Dividend Policy
Returning Cash to the Owners
First Principles

Objective: Maximize the Value of the Firm

- Upon the stockholders' characteristics.
- The form of returns - dividends and stock buybacks - will depend.
- The hurdle rate should be higher for riskier projects and reflect the financing mix used - owners' funds (equity) or borrowed money (debt).
- Returns on projects should be measured based on cash flows generated and the timing of these cash flows; they should also consider both positive and negative side effects of these projects.
- The form of returns - dividends and stock buybacks - will depend.
- The hurdle rate should be higher for riskier projects and reflect the acceptable hurdle rate.

Invest in projects that yield a return greater than the minimum.
Dividends are sticky


<table>
<thead>
<tr>
<th>Year</th>
<th>% of all firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>1989</td>
<td>Increasing dividends</td>
</tr>
<tr>
<td>1990</td>
<td>Decreasing dividends</td>
</tr>
<tr>
<td>1991</td>
<td>Not changing dividends</td>
</tr>
</tbody>
</table>
Dividends tend to follow earnings.
More and more firms are buying back stock, rather than pay dividends.

Figure 22.1: Stock Buybacks and Dividends: Aggregate for US Firms - 1989-98
Dividend Payout:

• measures the percentage of earnings that the company pays in dividends alone

Dividend Yield:

\[
\text{Dividend Yield} = \frac{\text{Dividends}}{\text{Earnings}}
\]

• measures the return that an investor can make from dividends alone

Dividend Payout:

\[
\text{Dividend Payout} = \frac{\text{Dividends}}{\text{Stock Price}}
\]
Dividend Payout Ratios: January 2002

Firms paying/not paying dividends

Number of Firms

Dividend Payout Ratios: January 2002
Dividend Yields in the United States: January 2002

Number of dividend paying firms = 1800
Number of non-dividend paying firms = 3971
Three Schools of Thought On Dividends

1. If there are no tax disadvantages associated with dividends and 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 shareholders like dividends or dividends are a signal of future prospects, dividends are good and increasing dividends will increase value.
If a company has excess cash, and few good projects (NPV > 0), returning money to stockholders (dividends or stock repurchases) is GOOD.

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

The balanced viewpoint
Why do firms pay dividends?

**The Miller-Modigliani Hypothesis**

Dividends do not affect value of the firm, given that:

- If companies pay too much in cash, they can issue new stock, with no flotation costs or signaling consequences, to replace this cash.
- If companies pay too little in dividends, they do not use the excess cash for bad projects or acquisitions.
- There are no tax differences between dividends and capital gains.
- (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.
- (c) If companies pay too little in dividends, they do not use the excess cash for bad projects or acquisitions.

**Basis:**

- The Miller-Modigliani Hypothesis: Dividends do not affect value of the firm.
The Tax Response: Dividends are taxed more than capital gains.

Evidence:
- Dividends are taxed more heavily than capital gains. A stockholder will therefore prefer to receive capital gains over dividends.
- Examining ex-dividend dates should provide us with some evidence on whether dividends are perfect substitutes for capital gains.

Basis:

than capital gains
Let $P_b = \text{Price before the stock goes ex-dividend}$

$P_a = \text{Price after the stock goes ex-dividend}$

$D = \text{Dividends declared on stock}$

$t_o, t_c = \text{Taxes paid on ordinary income and capital gains respectively}$

\[ \frac{P_b - D}{P_a} = e \]

Price Behavior on Ex-Dividend Date
The cash flows from selling before then are:
\[ Pb - (Pb - P) tcg \]

The cash flows from selling after the ex-dividend day are:
\[ Pa - (Pa - P) tcg + D(1-to) \]

Since the average investor should be indifferent between selling before and selling after the ex-dividend day,
\[ Pb - (Pb - P) tcg = Pa - (Pa - P) tcg + D(1-to) \]

