Valuation
**Objective: Maximize the Value of the Firm**

- Choose a financing mix that minimizes the hurdle rate and matches the assets being financed.
- Choose a financing mix that minimizes the hurdle rate and matches the assets being financed.
- Choose a financing mix that minimizes the hurdle rate and matches the assets being financed.
- Choose a financing mix that minimizes the hurdle rate and matches the assets being financed.
- Choose a financing mix that minimizes the hurdle rate and matches the assets being financed.

If there are not enough investments that earn the hurdle rate, return the cash to stockholders.

- The form of returns - dividends and stock buybacks - will depend upon the form of returns - dividends and stock buybacks - will depend upon the form of returns - dividends and stock buybacks - will depend upon the form of returns - dividends and stock buybacks - will depend upon the form of returns - dividends and stock buybacks - will depend upon the form of returns - dividends and stock buybacks - will depend upon the form of returns - dividends and stock buybacks - will depend upon the form of returns - dividends and stock buybacks - will depend upon the form of returns - dividends and stock buybacks - will depend upon the form of returns - dividends and stock buybacks - will depend upon the form of returns - dividends and stock buybacks - will depend upon the form of returns - dividends and stock buybacks.

- The hurdle rate should be higher for riskier projects and should also consider both positive and negative side effects of these projects.
- The hurdle rate should be higher for riskier projects and should also consider both positive and negative side effects of these projects.
- The hurdle rate should be higher for riskier projects and should also consider both positive and negative side effects of these projects.
- The hurdle rate should be higher for riskier projects and should also consider both positive and negative side effects of these projects.

- Returns on projects should be measured based on cash flows generated by the projects.
- Returns on projects should be measured based on cash flows generated by the projects.
- Returns on projects should be measured based on cash flows generated by the projects.
- Returns on projects should be measured based on cash flows generated by the projects.

---

**First Principles**
Discounted Cashflow Valuation

- \( r \) = Discount rate reflecting the risks of the estimated cashflows
- \( CF_t \) = Cashflow in period \( t \)
- \( n \) = Life of the asset

Where

\[
\text{Value} = \sum_{t=1}^{n} \frac{CF_t}{(1+r)^t}
\]
The value of equity is obtained by discounting expected cashflows to equity, i.e., the residual cashflows after meeting all expenses, tax obligations, and interest and principal payments, at the cost of equity, i.e., the rate of return required by equity investors in the firm, i.e., the cost of equity. 

The dividend discount model is a specialized case of equity valuation, where:

\[ \text{CF to Equity}_t = \text{Expected Cashflow to Equity in Period } t \]

\[ \text{ke} = \text{Cost of Equity} \]

\[ \text{Value of Equity} = \sum_{t=1}^{n} \frac{\text{CF to Equity}_t}{(1 + \text{ke})^t} \]

The value of equity is obtained by discounting expected cashflows to equity.
The value of the firm is obtained by discounting expected cashflows to the firm, i.e., the residual cashflows after meeting all operating expenses and taxes, but prior to debt payments, at the weighted average cost of capital, which is the cost of the different components of financing used by the firm, weighted by their market proportions. The value of the firm is obtained by discounting expected cashflows to the firm, i.e., the residual cashflows after meeting all operating expenses and taxes, but prior to debt payments, at the weighted average cost of capital, which is the cost of the different components of financing used by the firm, weighted by their market proportions.

\[
\text{Value of Firm} = \sum_{t=1}^{n} \frac{\text{CF to Firm}_t}{(1 + \text{WACC})^t}
\]

where,

\[
\text{CF to Firm}_t = \text{Expected Cashflow to Firm in period } t
\]

\[
\text{WACC} = \text{Weighted Average Cost of Capital}
\]

Firm Valuation
Generic DCF Valuation Model

Discounted Cashflow Valuation

Expected Growth

Firm: Growth in Operating Earnings
Equity: Growth in Net Income/EPS

CF1 CF2 CF3 CF4 CF5

Length of Period of High Growth

Firm is in stable growth: Grows at constant rate forever

Terminal Value

Firm: Value of Firm
Equity: Value of Equity

Discount Rate

Firm: Cost of Capital
Equity: Cost of Equity

Value

Cash Flows

Firm: Pre-debt cash flow
Equity: After debt flow

Net Income/EPs

Firm: Growth in Operating Earnings
Equity: Growth in

Expected Growth

Forever

Forever
Estimating Inputs: Discount Rates

I. Discount Rates

Critical Ingredient in discounted cashflow valuation. Errors in estimating the discount rate or mismatching cashflows and discount rates can lead to serious errors in valuation.
Estimating Aracruz's Cost of Equity

Average Unlevered Beta for Paper and Pulp Firms is 0.61

Using Aracruz's Gross debt equity ratio of 66.67% and a tax rate of 33%:

Unlevered Beta for Aracruz = (0.8)(0.91) + 0.2(0.61) = 0.488

Levered Beta for Aracruz = 0.49(1 + (1-.33)(.6667)) = 0.71

Cost of Equity for Aracruz = Real Riskfree Rate + Beta (Premium)

Real Riskfree Rate = 5% (Long term Growth rate in Brazilian economy)

Risk Premium = 7.5% (U.S. Premium + Brazil Risk (from rating))

Ratio of Paper and Pulp Firms in Brazil is 0.71

1997, which is much higher than the typical cash balance at other paper and pulp firms. The beta of cash is zero.

Aracruz has a cash balance which was 20% of the market value in 1997, which is much higher than the typical cash balance at other

Average Unlevered Beta for Paper and Pulp Firms is 0.61
Estimating Cost of Equity: Deutsche Bank

Deutsche Bank is in two different segments of business – commercial banking and investment banking.

