ST Borrowing
- = FCFE

-Common Dividend

- Decrease in Capital Stock
- + Increase in Capital Stock

A Practical Framework for Analyzing Dividend Policy



A Dividend Matrix

FCFE - Dividends

ROC - WACC

Investment and Dividend problems; cut dividends but also check project choice	Poor Projects	Significant pressure on managers to pay cash out
Cash Deficit		Cash Sumplus
Reduce cash payout to stockholders	Good Projects	Maximum Flexibility in Dividend Policy

Disney: An analysis of FCFE from 1992-1996

		۰		٦				
Ì	Avge	1996*	1995	1994	1993	1992		Year
1 6 100	\$1,082	\$1,214	\$1,380	\$1,110	\$889	\$817		Net Income
	\$352	\$466	\$325	\$469	\$328	\$173	(1- Debt Ratio)	(Cap Ex- Depr)
	\$63	(\$470)	\$206	\$498	\$160	(\$81)	(1-Debt Ratio)	Chg in WC
•	\$667	\$1,218	\$849	\$143	\$402	\$725		FCFE

(The numbers for 1996 are reported without the Capital Cities Acquisition)

The debt ratio used to estimate the free cash flow to equity was estimated as follows = Net Debt Issues/(Net Cap Ex + Change in Non-cash WC)

Disney's Dividends and Buybacks from 1992 to 1996

Average	1996	1995	1994	1993	1992	Year
\$667	\$1,218	\$849	\$143	\$402	\$725	FCFE
\$450	\$733	\$529	\$724	\$160	\$105	Dividends + Stock Buybacks

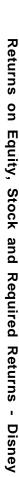
Disney: Dividends versus FCFE

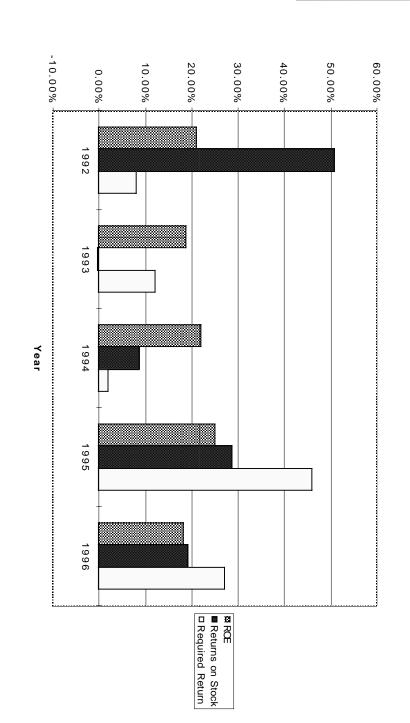
accumulated during the period? than it could afford to pay out. How much cash do you think Disney Disney paid out \$217 million less in dividends (and stock buybacks)

Can you trust Disney's management?

- During the period 1992-1996, Disney had
- an average return on equity of 21.07% on projects taken
- earned an average return on 21.43% for its stockholders
- a cost of equity of 19.09%
- stockholders during the period. Disney has taken good projects and earned above-market returns for its
- If you were a Disney stockholder, would you be comfortable with Disney's dividend policy?
- ☐ Yes

Disney: Return Performance Trends





The Bottom Line on Disney Dividends

- of the analysis. Disney could have afforded to pay more in dividends during the period
- It chose not to, and used the cash for the ABC acquisition.
- returns, however, suggests that this flexibility will be rapidly depleted. the period provide it with some <u>dividend flexibility</u>. The trend in these The excess returns that Disney earned on its projects and its stock over
- The flexibility will clearly not survive if the ABC acquisition does not work out.

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Aracruz: Dividends and FCFE: 1994-1996

= Cash to Stockholders	+ Equity Repurchases	Dividends	= Free CF to Equity	- <i>θ</i> Working Capital*(1-DR) (BR47.74) BR15.67	- (Cap. Exp - Depr)*(1-DR) BR174.76 BR197.20	Net Income	
BR80.40	BR 0.00	BR80.40	BR121.19	(BR47.74)	BR174.76	BR248.21	1994
BR113.00	BR 0.00	BR113.00	BR121.19 BR113.55	BR15.67	BR197.20	BR248.21 BR326.42	1995
BR27.00	BR 0.00	BR27.00	BR55.84	(BR23.80)	BR14.96	BR47.00	1996

Aracruz: Investment Record

Difference 47 50% -28 31% -9	Required rate of return 3.32% 28.03% 17	Returns on stock 50.82% -0.28% 8.	Stock Performance Measure	Difference 16.66% -11.25% -1	Required rate of return 3.32% 28.03% 17	ROE 19.98% 16.78% 2.1	Project Performance Measures	1994 1995 19	
_9 13%	17.78%	8.65%		-15.72%	17.78%	2.06%		1996	

Aracruz: Its your call..

your cash? and have accumulated a cash balance of roughly 1 billion BR (25% of the value of the firm). Would you trust the managers at Aracruz with history of paying less in dividends than they have available in FCFE Assume that you are a large stockholder in Aracruz. They have a

☐ Yes

Mandated Dividend Payouts

- FCFE, what types of companies will be hurt the most by these laws? certain portion of their earnings as dividends. Given our discussion of There are many countries where companies are mandated to pay out a
- Large companies making huge profits
- ☐ Small companies losing money
- High growth companies that are making money