Moving the variables around, we arrive at the following:
Price Change, Dividends and Tax Rates

\[
\frac{(k^* - 1)}{(1 - k^*)} = \frac{D}{p^a - p^q}
\]
<table>
<thead>
<tr>
<th>Year</th>
<th>% 6</th>
<th>% 3</th>
<th>% 2</th>
<th>% 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before 1981</td>
<td>28</td>
<td>78</td>
<td>28</td>
<td>6</td>
</tr>
<tr>
<td>1981-85</td>
<td>20</td>
<td>70</td>
<td>28</td>
<td>6</td>
</tr>
<tr>
<td>1986-90</td>
<td>28</td>
<td>78</td>
<td>28</td>
<td>6</td>
</tr>
<tr>
<td>1981-93</td>
<td>33</td>
<td>66</td>
<td>28</td>
<td>6</td>
</tr>
<tr>
<td>1994-97</td>
<td>39</td>
<td>61</td>
<td>28</td>
<td>6</td>
</tr>
<tr>
<td>1998-00</td>
<td>41</td>
<td>59</td>
<td>28</td>
<td>6</td>
</tr>
</tbody>
</table>

The Evidence on EX-Dividend Day Behavior
Assume that you are a tax exempt investor, and that you know that the price drop on the ex-dividend day is only 90% of the dividend. How would you exploit this differential?

- Buy just before the ex-dividend day, and sell after.
- Sell short the day before the ex-dividend day, buy on the ex-dividend day.
- Invest in the stock for the long term.
- Assume that you are a tax exempt investor, and that you know that the dividend arbitrage
Example of dividend capture strategy with tax factors

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 (from past examination of the data) is only 90% of the dividend amount.

The transactions needed by a tax-exempt U.S. pension fund for the arbitrage are as follows:

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* 0.90)
3. Collect dividend on stock.

Net profit = - 50 million + 49.10 million + 1 million = $0.10 million

Factors of dividend capture strategy with tax
Aswath Damodaran

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

Argument: Dividends now are more certain than capital gains later.

Counter: The appropriate comparison should be between dividends today and price appreciation today. (The stock price drops on the ex-dividend day.)

Hence dividends are more valuable than capital gains.
The excess cash hypothesis

Argument: The firm has excess cash on its hands this year, no investment projects this year and wants to give the money back to stockholders.

Counter: So why not just repurchase stock? If this is a one-time phenomenon, the firm has to consider future financing needs.

Consider the cost of issuing new stock:

Investment projects this year and wants to give the money back to stockholders.

Argment: The firm has excess cash on its hands this year, no
The Cost of Raising Funds

25-50 million might be prohibitively expensive. For both equity and debt, making a small equity issue (say $25-50 million) can be more expensive than raising large amounts. Raising small amounts is much more expensive than raising new debt for companies that are already publicly traded. In terms of transactions costs and investment banking fees, issuing new equity is much more expensive than raising new debt. Therefore, companies that are already public and have substantial existing equity may have difficulty raising new capital in the public markets.
Are firms perverse? Some evidence that they are not
<table>
<thead>
<tr>
<th>Company</th>
<th>Premium for Cash Dividend over Stock Dividend Shares</th>
</tr>
</thead>
<tbody>
<tr>
<td>TransAlta</td>
<td></td>
</tr>
<tr>
<td>Sicelo</td>
<td></td>
</tr>
<tr>
<td>Royal Trustco</td>
<td></td>
</tr>
<tr>
<td>Newfoundland Light &amp; Power</td>
<td></td>
</tr>
<tr>
<td>Imperial Oil</td>
<td></td>
</tr>
<tr>
<td>Don House</td>
<td></td>
</tr>
<tr>
<td>Donnaso</td>
<td></td>
</tr>
<tr>
<td>Consolidated Bathurst</td>
<td></td>
</tr>
<tr>
<td>Consolidated Bathurst</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7.54%</td>
</tr>
<tr>
<td></td>
<td>1.10%</td>
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<tr>
<td></td>
<td>2.70%</td>
</tr>
<tr>
<td></td>
<td>17.30%</td>
</tr>
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<td></td>
<td>1.80%</td>
</tr>
<tr>
<td></td>
<td>12.10%</td>
</tr>
<tr>
<td></td>
<td>1.90%</td>
</tr>
<tr>
<td></td>
<td>1.30%</td>
</tr>
<tr>
<td></td>
<td>19.30%</td>
</tr>
</tbody>
</table>
A clientele based explanation

Basis: Investors may form clientele based upon their tax brackets.