To estimate its commercial banking beta, we will use the average beta of commercial banks in Germany.

\[
\text{Beta for Deutsche Bank (in DM)} = 0.94 \times 0.90 + 0.1 \times 1.30 = 0.94
\]

<table>
<thead>
<tr>
<th>Comparable Firms</th>
<th>Average Beta (U.K. and U.S.)</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial Banks in Germany</td>
<td>1.30</td>
<td>10%</td>
</tr>
<tr>
<td>Investment Banks in the U.S. and U.K.</td>
<td>0.90</td>
<td>90%</td>
</tr>
</tbody>
</table>

\[
\text{Cost of Equity for Deutsche Bank (in DM)} = 7.5\% + 0.94 \times 5.5\% = 12.67\%
\]
### Reviewing Disney's Costs of Equity & Debt

<table>
<thead>
<tr>
<th>Business Unlevered D/E Ratio</th>
<th>Riskfree Rate</th>
<th>Beta</th>
<th>Risk Premium</th>
<th>Equity Cost of</th>
<th>Leverage Cost of Debt (based upon rating)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creative Content</td>
<td>1.25</td>
<td>1.02</td>
<td>7.00%</td>
<td>14.92%</td>
<td>12.61%</td>
</tr>
<tr>
<td>Retailing</td>
<td>1.70</td>
<td>1.26</td>
<td>7.00%</td>
<td>16.35%</td>
<td>16.35%</td>
</tr>
<tr>
<td>Broadcasting</td>
<td>0.92</td>
<td>1.02</td>
<td>7.00%</td>
<td>20.92%</td>
<td>15.91%</td>
</tr>
<tr>
<td>Theme Parks</td>
<td>0.70</td>
<td>1.26</td>
<td>7.00%</td>
<td>20.92%</td>
<td>15.91%</td>
</tr>
<tr>
<td>Real Estate</td>
<td>1.09</td>
<td>1.25</td>
<td>7.00%</td>
<td>21.97%</td>
<td>13.85%</td>
</tr>
<tr>
<td>Disney</td>
<td>1.09</td>
<td>1.25</td>
<td>7.00%</td>
<td>21.97%</td>
<td>13.85%</td>
</tr>
</tbody>
</table>

Disney's Cost of Debt (based upon rating) = 7.50%
Estimating Cost of Capital: Disney

- Cost of Equity = 13.85%  
- Market Value of Equity = $50.88 Billion  
- Equity/(Debt+Equity) = 82%

- After-tax Cost of Debt = 4.80%  
- Market Value of Debt = $11.18 Billion  
- Debt/(Debt+Equity) = 18%

- Cost of Capital = 13.85%(0.82)+4.80%(0.18) = 12.22%

\[
\text{Cost of Capital} = \frac{\text{Market Value of Equity}}{\text{Equity} + \text{Debt}} \times \text{Cost of Equity} + \frac{\text{Market Value of Debt}}{\text{Equity} + \text{Debt}} \times \text{Cost of Debt} 
\]
II. Estimating Cash Flows

To Equity

Cash Flows

To Firm

The Strict View

Dividends + Stock Buybacks

The Broader View

EBIT (1-t) - (Cap Ex - Depreciation) - Change in Working Capital - Net Income (1 - Debt Ratio)

Free Cashflow to Equity

EBIT (1-t) - (Cap Ex - Depreciation)

Free Cashflow to Firm

- Change in Working Capital
- Net Income (1 - Debt Ratio)

Dividends + Stock Buybacks

To Equity

Cash Flows

To Firm
Estimating FCFE next year: Aracruz

Debt Ratio = 39%
Capital Expenditures per share next year = 0.24 BR/share
Depreciation per share next year = 0.18 BR/share
Change in Working Capital per share next year = 0.18 BR/share
Earnings: Since Aracruz’s 1996 earnings are “abnormally” low, I used the average earnings per share from 1992 to 1996.

Free Cashflow to Equity
BR 0.170
- Capex
BR 0.18
- (Capex - Depreciation) * (1 - DR) BR 0.042
- (Chg. Working Capital) * (1 - DR) BR 0.018
- Earnings BR 0.22

All inputs are per share numbers.
Estimating FCFF: Disney

\[
EBIT \times (1-t) \quad $3,522 \text{ Million}
\]
\[+ \text{Depreciation} \quad $1,134 \text{ Million} \]
\[- \text{Capital Expenditures} \quad $1,746 \text{ Million} \]
\[- \text{Change in WC} \quad $617 \text{ Million} \]
\[= \text{FCFF} \quad $2,329 \text{ Million} \]
Application Test: Estimating your firm's FCFF

Estimate the FCFF for your firm in its most recent financial year:

\[ \text{FCFF} = \text{EBIT (1-t)} - \text{Depreciation} + \text{Depreciation} - \text{Capital Expenditures} + \text{Capital Expenditures} - \text{Change in Non-cash WC} + \text{Change in Non-cash WC} \]

Estimate the dollar reinvestment at your firm:

\[ \text{Reinvestment} = \text{FCFF} - \text{EBIT (1-t)} \]

If using statement of cash flows:

\[ \text{EBIT (1-t)} + \text{Depreciation} + \text{Capital Expenditures} + \text{Change in Non-cash WC} \]

In general, estimate the FCFF for your firm in its most recent financial year.
Choosing a Cash Flow to Discount

When you cannot estimate the free cash flows to equity or the firm, the only cash flow that you can discount is dividends. For financial service firms, it is difficult to estimate free cash flows. For Deutsche Bank, we will be discounting dividends.

If a firm’s debt ratio is not expected to change over time, the free cash flows to equity can be discounted to yield the value of equity. For Aracruz, we will discount free cash flows to equity.

If a firm’s debt ratio might change over time, free cash flows to equity become cumbersome to estimate. Here, we would discount free cash flows to the firm. For Disney, we will discount the free cash flow to the firm.
III. Expected Growth

Operating Income

Expected Growth

Retention Ratio = 1 - Dividends/Net Income

Return on Equity = Net Income/Book Value of Equity

Reinvestment Rate = (Net Cap Ex + Chg in WC)/EBIT(1-t)

Return on Capital = EBIT(1-t)/Book Value of Capital

Net Income
Proposition 1: The expected growth rate in earnings for a company cannot exceed its return on equity in the long term.

\[ \text{g}_{\text{EPS}} = \frac{\text{Retained Earnings}_{t-1}}{\text{NI}_{t-1}} \times \text{ROE} \]

\[ = \text{Retention Ratio} \times \text{ROE} \]

\[ = b \times \text{ROE} \]

Expected Growth in EPS
For Disney, forecasted ROE is expected to be close to current ROE.