High growth companies that are losing money

BP: Dividends- 1983-92

	1	2	3	4	5	6	7	8	9	10
Net Income	\$1,256.00	\$1,626.00	\$2,309.00	\$1,098.00	\$2,076.00	\$2,140.00	\$2,542.00	\$2,946.00	\$712.00	\$947.00
- (Cap. Exp - Depr)*(1-DR) \$1,499.00		\$1,281.00	\$1,281.00 \$1,737.50 \$1,600.00	\$1,600.00	\$580.00	\$1,184.00 \$1,090.50		\$1,975.50 \$1,545.50	\$1,545.50	\$1,100.00
∂ Working Capital*(1-DR) \$369.50	\$369.50	(\$286.50)	\$678.50	\$82.00	(\$2,268.00) (\$984.50)	(\$984.50)	\$429.50	\$1,047.50	(\$305.00) (\$415.00)	(\$415.00
= Free CF to Equity	(\$612.50)	\$631.50	(\$107.00)	(\$584.00)	\$3,764.00	\$1,940.50	\$1,022.00	(\$77.00)	(\$528.50) \$262.00	\$262.00
Dividends	\$831.00	\$949.00	\$1,079.00 \$1,314.00		\$1,391.00	\$1,961.00	\$1,746.00	\$1,746.00 \$1,895.00 \$2,112.00 \$1,685.00	\$2,112.00	\$1,685.00
+ Equity Repurchases										
= Cash to Stockholders	\$831.00	\$949.00	\$1,079.00 \$1,314.00		\$1,391.00	\$1,961.00	\$1,746.00	\$1,746.00 \$1,895.00 \$2,112.00 \$1,685.00	\$2,112.00	\$1,685.00
Dividend Natios										
Payout Ratio	66.16%	58.36%	46.73%	119.67%	67.00%	91.64%	68.69%	64.32%	296.63%	177.93%
Cash Paid as % of FCFE	-135.67%	150.28%	-1008.41% -225.00%	-225.00%	36.96%	101.06%	170.84%	-2461.04% -399.62%	-399.62%	643.13%
										_
Performance Ratios										
1. Accounting Measure										
ROE	9.58%	12.14%	19.82%	9.25%	12.43%	15.60%	21.47%	19.93%	4.27%	7.66%
Required rate of return	19.77%	6.99%	27.27%	16.01%	5.28%	14.72%	26.87%	-0.97%	25.86%	7.12%
Difference	-10.18%	5.16%	-7.45%	-6.76%	7.15%	0.88%	-5.39%	20.90%	-21.59%	0.54%

BP: Summary of Dividend Policy

			۳				
	Dividend Payout Ratio Cash Paid as % of FCFE	Dividends+Repurchases	Dividends	Free CF to Equity			
	84.77% 262.00%	\$1,496.30	\$1,496.30	\$571.10	Average	۲۵	
11 /00/		\$448.77	\$448.77	\$1,382.29	Standard Deviation	Summary of calculations	
20 90%		\$2,112.00	\$2,112.00	\$3,764.00	Maximum		
-21.59%		\$831.00	\$831.00	(\$612.50)	Minimum		

BP: Just Desserts!

B.P.'s Shares Plummet After Dividend Is Slashed

take offset and gasotise must be re-formulated to reduce pollution. "In Europe, recovery will depend upon seasonal heating oil de " nd," Mr. Europ said.
The crude of markes, he predicted, would remain halanced unbar fun

Britain's Oil Colossus

The crude oil marks:, he predicted, would remain balanced unless fingl oil was allowed to re-enter the market. The compary and it was well positioned to 1° a advantage of any

oil company bet on rising oil prices. The giant British

The State of Street Street Street Street



12 3 1 1 1 3 1 1 CE CO CONTROCCO CO CO

The Limited: Summary of Dividend Policy: 1983-1992

	_	-				
		•	٦			
ROE - Required return	Dividend Payout Ratio Cash Paid as % of FCFE	Dividends+Repurchases	Dividends	Free CF to Equity		
1.69%	18.59% -119.52%	\$40.87	\$40.87	(\$34.20)	Average	St
19.07%		\$32.79	\$32.79	\$109.74	Standard Deviation	Summary of calculations
29.26%		\$101.36	\$101.36	\$96.89	Maximum	
-19.84%		\$5.97	\$5.97	(\$242.17)	Minimum	

Growth Firms and Dividends

agree with this argument? that do not pay dividends) and, by extension, the stock price. Do you there are some investors - like pension funds - that cannot buy stocks its increases the potential stockholder base for the company (since High growth firms are sometimes advised to initiate dividends because

1 Yes

□ No

Why?

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Application Test: Assessing your firm's dividend policy

of information. Compare your firm's dividends to its FCFE, looking at the last 5 years

you encourage the firm to return more cash or less cash to its owners? Based upon your earlier analysis of your firm's project choices, would

take (dividends versus stock buybacks)? If you would encourage it to return more cash, what form should it

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Other Actions that affect Stock Prices

- buybacks). the assets (by paying out cash) and the number of shares (in the case of In the case of dividends and stock buybacks, firms change the value of
- stockholder's equity. There are other actions that firms can take to change the value of their
- Divestitures: They can sell assets to another firm that can utilize them more efficiently, and claim a portion of the value
- Spin offs: In a spin off, a division of a firm is made an independent entity. The parent company has to give up control of the firm.
- entity. The parent company retains a controlling interest in the firm. Equity carve outs: In an ECO, the division is made a semi-independent
- Tracking Stock: When tracking stock are issued against a division, the parent company retains complete control of the division. It does not have its own board of directors.

Differences in these actions