Evidence: A study of 914 investors’ portfolios was carried out to see if their portfolio positions were affected by their tax brackets. The study found that:

- Poorer investors tended to hold high dividend stocks.
- Older investors were more likely to hold high dividend stocks and those in low tax brackets may invest in stocks which do not pay dividends and those in high tax brackets may invest in stocks which do not pay dividends.
### Results from Regression: Clientele Effect

\[
\text{Dividend Yield} = a + b \beta + c \text{ Age} + d \text{ Income} + e \text{ Differential Tax Rate} + \varepsilon
\]

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Implications</th>
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<tbody>
<tr>
<td>Constant</td>
<td>4.22%</td>
<td></td>
</tr>
<tr>
<td>Beta Coefficient</td>
<td>-2.145</td>
<td>Higher beta stocks pay lower dividends.</td>
</tr>
<tr>
<td>Age/100</td>
<td>3.131</td>
<td>Firms with older investors pay higher dividends.</td>
</tr>
<tr>
<td>Income/1000</td>
<td>-3.726</td>
<td>Firms with wealthier investors pay lower dividends.</td>
</tr>
<tr>
<td>Differential Tax Rate</td>
<td>-2.849</td>
<td>If ordinary income is taxed at a higher rate than capital gains, the firm pays less dividends.</td>
</tr>
</tbody>
</table>
Assume that you run a phone company, and that you have historically paid large dividends. You are now planning to enter the telecommunications and media markets. Which of the following paths are you most likely to follow?

- Courageously announce to your stockholders that you plan to cut dividends and invest in the new markets.
- 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, and issue new stock to cover the shortfall.
- Other
The Signaling Hypothesis
An Alternative Story: Dividends as Negative Signals

Table 1

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<tr>
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<td>1975</td>
<td>4.3</td>
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<td>1978</td>
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<tr>
<td>1979</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
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<td>1980</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Dividend Payments and Growth Rates in Years

Figure 1
The Wealth Transfer Hypothesis

Excess returns on straight bonds around dividend changes

Day (0: Announcement date)
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 like.
Determinants of Dividend Policy

- Higher Dividends
  - Stockholder Characteristics: Older, poorer stockholders
  - Alternatives to Capital: More alternative sources
  - Stability in Earnings: More stable earnings
  - Investment Opportunities: More investment opportunities

- Lower Dividends
  - Markets - Lower need to pay dividends as signal
  - Signaling Incentives: More options to supply information to financial markets
  - Constraints: More constraints imposed by bondholders and lenders
  - Signaling Incentives: More options to supply information to financial markets
Questions to Ask in Dividend Policy Analysis

1. How much could the company have paid out during the period in question?
2. How much did the company actually pay out during the period in question?
3. How much do I trust the management of this company with excess cash?
4. How well did they make investments during the period in question?
5. How well did my stock perform during the period in question?
6. How much did the company actually pay out during the period in question?
The Free Cashflow to Equity (FCFE) is a measure of how much cash the firm’s assets and future growth is left in the business after non-equity claimholders (debt and preferred stock) have been paid, and after any reinvestment needed to sustain the firm, and principal repayments. After any reinvestment needed to sustain the firm, the FCFE is calculated as:

$$\text{Net Income} + \text{Depreciation & Amortization} - \text{Capital Expenditures} - \text{Working Capital Needs} - \text{Preferred Dividends} + \text{Proceeds from New Debt Issues}$$

This measure of how much a company could have afforded to pay out: FCFE.
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

Consider the following inputs for Microsoft in 1996. In 1996, Microsoft’s FCFE was:

- Net Income = $2,176 Million
- Capital Expenditures = $494 Million
- Depreciation = $480 Million
- Change in Non-Cash Working Capital = $35 Million
- Debt Ratio = 0%

\[
\text{FCFE} = \text{Net Income} - (\text{Cap ex} - \text{Depr}) (1-\text{DR}) - \text{Chg WC (1-DR)} \\
\text{Debt Ratio} = 0% \\
\text{Change in Non-Cash Working Capital} = $35 \text{ Million} \\
\text{Depreciation} = 480 \text{ Million} \\
\text{Capital Expenditures} = 494 \text{ Million} \\
\text{Net Income} = 2,176 \text{ Million}
\]

\[
\text{FCFE} = 2,176 - (494 - 480) (1-0) - 35 (1-0) = 2,127 \text{ Million}
\]
By this estimation, Microsoft could have paid $2.127 billion in dividends/stock buybacks in 1996. They paid no dividends and bought back no stock. Where will the $2.127 billion show up in Microsoft's balance sheet?
Figure 11.1: Dividends/FCFE : NYSE Firms in 1996