For Aracruz, the average ROE between 1994 and 1996 is used, since 1996 was an abnormally bad year.

For Deutsche Bank, the forecast ROE is set equal to the average ROE for German banks.

### ROE: Return on Equity for Most Recent Year

<table>
<thead>
<tr>
<th>Company</th>
<th>ROE</th>
<th>Retention Exp.</th>
<th>EPS Growth</th>
<th>Ratio</th>
<th>Growth</th>
<th>Ratio</th>
<th>ROE Growth</th>
<th>EPS Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deutsche Bank</td>
<td>7.25%</td>
<td>45.00%</td>
<td>2%</td>
<td>39.81%</td>
<td>63.00%</td>
<td>19.42%</td>
<td>12%</td>
<td>1.44%</td>
</tr>
<tr>
<td>Aracruz</td>
<td>2.22%</td>
<td>65.00%</td>
<td>6%</td>
<td>77.68%</td>
<td>5%</td>
<td>19.42%</td>
<td>1%</td>
<td>1.44%</td>
</tr>
<tr>
<td>Disney</td>
<td>4.95%</td>
<td>77.68%</td>
<td>12%</td>
<td>19.38%</td>
<td>5%</td>
<td>19.42%</td>
<td>1%</td>
<td>1.44%</td>
</tr>
</tbody>
</table>

ROE and Leverage

ROE = ROC + D/E (ROC - i (1-t))

where,

D/E = BV of Debt / BV of Equity

i = Interest Expense / BV of Debt

D/E = BV of Debt / BV of Equity

i = Interest Expense / BV of Debt

ROC = (EBIT (1 - tax rate)) / Book Value of Capital

Note that BV of Capital = BV of Debt + BV of Equity.

i = Interest Expense / BV of Debt

where,

ROE = ROC + D/E (ROC - i (1-t))
Decomposing ROE: Disney in 1996

Return on Capital

\[
\text{Return on Capital} = \frac{\text{EBIT}(1-\text{tax rate})}{\text{BV: Debt} + \text{BV: Equity}}
\]

\[
= \frac{55.95 \times 0.36}{7,163 + 11,668} = 18.69\%
\]

Debt Equity Ratio

\[
\text{Debt Equity Ratio} = \frac{\text{Book Value of Debt}}{\text{Book Value of Equity}} = 45\%
\]

Interest Rate on Debt

\[
\text{Interest Rate on Debt} = 7.50\%
\]

Expected Return on Equity

\[
\text{Expected Return on Equity} = \text{ROC} + \text{D/E} (\text{ROC} - i(1-t))
\]

\[
= 18.69\% + 0.45 (18.69\% - 7.50(1-0.36)) = 24.95\%
\]
Expected Growth in EBIT And Fundamentals

Proposition 2: No firm can expect its operating income to grow over time without reinvesting some of the operating income in net capital expenditures and/or working capital.

Proposition 3: The net capital expenditure needs of a firm, for a given growth rate, should be inversely proportional to the quality of its investments.

Reinvestment Rate and Return on Capital

\[ \text{EBIT} = \frac{\text{Net Capital Expenditures} + \text{Change in WC}}{\text{EBIT}(1-t)} \times \text{ROC} \]

\[ \text{Proposition 3: The net capital expenditure needs of a firm, for a given growth rate, should be inversely proportional to the quality of its investments.} \]
Estimating Growth in EBIT: Disney

Actual reinvestment rate in 1996: $(\text{Net Cap Ex} + \text{Chg in WC})/\text{EBIT} (1-t)$

- Net Cap Ex in 1996: $(1745 - 1134)$
- Change in Working Capital: $617$
- EBIT (1-tax rate): $5559 \times 0.64 = 353.5$
- Reinvestment Rate: $(1745 - 1134 + 617) / (553.5 \times 0.64) = 34.5\%$

Forecasted reinvestment rate: $50\%$

- Return on Capital: $20\%$ (Higher than this year’s $18.69\%$)
- Expected Growth in EBIT: $0.5 \times 20\% = 10\%$

The forecasted reinvestment rate is much higher than the actual capital expenditures would have yielded a reinvestment rate of roughly $50\%$. Between 1992 and 1996, adding in the Capital Cities acquisition to all reinvestment rate in 1996, because it includes projected acquisition.

- Forecasted Reinvestment Rate = $50\%$
- Return on Capital = $20\%$ (Higher than this year’s 18.69\%)
- Expected Growth in EBIT = $0.5 \times 20\% = 10\%$

Expected Growth in EBIT: $0.5 \times 20\% = 10\%$
Estimate the following:

- The expected growth in operating income, based upon these inputs
- The after-tax return on capital
- The reinvestment rate for your firm

Growth

Application Test: Estimating Expected
IV. Getting Closure in Valuation

A publicly traded firm potentially has an infinite life. The value is therefore the present value of cash flows forever.

Since we cannot estimate cash flows forever, we estimate cash flows for a "growth period" and then estimate a terminal value, to capture the value at the end of the period:

\[ \text{Value} = \frac{\sum_{t=1}^{\infty} \frac{CF_t}{(1+r)^t}} + \frac{\sum_{t=N}^{\infty} \frac{CF_t}{(1+r)^t}} \]

\[ \Rightarrow \text{Terminal Value} = \frac{\sum_{t=1}^{\infty} \frac{CF_t}{(1+r)^t}} \]

\[ = \frac{\frac{1}{r} - 1}{\frac{1}{r} - 1} = \frac{1}{r} \]

Therefore the present value of cash flows forever.
When they do approach stable growth, the valuation formula above can be used to estimate the "terminal value" of all cash flows beyond.

While companies can maintain high growth rates for extended periods, they will all approach "stable growth" at some point in time.

When they do approach stable growth, the present value of those cash flows can be written as:

\[
\text{Value} = \frac{\text{Expected Cash Flow Next Period}}{r - g}
\]

\[
d = \text{Expected Growth Rate}
\]

\[
r = \text{Discount Rate (Cost of Equity or Cost of Capital)}
\]

This "constant growth" rate is called a stable growth rate and cannot be higher than the growth rate of the economy in which the firm operates.

When a firm's cash flows forever, the present value of those cash flows can be written as:

\[
\text{Value} = \frac{\text{Expected Cash Flow Next Period}}{r - g}
\]
A key assumption in all discounted cash flow models is the period of high growth, and the pattern of growth during that period. In general, we can make one of three assumptions:

• there is no high growth, in which case the firm is already in stable growth
• current growth rate will decline gradually to a stable growth rate (3-stage)
• there will be high growth for a period, at the end of which the growth rate will drop to the stable growth rate (2-stage)
• there will be high growth for a period, at the end of which the growth rate is no high growth, in which case the firm is already in stable growth

The assumption of how long high growth will continue will depend upon several factors including:

- the size of the firm (larger firms -> shorter high growth periods)
- current growth rate (high growth -> longer high growth period)
- barriers to entry and differential advantages (if high -> longer growth period)

Growth Patterns
Assume that you are analyzing two firms, both of which are enjoying high growth. The first firm is Earthlink Network, an internet service provider, which enjoys a high growth period owing to its leadership in an environment with few barriers to entry. The second firm is Biogen, a bio-tech company specializing in an environment with extraordinary competition. The second firm is Biogen, a bio-tech company specializing in an environment with extraordinary competition. Assuming both firms are well-managed, which of the two firms would you expect to have a longer high growth period?
Choosing a Growth Pattern: Examples

Company Valuation in Growth Period

Stable Growth

Deutsche Bank Nominal DM 0 years

Equity: Dividends

5%: set equal to
economy in the world
nominal growth rate
5%: based upon
Brazillian economy
real growth rate for
expected long term
expression
5%: based upon
in the U.S.
nominal growth rate
5% (long term)

Firm (3-stage)

Disney Nominal U.S. $ 10 years

Nominal U.S. $ Valuation in

Aracruz Real BR 5 years 5%: based upon
economy for
Brazilian economy
real growth rate for
expected long term

Equity: FCFE (2-stage) expected long term
growth rate

Equity: FCFE 5 years

Firm (3-stage)

Choosing a Growth Pattern: Examples
<table>
<thead>
<tr>
<th>Firm Characteristics as Growth Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Growth Firms tend to</td>
</tr>
<tr>
<td>- be above-average risk</td>
</tr>
<tr>
<td>- have high ROC (excess return)</td>
</tr>
<tr>
<td>- have high net cap ex</td>
</tr>
<tr>
<td>- pay high dividends</td>
</tr>
<tr>
<td>- have little or no debt</td>
</tr>
<tr>
<td>- earn high ROC closer to WACC</td>
</tr>
<tr>
<td>Stable Growth Firms tend to</td>
</tr>
<tr>
<td>- be average risk</td>
</tr>
<tr>
<td>- pay low dividends</td>
</tr>
<tr>
<td>- have low net cap ex</td>
</tr>
<tr>
<td>- earn low ROC</td>
</tr>
<tr>
<td>- have little or no debt</td>
</tr>
</tbody>
</table>

Aswath Damodaran
Estimating Stable Growth Inputs

Use the relationship between growth and fundamentals to estimate:

- Leverage: If they are not, use industry averages (If they are, use current leverage). If they are stubborn about their policy on leverage, use current management is and whether well, it depends upon how entrenched current management is and whether.

Leverage is a tougher call. While industry averages can be used here as:

- Earnings exess returns on its projects as a result of competition.
- Cost of equity and capital, in which case we assume that the firm will stop.
- Stable growth will look like the average firm in the industry.
- Industry averages for these measure, in which case we assume that this firm in stable growth, can be estimated by looking at:

Profitability measures such as return on equity and capital, in stable:
Estimating Stable Period Net Cap Ex

During the stable growth period will be 31.25% of after-tax operating income.

In other words, the net capital expenditures and working capital investment each year would be:

\[
\text{Reinvestment Rate} = \frac{\text{Net Capital Expenditures}}{\text{EBIT}} \times (1 - t) \times \text{ROC}
\]

For instance, assume that Disney in stable growth will grow 5% and that its return on capital in stable growth will be 16%. The reinvestment rate will then be:

\[
\text{Reinvestment Rate for Disney in Stable Growth} = \frac{5}{16} = 31.25\%
\]

In other words, the net capital expenditures and working capital investment each year during the stable growth period will be 31.25% of after-tax operating income.

Moving terms around,

\[
\text{Reinvestment Rate} = \frac{\text{EBIT}}{\text{Net Capital}} \times \text{ROC}
\]

= \frac{(\text{Net Capital Expenditures + Change in WC})}{\text{EBIT}} \times (1 - t) \times \text{ROC}
Deutsche Bank was trading for 119 DM on the day of this analysis.

Value per share = 2.73 DM / (1.267 - 0.063) = 42.89 DM

Expected Dividends per share next year = 2.61 DM (1.063) = 2.73 DM

Cost of equity = 7.5% + 0.94 (5.5%) = 12.67%

Current Dividends per share = 2.61 DM

Model Used:
- Stable Growth (Large firm; growth is close to stable growth already)
- Dividend Discount Model (FCFE is tough to estimate)
- Model Used:
  - Expected Dividends per share = 2.61 DM
  - Value per Share = 2.73 DM / (.1267 - .063) = 42.89 DM

Deutsche Bank was trading for 119 DM on the day of this analysis.
What does the valuation tell us?

- Stock is tremendously overvalued: This valuation would suggest that Deutsche Bank is significantly overvalued, given our estimates of expected growth and risk.
- Dividends may not reflect the cash flows generated by Deutsche Bank. The FCFE could have been significantly higher than the dividends paid.
- Estimates of growth and risk are wrong: It is also possible that we have underestimated growth or overestimated risk in the model, thus reducing our estimate of value.
The current earnings per share for Aracruz Cellulose is 0.044 BR.

These earnings are abnormally low. To normalize earnings, we use the average earnings per share between 1994 and 1996 of 0.204 BR per share.