Dividends versus FCFE: U.S.
The Consequences of Failing to Pay FCFE

Cash Flow: FCFE, Dividends and Cash Balance

Cash Balance

Year

Aswath Damodaran

Application Test: Estimating your firm's FCFE

In General, if cash flow statement used

Net Income

+ Depreciation & Amortization

- Capital Expenditures

- Change in Non-Cash Working Capital

- Preferred Dividend

- Principal Repaid

+ New Debt Issued

+ Increase in Capital Stock

- Decrease in Capital Stock

In General,

FCFE

= FCFE

+ Change in ST Borrowing

+ Increase in LT Borrowing

- Decrease in LT Borrowing

- Preferred Dividend

- Capital Expenditures

+ Change in Non-Cash Working Capital

+ Capital Expenditures

+ Depreciation & Amortization

+ Increase in LT Borrowing

- Decrease in LT Borrowing

Net Income

If cash flow statement used

Compare to

Dividends (Common)

- Common Dividends

+ Stock Buybacks

+ Change in Non-Cash Working Capital

+ Depreciation & Amortization

Net Income

= FCFE
A Practical Framework for Analyzing Dividend Policy

How much did the firm pay out? How much could it have afforded to pay out?

Net Income - (Cap Ex - Dep'n) + Equity Repurchase - Chg Working Capital (1-DR) = FCFE

Firm pays out too little

FCFE > Dividends

Firm pays out too much

FCFE < Dividends

Do you trust managers in the company with your cash?

Look at past project choice:

Compare ROE to Cost of Equity ROC to WACC

Firm has history of good project choice and good projects in the future

Firm has good projects

Firm has poor projects

Firm has poor project choice

Firm has history of poor project choice

Give managers the flexibility to keep dividends or return cash to stockholders if they need to keep the flexibility to keep dividends.

Firm should cut dividends and reinvest more

Firm should deal with its investment problem first and then cut dividends.
A Dividend Matrix

- **Good Projects**: Cash Deficit
  - Flexibility in Dividend Policy
  - Maximum Stockholders Payout
  - Reduce cash

- **Poor Projects**: Cash Surplus
  - Pay cash out
  - Significant pressure on managers to pay dividends
  - Dividend problems; cut dividends but also check project choice

- **Maximum Flexibility in Dividend Policy**: Reduce cash payout to stockholders

- **Minimum Flexibility in Dividend Policy**: Increase cash payout to stockholders

<table>
<thead>
<tr>
<th>Year</th>
<th>Net Income</th>
<th>(Cap Ex- Depr)</th>
<th>Chg in WC</th>
<th>FCFE</th>
<th>1- Debt Ratio</th>
<th>Net Debt Issues/(Net Cap Ex + Change in Non-cash WC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>$817</td>
<td>$173</td>
<td>($81)</td>
<td>$725</td>
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<td></td>
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<tr>
<td>1993</td>
<td>$889</td>
<td>$328</td>
<td>$160</td>
<td>$402</td>
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<td></td>
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<tr>
<td>1994</td>
<td>$1,110</td>
<td>$469</td>
<td>$498</td>
<td>$143</td>
<td></td>
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</tr>
<tr>
<td>1995</td>
<td>$1,380</td>
<td>$325</td>
<td>$206</td>
<td>$849</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1996*</td>
<td>$1,214</td>
<td>$466</td>
<td>($470)</td>
<td>$1,218</td>
<td></td>
<td></td>
</tr>
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</table>

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) (1- Debt Ratio) (1-Debt Ratio)

Year | Net Income | (Cap Ex- Depr) | Chg in WC | FCFE |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
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<tbody>
<tr>
<td>1996</td>
<td>$1,082</td>
<td>$352</td>
<td>$63</td>
<td>$332</td>
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<tr>
<td>1993</td>
<td>$1,214</td>
<td>$446</td>
<td>$996</td>
<td>$1,214</td>
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<td>$1,380</td>
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<td>1992</td>
<td>$849</td>
<td>$325</td>
<td>$63</td>
<td>$849</td>
</tr>
</tbody>
</table>

Average: 1992-1996 $817 $352 $63 $667
<table>
<thead>
<tr>
<th>Year</th>
<th>FCFE</th>
<th>Dividends + Stock Buybacks</th>
</tr>
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<tbody>
<tr>
<td>1992</td>
<td>$725</td>
<td>$105</td>
</tr>
<tr>
<td>1993</td>
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<tr>
<td>1995</td>
<td>$849</td>
<td>$529</td>
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<tr>
<td>1996</td>
<td>$1,218</td>
<td>$733</td>
</tr>
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</table>