2-Stage Growth (Firm is still growing in a high growth economy)

Real Valuation (since inflation is still in double digits)

Model Used:
- FCFE Discount Model (Dividends are lower than FCFE: See Dividends)
- Real valuation (since inflation is still in double digits)
- Firm is still growing in a high growth economy
- Real valuation (since inflation is still in double digits)
Aracruz Cellulose: Inputs for Valuation

High Growth Phase

Length: 5 years

Stable Growth Phase

Length: Forever, after Year 5

Expected Growth Retention Ratio * ROE = 0.65 * 13.91% = 8.18%

Cost of Equity = 5% + 1(7.5%) = 12.5%

Beta = 0.71; Rf = 5%

Working Capital

Net Capital Expenditures grow at same rate as earnings in both periods.

Next year, to be 120% of depreciation, Capex will be 0.24 BR

32.15% of Revenues; Revenues grow at same rate as earnings in both periods.

3.901% of net capital ex and working capital investments come from debt.

Debt Ratio = 39.01% of net capital ex and working capital investments.

Net Capital Expenditures

Debt Ratio

Working Capital

Cost of Equity

Expected Growth

Length
<table>
<thead>
<tr>
<th>Terminal</th>
<th>Earnings</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>BR 0.150</td>
<td>BR 0.152</td>
<td>BR 0.154</td>
<td>BR 0.149</td>
<td>BR 0.147</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BR 0.042</td>
<td>BR 0.046</td>
<td>BR 0.050</td>
<td>BR 0.055</td>
<td>BR 0.052</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BR 0.010</td>
<td>BR 0.011</td>
<td>BR 0.013</td>
<td>BR 0.015</td>
<td>BR 0.017</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BR 0.070</td>
<td>BR 0.186</td>
<td>BR 0.202</td>
<td>BR 0.221</td>
<td>BR 0.241</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BR 0.008</td>
<td>BR 0.011</td>
<td>BR 0.012</td>
<td>BR 0.014</td>
<td>BR 0.015</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BR 0.042</td>
<td>BR 0.046</td>
<td>BR 0.050</td>
<td>BR 0.055</td>
<td>BR 0.052</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BR 0.030</td>
<td>BR 0.288</td>
<td>BR 0.294</td>
<td>BR 0.314</td>
<td>BR 0.340</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>BR 0.264</td>
<td>BR 0.293</td>
<td>BR 0.328</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>BR 0.330</td>
<td>BR 0.405</td>
<td>BR 0.505</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Free Cashflow to Equity

- (CapEx-Depreciation)(1-DR)
- (CapEx+Depreciation)(1-DR)
- (CapEx+Depreciation)(1-DR)
- (CapEx+Depreciation)(1-DR)
- (CapEx+Depreciation)(1-DR)

Present Value

The present value is computed by discounting the FCFE at the current cost of equity of 10.33%.
The terminal value at the end of year 5 is estimated using the FCFE in the terminal year.

- The FCFE in year 6 reflects the drop in net capital expenditures after year 5.
- Terminal Value = $0.269 / (0.125 - 0.05) = 3.59 BR
- Value per Share = $0.154 + 0.152 + 0.150 + 0.149 + 0.147 + 3.59/1.10335 = 2.94 BR

The stock was trading at 2.40 BR in September 1997.

Value per Share = 0.154 + 0.152 + 0.150 + 0.149 + 0.147 + 3.59 BR
Terminal Value = 0.269/(1.25 - 0.05) = 3.59 BR

The terminal value at the end of year 5 is estimated using the FCFE in the terminal year. To the extent that it will take some time to get to normalized earnings, discount this value per share back to the present at the cost of equity of 10.33%. The value per share is based upon normalized earnings. To the extent that value per share back to the present at the cost of equity of 10.33%.
Disney Valuation

Model Used:
- Cash Flow: FCFE
- Growth Pattern: 3-stage Model (even though growth in operating income is only 10%, there are substantial barriers to entry)
### Disney: Inputs to Valuation

<table>
<thead>
<tr>
<th>Phase</th>
<th>Length of Period</th>
<th>Revenue Current</th>
<th>Growth Rate</th>
<th>Operating Margin</th>
<th>Reinvestment Rate</th>
<th>Return on Capital</th>
<th>Debt/Capital Ratio</th>
<th>Risk Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Growth Phase</td>
<td>5 years</td>
<td>$18,739</td>
<td>% growth</td>
<td>29.67% of revenues, based upon 1996 EBIT of $5,559 million.</td>
<td>$1.134 billion and is assumed to grow at same rate as earnings.</td>
<td>$0.584 billion and is assumed to grow at same rate as earnings.</td>
<td>$0.113 billion and is assumed to grow at same rate as earnings.</td>
<td>20% * 5 = 100%</td>
</tr>
<tr>
<td>Transition Phase</td>
<td>5 years</td>
<td></td>
<td>% growth</td>
<td></td>
<td>$1.134 billion and is assumed to grow at same rate as earnings.</td>
<td>$0.584 billion and is assumed to grow at same rate as earnings.</td>
<td>$0.113 billion and is assumed to grow at same rate as earnings.</td>
<td>20% * 5 = 100%</td>
</tr>
<tr>
<td>Stable Growth Phase</td>
<td>Forever</td>
<td></td>
<td>% growth</td>
<td></td>
<td>$1.134 billion and is assumed to grow at same rate as earnings.</td>
<td>$0.584 billion and is assumed to grow at same rate as earnings.</td>
<td>$0.113 billion and is assumed to grow at same rate as earnings.</td>
<td>20% * 5 = 100%</td>
</tr>
</tbody>
</table>

- **Pre-tax Operating Margin**: 31.25% of after-tax operating income. 29.67% of revenues, based upon 1996 EBIT of $5,559 million.
- **Beta**: 1.25, **ke**: 13.88% (Cost of Debt: 7.5% (Long-Term Bond Rate = 7%)). Beta decreases linearly to 1.00.
- **Cost of Debt**: 7.5%
- **Current Revenue**: $18.739 million
- **Expected Revenues**: Continues to grow at same rate as operating earnings
- **Expected Growth Rate**: Linear decline to Stable Growth Rate 5%, based upon overall nominal economic growth
- **Debt/Capital Ratio**: 18% Increases linearly to 30% Stable debt ratio of 30%
- **Expected Growth Rate**: Linear decline to Stable Growth Rate 5%, based upon overall nominal economic growth
- **High Growth Phase**: Stable growth rate
- **Operating Margins**: Stable margin is assumed to be 32%.

**Notes**:
- **Beta**: 1.25, **ke**: 13.88% (Cost of Debt: 7.5% (Long-Term Bond Rate = 7%)). Beta decreases linearly to 1.00.
- **Cost of Debt**: 7.5%
<table>
<thead>
<tr>
<th>Year</th>
<th>Expected Growth</th>
<th>Revenues</th>
<th>Oper. Margin</th>
<th>EBIT</th>
<th>EBIT (1-t)</th>
<th>+ Depreciation</th>
<th>- Capital Exp.</th>
<th>- Change in W.C</th>
<th>= FCFF</th>
<th>ROC</th>
<th>Rev. Rate</th>
<th>Reinv. Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10%</td>
<td>$1,873</td>
<td>29.67%</td>
<td>$556</td>
<td>$3,558</td>
<td>$1,134</td>
<td>$1,754</td>
<td>$94</td>
<td>$1,950</td>
<td>50%</td>
<td>20%</td>
<td>50%</td>
</tr>
<tr>
<td>2</td>
<td>10%</td>
<td>$2,061</td>
<td>29.67%</td>
<td>$615</td>
<td>$3,914</td>
<td>$1,247</td>
<td>$3,101</td>
<td>$94</td>
<td>$2,158</td>
<td>50%</td>
<td>20%</td>
<td>50%</td>
</tr>
<tr>
<td>3</td>
<td>10%</td>
<td>$2,264</td>
<td>29.67%</td>
<td>$726</td>
<td>$4,305</td>
<td>$1,372</td>
<td>$3,411</td>
<td>$94</td>
<td>$2,466</td>
<td>50%</td>
<td>20%</td>
<td>50%</td>
</tr>
<tr>
<td>4</td>
<td>9%</td>
<td>$2,472</td>
<td>29.67%</td>
<td>$840</td>
<td>$4,735</td>
<td>$1,509</td>
<td>$3,722</td>
<td>$94</td>
<td>$2,783</td>
<td>50%</td>
<td>20%</td>
<td>46.875%</td>
</tr>
<tr>
<td>5</td>
<td>8%</td>
<td>$2,685</td>
<td>29.67%</td>
<td>$963</td>
<td>$5,209</td>
<td>$1,660</td>
<td>$3,932</td>
<td>$94</td>
<td>$3,106</td>
<td>50%</td>
<td>20%</td>
<td>43.48%</td>
</tr>
<tr>
<td>6</td>
<td>7%</td>
<td>$2,904</td>
<td>30.13%</td>
<td>$1,099</td>
<td>$5,730</td>
<td>$1,826</td>
<td>$4,128</td>
<td>$94</td>
<td>$3,433</td>
<td>50%</td>
<td>20%</td>
<td>39.77%</td>
</tr>
<tr>
<td>7</td>
<td>6%</td>
<td>$3,128</td>
<td>30.60%</td>
<td>$1,260</td>
<td>$6,344</td>
<td>$2,009</td>
<td>$4,431</td>
<td>$94</td>
<td>$3,759</td>
<td>50%</td>
<td>20%</td>
<td>35.71%</td>
</tr>
<tr>
<td>8</td>
<td>5%</td>
<td>$3,358</td>
<td>31.07%</td>
<td>$1,431</td>
<td>$7,009</td>
<td>$2,210</td>
<td>$4,752</td>
<td>$94</td>
<td>$4,088</td>
<td>50%</td>
<td>20%</td>
<td>31.25%</td>
</tr>
<tr>
<td>9</td>
<td>5%</td>
<td>$3,594</td>
<td>31.53%</td>
<td>$1,616</td>
<td>$7,706</td>
<td>$2,431</td>
<td>$5,064</td>
<td>$94</td>
<td>$4,425</td>
<td>50%</td>
<td>20%</td>
<td>26.79%</td>
</tr>
<tr>
<td>10</td>
<td>5%</td>
<td>$3,835</td>
<td>32.00%</td>
<td>$1,827</td>
<td>$8,433</td>
<td>$2,674</td>
<td>$5,371</td>
<td>$94</td>
<td>$4,773</td>
<td>50%</td>
<td>20%</td>
<td>22.67%</td>
</tr>
</tbody>
</table>

Disney: FCFF Estimates
<table>
<thead>
<tr>
<th>Year</th>
<th>Cost of Equity</th>
<th>Cost of Debt</th>
<th>Debt Ratio</th>
<th>Cost of Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>13.88%</td>
<td>4.80%</td>
<td>18.00%</td>
<td>12.24%</td>
</tr>
<tr>
<td>2</td>
<td>13.88%</td>
<td>4.80%</td>
<td>20.40%</td>
<td>11.80%</td>
</tr>
<tr>
<td>3</td>
<td>13.88%</td>
<td>4.80%</td>
<td>22.80%</td>
<td>11.38%</td>
</tr>
<tr>
<td>4</td>
<td>13.88%</td>
<td>4.80%</td>
<td>25.20%</td>
<td>10.97%</td>
</tr>
<tr>
<td>5</td>
<td>13.88%</td>
<td>4.80%</td>
<td>27.60%</td>
<td>10.57%</td>
</tr>
<tr>
<td>6</td>
<td>13.88%</td>
<td>4.80%</td>
<td>30.00%</td>
<td>10.19%</td>
</tr>
<tr>
<td>7</td>
<td>13.88%</td>
<td>4.80%</td>
<td>32.40%</td>
<td>9.80%</td>
</tr>
<tr>
<td>8</td>
<td>13.88%</td>
<td>4.80%</td>
<td>34.80%</td>
<td>9.41%</td>
</tr>
<tr>
<td>9</td>
<td>13.88%</td>
<td>4.80%</td>
<td>37.20%</td>
<td>9.02%</td>
</tr>
<tr>
<td>10</td>
<td>13.88%</td>
<td>4.80%</td>
<td>39.60%</td>
<td>8.63%</td>
</tr>
</tbody>
</table>
Disney: Terminal Value

The terminal value at the end of Year 10 is estimated based upon the free cash flows to the firm in Year 11 and the cost of capital in Year 11.

\[ \text{FCF}_11 = \text{EBIT} (1-t) - \text{EBIT} (1-t) \times \text{Reinvestment Rate} \]

\[ \text{FCF}_11 = 13,539 (1.05) (1-0.36) - 13,539 (1.05) (1-0.36) \times 0.3125 = 6,255 \text{ million} \]

Note that the reinvestment rate is estimated from the cost of capital of 16% and the expected growth rate of 5%.