Average: $667, $450

**Average FCFE from 1992 to 1996:** $1,218

**Average Dividends + Stock Buybacks from 1992 to 1996:** $733
Disney: Dividends versus FCFE

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

During the period 1992-1996, Disney had

\[ \text{an average return on equity of 21.70\%} \]

\[ \text{a cost of equity of 19.09\%} \]

\[ \text{earned an average return on equity of 21.43\% for its shareholders} \]

\[ \text{earned above-market returns for its projects} \]

If you were a Disney stockholder, would you be comfortable with Disney’s dividend policy?

- Yes
- No
Disney: Return Performance Trends

Returns on Equity, Stock and Required Returns - Disney

Year

-10.00% 0.00% 10.00% 20.00% 30.00% 40.00% 50.00% 60.00% 70.00% 80.00% 90.00% 100.00% 110.00%


Required Return
Returns on Equity
Returns on Stock
ROE
The Bottom Line on Disney Dividends

Disney could have afforded to pay more in dividends during the period of the analysis.
It chose not to, and used the cash for the ABC acquisition.

The excess returns that Disney earned on its projects and its stock over the period provide it with some dividend flexibility. The trend in these returns, however, suggests that this flexibility will be rapidly depleted.

The flexibility will clearly not survive if the ABC acquisition does not work out.

Disney could have afforded to pay more in dividends during the period.
## Aracruz: Dividends and FCFE: 1994-1996

<table>
<thead>
<tr>
<th>Year</th>
<th>Net Income</th>
<th>(Cap. Exp - Depr)*(1-DR)</th>
<th>Working Capital*(1-DR)</th>
<th>Free CF to Equity</th>
<th>Dividends</th>
<th>Equity Repurchases</th>
<th>Cash to Stockholders</th>
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<tr>
<td>1994</td>
<td>BR248.21</td>
<td>BR113.00</td>
<td>(BR195.67)</td>
<td>BR113.55</td>
<td>BR80.40</td>
<td>0.00</td>
<td>BR80.40</td>
</tr>
<tr>
<td>1995</td>
<td>BR326.42</td>
<td>BR113.00</td>
<td>(BR197.20)</td>
<td>BR113.55</td>
<td>BR113.00</td>
<td>0.00</td>
<td>BR113.00</td>
</tr>
<tr>
<td>1996</td>
<td>BR47.00</td>
<td>BR113.00</td>
<td>(BR23.80)</td>
<td>BR55.84</td>
<td>BR27.00</td>
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### Aracruz Investment Record

#### Project Performance Measures

<table>
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<th>Year</th>
<th>ROE</th>
<th>Required Rate of Return</th>
<th>Difference</th>
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<tbody>
<tr>
<td>1994</td>
<td>19.98%</td>
<td>3.32%</td>
<td>16.66%</td>
</tr>
<tr>
<td>1995</td>
<td>16.78%</td>
<td>28.03%</td>
<td>-11.25%</td>
</tr>
<tr>
<td>1996</td>
<td>2.06%</td>
<td>17.78%</td>
<td>-15.72%</td>
</tr>
</tbody>
</table>

#### Stock Performance Measures

<table>
<thead>
<tr>
<th>Year</th>
<th>Returns on Stock</th>
<th>Required Rate of Return</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>50.82%</td>
<td>3.32%</td>
<td>47.50%</td>
</tr>
<tr>
<td>1995</td>
<td>-0.28%</td>
<td>28.03%</td>
<td>-28.31%</td>
</tr>
<tr>
<td>1996</td>
<td>8.65%</td>
<td>17.78%</td>
<td>-9.13%</td>
</tr>
</tbody>
</table>
Aswath Damodaran

Aracruz is your call.

Assume that you are a large stockholder in Aracruz. They have a history of paying less in dividends than they have available in FCFE 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 your cash?

Yes
No
There are many countries where companies are mandated to pay out a certain portion of their earnings as dividends. Given our discussion of FCFE, what types of companies will be hurt the most by these laws?