Cost of Capital in terminal year = 10.19%

Terminal Value = \( \frac{6,255}{0.1019 - 0.05} = 120,521 \text{ million} \)
<table>
<thead>
<tr>
<th>Year</th>
<th>10%</th>
<th>10.19%</th>
<th>10.57%</th>
<th>10.97%</th>
<th>11.38%</th>
<th>11.80%</th>
<th>12.24%</th>
<th>12.44%</th>
<th>12.44%</th>
<th>12.44%</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCFF</td>
<td>$1,966</td>
<td>$2,163</td>
<td>$2,379</td>
<td>$2,617</td>
<td>$2,879</td>
<td>$3,370</td>
<td>$3,932</td>
<td>$4,552</td>
<td>$5,228</td>
<td>$5,957</td>
</tr>
<tr>
<td>Term Value</td>
<td>$1,752</td>
<td>$1,717</td>
<td>$1,682</td>
<td>$1,649</td>
<td>$1,616</td>
<td>$1,692</td>
<td>$1,773</td>
<td>$1,849</td>
<td>$1,920</td>
<td>$2,167</td>
</tr>
<tr>
<td>Cost of Capital</td>
<td>12.24%</td>
<td>12.24%</td>
<td>12.24%</td>
<td>12.24%</td>
<td>12.24%</td>
<td>11.80%</td>
<td>11.38%</td>
<td>10.97%</td>
<td>10.57%</td>
<td>10.19%</td>
</tr>
<tr>
<td>Present Value</td>
<td>$1,752</td>
<td>$1,717</td>
<td>$1,682</td>
<td>$1,649</td>
<td>$1,616</td>
<td>$1,692</td>
<td>$1,773</td>
<td>$1,849</td>
<td>$1,920</td>
<td>$2,167</td>
</tr>
<tr>
<td>Year</td>
<td>10</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
Aswath Damodaran

The FCFF and costs of capital are provided for all 10 years. Confirm the present value of the FCFF in Year 7.
Disney: Value Per Share

Value of the Firm = $57,817 million
+ Value of Cash = $0 (almost no non-operating cash)
- Value of Debt = $11,180 million

Value of Equity = $46,637 million
Number of Shares = 675.13

Value Per Share = $69.08
Cashflow to Firm

EBIT(1-t) :       3,558 - Nt CpX minus Chg WC = FCFF 2,329

Expected Growth in EBIT (1-t)