- Large companies making huge profits
- Small companies losing money
- High-growth companies that are making money
- High-growth companies that are losing money

Mandated Dividend Payouts
### BP: Dividends - 1983-92

<table>
<thead>
<tr>
<th>Year</th>
<th>Net Income</th>
<th>(Cap. Exp - Depr) * (1-DR)</th>
<th>Working Capital * (1-DR)</th>
<th>Free CF to Equity</th>
<th>Dividends</th>
<th>Cash Paid as % of FCFE</th>
<th>Payout Ratio</th>
<th>Cash Paid as % of FCFE</th>
<th>Performance Ratios</th>
</tr>
</thead>
<tbody>
<tr>
<td>1983</td>
<td>$1,256.00</td>
<td>$1,499.00</td>
<td>$369.50</td>
<td>$612.50</td>
<td>$831.00</td>
<td>66.16%</td>
<td>64.3%</td>
<td>$831.00</td>
<td>ROE = 69%</td>
</tr>
<tr>
<td>1984</td>
<td>$1,626.00</td>
<td>$1,281.00</td>
<td>($286.50)</td>
<td>$631.50</td>
<td>$949.00</td>
<td>58.36%</td>
<td>57.7%</td>
<td>$949.00</td>
<td>Required rate of return = 19.58%</td>
</tr>
<tr>
<td>1985</td>
<td>$2,309.00</td>
<td>$1,737.50</td>
<td>$678.50</td>
<td>$107.00</td>
<td>$1,079.00</td>
<td>46.73%</td>
<td>46.50%</td>
<td>$1,079.00</td>
<td>1 Accounting Measure = 6.00%</td>
</tr>
<tr>
<td>1986</td>
<td>$1,098.00</td>
<td>$1,600.00</td>
<td>$82.00</td>
<td>$584.00</td>
<td>$3,764.00</td>
<td>119.67%</td>
<td>120%</td>
<td>$3,764.00</td>
<td>2 Accounting Measure = 8.27%</td>
</tr>
<tr>
<td>1987</td>
<td>$2,076.00</td>
<td>$580.00</td>
<td>($2,268.00)</td>
<td>($528.50)</td>
<td>$1,940.50</td>
<td>67.00%</td>
<td>69.5%</td>
<td>$1,940.50</td>
<td>Paid out Ratio = 7.50%</td>
</tr>
<tr>
<td>1988</td>
<td>$2,140.00</td>
<td>$1,184.00</td>
<td>($984.50)</td>
<td>($528.50)</td>
<td>$1,022.00</td>
<td>91.64%</td>
<td>91.1%</td>
<td>$1,022.00</td>
<td>Dividend Ratio = 9.27%</td>
</tr>
<tr>
<td>1989</td>
<td>$2,542.00</td>
<td>$1,090.50</td>
<td>$429.50</td>
<td>($77.00)</td>
<td>($77.00)</td>
<td>68.69%</td>
<td>69.7%</td>
<td>($77.00)</td>
<td>Free CF to Equity = 3.90%</td>
</tr>
<tr>
<td>1990</td>
<td>$2,946.00</td>
<td>$1,975.50</td>
<td>($305.00)</td>
<td>($528.50)</td>
<td>($528.50)</td>
<td>64.32%</td>
<td>65.3%</td>
<td>($528.50)</td>
<td>3 Pay out ratio = 9.30%</td>
</tr>
<tr>
<td>1991</td>
<td>$712.00</td>
<td>$1,545.50</td>
<td>($415.00)</td>
<td>($528.50)</td>
<td>($528.50)</td>
<td>296.63%</td>
<td>300%</td>
<td>($528.50)</td>
<td>Earnings Ratio = 4.30%</td>
</tr>
<tr>
<td>1992</td>
<td>$947.00</td>
<td>$1,100.00</td>
<td>($415.00)</td>
<td>($528.50)</td>
<td>($528.50)</td>
<td>177.93%</td>
<td>178%</td>
<td>($528.50)</td>
<td>Return on Equity = 6.40%</td>
</tr>
</tbody>
</table>

**Notes:**
- Dividends = Cash to Stockholders + Equity Repurchases
- Cash Paid as % of FCFE = $831.00 (Cash to Stockholders) + Equity Repurchases
- ROE = 69%
- Paid out Ratio = 7.50%
- Dividend Ratio = 9.27%
- Free CF to Equity = 3.90%
- 3 Pay out ratio = 9.30%
- Earnings Ratio = 4.30%
- Return on Equity = 6.40%
<table>
<thead>
<tr>
<th></th>
<th>Minimum</th>
<th>Average</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROE - Required Return</td>
<td>-1.67%</td>
<td>11.49%</td>
<td>26.20%</td>
</tr>
<tr>
<td>Cash Paid as % of FCFE</td>
<td>262.00%</td>
<td>84.77%</td>
<td></td>
</tr>
<tr>
<td>Dividend Payout Ratio</td>
<td>84.77%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dividends</td>
<td>$1,122.00</td>
<td>$448.77</td>
<td>$1,496.30</td>
</tr>
<tr>
<td>Dividends+Repurchases</td>
<td>$1,122.00</td>
<td>$448.77</td>
<td>$1,496.30</td>
</tr>
<tr>
<td>Free CF to Equity</td>
<td>$571.10</td>
<td>$382.29</td>
<td>$612.50</td>
</tr>
</tbody>
</table>

Summary of calculations

BP: Summary of Dividend Policy
BP: Just Desserts!

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

The giant British oil company bet on rising oil prices...

<table>
<thead>
<tr>
<th>Year</th>
<th>Free CF to Equity</th>
<th>Dividends</th>
<th>Dividends+Repurchases</th>
<th>Dividend Payout Ratio</th>
<th>Cash Paid as % of FCFE</th>
<th>ROE - Required Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>1983-1987</td>
<td>$332.79</td>
<td>$101.36</td>
<td>$40.87</td>
<td>18.59%</td>
<td>1.69%</td>
<td>-119.52%</td>
</tr>
<tr>
<td>1988-1989</td>
<td>$332.79</td>
<td>$101.36</td>
<td>$40.87</td>
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<tr>
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<td>$332.79</td>
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<td>-119.52%</td>
</tr>
<tr>
<td>1996-1997</td>
<td>$332.79</td>
<td>$101.36</td>
<td>$40.87</td>
<td>18.59%</td>
<td>1.69%</td>
<td>-119.52%</td>
</tr>
<tr>
<td>1997-1998</td>
<td>$332.79</td>
<td>$101.36</td>
<td>$40.87</td>
<td>18.59%</td>
<td>1.69%</td>
<td>-119.52%</td>
</tr>
<tr>
<td>1998-1999</td>
<td>$332.79</td>
<td>$101.36</td>
<td>$40.87</td>
<td>18.59%</td>
<td>1.69%</td>
<td>-119.52%</td>
</tr>
<tr>
<td>1999-2000</td>
<td>$332.79</td>
<td>$101.36</td>
<td>$40.87</td>
<td>18.59%</td>
<td>1.69%</td>
<td>-119.52%</td>
</tr>
</tbody>
</table>

**Summary of calculations:**

- Average: 19.07%
- Maximum: 29.26%
- Minimum: 1.69%
- Standard Deviation: 11.32%

**Free CF to Equity:**

- Minimum: $332.79
- Maximum: $343.36
- Average: $338.08

**Dividends:**

- Minimum: $101.36
- Maximum: $343.36
- Average: $202.86

**Dividends+Repurchases:**

- Minimum: $101.36
- Maximum: $343.36
- Average: $202.86

**Cash Paid as % of FCFE:**

- Minimum: 18.59%
- Maximum: 29.26%
- Average: 19.07%
Growth Firms and Dividends

High growth firms are sometimes advised to initiate dividends because that does not pay dividends (and, by extension, the stock price). Do you agree with this argument?

Yes ☐
No ☐

Why?
Application Test: Assessing your firm's dividend policy

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

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

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

Q Compare your firm’s dividends to its FCFE, looking at the last 5 years of information.
Other Actions that affect Stock Prices

In the case of dividends and stock buybacks, firms change the value of their assets (by paying out cash) and the number of shares, respectively. In the case of dividends, the value of the firm's equity increases, while in the case of stock buybacks, the number of shares decreases, and the remaining shares have a higher value.

There are other actions that firms can take to change the value of their stockholder’s equity. These include:

- **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 into an independent entity.
- **Equity carve outs**: In an ECO, the division is made into a semi-independent entity. The parent company has to give up control of the firm.
- **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.
- **Equity carve outs**: In an ECO, the division is made an independent entity. The parent company retains a controlling interest in the firm.

These are other actions that firms can take to change the value of their stockholder’s equity.
Differences in these actions:

- Asset conversion into cash
- No cash for transaction
- Control fully lost
- Parent company preserves control
- Taxed on capital gains
- Bondholders negatively affected
- Bondholders unaffected
- Divestitures, Spin-offs, ECOs, Tracking stock
- None of the above