.50*.20 = .10

10.00%

1,966   2,163   2,379   2,617   2,879

Forever

Stable Growth

g = 5%; Beta = 1.00; D/(D+E) = 30%; ROC=16%

Reinvestment Rate=31.25%

Terminal Value = 6255/(.1019-.05) = 120,52

Cost of Equity

13.85%

Cost of Debt

(7%+0.50%)(1-.36) = 4.80%

Weights

E = 82% D = 18%

Discount at Cost of Capital (WACC) = 13.85% (0.82) + 4.8% (0.18) = 12.22%

Per Share: 69.08 - 11,180 = 46,637

Riskfree Rate: Government Bond Rate = 7%

+ Beta

1.25 x Risk Premium

5.5%

Unlevered Beta for Sectors: 1.09

Firm's D/E Ratio: 21.95%

Historical US Premium 5.5%

Debt ratio rises to 30%

Debt ratio drops to 10%

Transition

Stable Growth

% 10.00%

60% 20 = 1.0

50.00%

Expected Growth

Return on Capital

Terminal Value = 10 = 6255/(1.1019-05) = 120.52

Debt ratio rises to 30%

Debt ratio drops to 10%

Transition

Stable Growth

% 10.00%

60% 20 = 1.0

50.00%

Expected Growth

Return on Capital

Discount at Cost of Capital (WACC) = 13.85% (0.82) + 4.8% (0.18) = 12.22%

Per Share: 69.08 - 11,180 = 46,637

Riskfree Rate: Government Bond Rate = 7%

+ Beta

1.25 x Risk Premium

5.5%

Unlevered Beta for Sectors: 1.09

Firm's D/E Ratio: 21.95%

Historical US Premium 5.5%

Country Risk Premium 0%

Disney: A Valuation

Return on Capital

Terminal Value = 10 = 6255/(1.1019-05) = 120.52

Debt ratio rises to 30%

Debt ratio drops to 10%

Transition

Stable Growth

% 10.00%

60% 20 = 1.0

50.00%

Expected Growth

Return on Capital

Discount at Cost of Capital (WACC) = 13.85% (0.82) + 4.8% (0.18) = 12.22%

Per Share: 69.08 - 11,180 = 46,637

Riskfree Rate: Government Bond Rate = 7%

+ Beta

1.25 x Risk Premium

5.5%

Unlevered Beta for Sectors: 1.09

Firm's D/E Ratio: 21.95%

Historical US Premium 5.5%

Country Risk Premium 0%

Disney: A Valuation

Return on Capital

Terminal Value = 10 = 6255/(1.1019-05) = 120.52

Debt ratio rises to 30%

Debt ratio drops to 10%

Transition

Stable Growth

% 10.00%

60% 20 = 1.0

50.00%

Expected Growth

Return on Capital

Discount at Cost of Capital (WACC) = 13.85% (0.82) + 4.8% (0.18) = 12.22%

Per Share: 69.08 - 11,180 = 46,637

Riskfree Rate: Government Bond Rate = 7%

+ Beta

1.25 x Risk Premium

5.5%

Unlevered Beta for Sectors: 1.09

Firm's D/E Ratio: 21.95%

Historical US Premium 5.5%

Country Risk Premium 0%

Disney: A Valuation

Return on Capital

Terminal Value = 10 = 6255/(1.1019-05) = 120.52

Debt ratio rises to 30%

Debt ratio drops to 10%

Transition

Stable Growth

% 10.00%

60% 20 = 1.0

50.00%

Expected Growth

Return on Capital

Discount at Cost of Capital (WACC) = 13.85% (0.82) + 4.8% (0.18) = 12.22%

Per Share: 69.08 - 11,180 = 46,637

Riskfree Rate: Government Bond Rate = 7%

+ Beta

1.25 x Risk Premium

5.5%

Unlevered Beta for Sectors: 1.09

Firm's D/E Ratio: 21.95%

Historical US Premium 5.5%

Country Risk Premium 0%
The Investment Decision
Invest in projects that yield a return greater than the minimum acceptable hurdle rate.

The Financing Decision
Choose a financing mix that maximizes the value of the projects taken, and matches the assets being financed.

The Dividend Decision
If there are not enough investments that earn the hurdle rate, return the cash to the owners.

Current EBIT(1-t) = $3,558 million
Return on Capital = 20.00%
Reinvestment Rate = 50%

Expected Growth = ROC * R
R = 0.50 * 20% = 10%

Cost of Capital = 12.22%

Determine the business risk of the firm (Beta, Default Risk)
Equity:
Beta = 1.25

Debt:
Default Risk = 1.00%
Return on Capital = 16.67%
Reinvestment Rate = 31.67%

In stable growth:
Cost of Capital = 10.19%

Equation:

Value of Disney/share = \( \frac{\text{Value of Disney}}{\text{Number of Shares}} \)

\( \text{Value of Disney} = \text{Value of Equity} + \text{Value of Debt} \)

\( \text{Value of Equity} = \frac{\text{EBIT}(1-t)}{\text{Cost of Equity}} \)
In relative valuation, the value of an asset is derived from the pricing of 'comparable' assets, standardized using a common variable such as earnings, cashflows, book value or revenues. Examples include --

- **Price/Earnings (P/E) ratios**
  - and variants (EBIT multiples, EBITDA multiples, Cash Flow multiples)
- **Price/Book (P/BV) ratios**
  - and variants (Tobin's Q)
- **Price/Sales ratios**
Multiples and Fundamentals

Dividing by the Sales per share,

\[
\frac{u^n_{1-g}}{\text{Profit Margin} \times \text{Payroll Ratio} \times (1 + \frac{g}{1-g})} = \frac{0}{p} \text{Sales}^0
\]

Dividing both sides by the book value of equity,

\[
\frac{u^n_{1-g}}{\frac{\text{ROE}}{\text{Payroll Ratio} \times (1 + \frac{g}{1-g})}} = \frac{0}{p} \text{BV}^0
\]

Dividing both sides by the book value of equity,

\[
\frac{u^n_{1-g}}{\frac{\text{ROE} \times \text{Payroll Ratio}}{(1 + \frac{g}{1-g})}} = \frac{0}{p} \text{BV}^0
\]

If the return on equity is written in terms of the retention ratio and the expected growth rate,

\[
\frac{u^n_{1-g}}{\frac{\text{ROE} \times \text{Payroll Ratio}}{(1 + \frac{g}{1-g})}} = \frac{0}{p} \text{BV}^0
\]

Dividing both sides by the book value of equity,

\[
\frac{u^n_{1-g}}{\frac{\text{ROE} \times \text{Payroll Ratio}}{(1 + \frac{g}{1-g})}} = \frac{0}{p} \text{BV}^0
\]

Dividing both sides by the earnings per share,

\[
\frac{u^n_{1-g}}{\text{Payroll Ratio} \times (1 + \frac{g}{1-g})} = \frac{0}{p} \text{EPS}^0
\]

Dividing both sides by the earnings per share,

\[
\frac{u^n_{1-g}}{\text{Payroll Ratio} \times (1 + \frac{g}{1-g})} = \frac{0}{p} \text{EPS}^0
\]

Cordon Growth Model:

\[
\frac{u^n_{1-g}}{D_{p}^0} = \frac{0}{p} \text{DPS}^0
\]
### Disney: Relative Valuation

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Expected Growth</th>
<th>PE</th>
<th>PEG</th>
</tr>
</thead>
<tbody>
<tr>
<td>King World Productions</td>
<td>7.00%</td>
<td>1.04</td>
<td></td>
</tr>
<tr>
<td>Family Golf Centers</td>
<td>18.00%</td>
<td>3.31</td>
<td></td>
</tr>
<tr>
<td>Premier Parks</td>
<td>28.00%</td>
<td>2.23</td>
<td></td>
</tr>
<tr>
<td>AMC Entertainment</td>
<td>20.00%</td>
<td>2.59</td>
<td></td>
</tr>
<tr>
<td>Walt Disney</td>
<td>18.00%</td>
<td>1.55</td>
<td></td>
</tr>
<tr>
<td>Regal Cinemas</td>
<td>20.00%</td>
<td>2.03</td>
<td></td>
</tr>
<tr>
<td>Polygram NV ADR</td>
<td>13.00%</td>
<td>2.22</td>
<td></td>
</tr>
<tr>
<td>Cinerent Circus Enterprises</td>
<td>17.00%</td>
<td>2.20</td>
<td></td>
</tr>
<tr>
<td>GC Companies</td>
<td>15.00%</td>
<td>1.58</td>
<td></td>
</tr>
<tr>
<td>All American Communications</td>
<td>18.00%</td>
<td>1.21</td>
<td></td>
</tr>
<tr>
<td>Viacom</td>
<td>12.00%</td>
<td>1.11</td>
<td></td>
</tr>
<tr>
<td>Aztec</td>
<td>7.00%</td>
<td>1.04</td>
<td></td>
</tr>
</tbody>
</table>

Average:

- **Average PE**: 22.19
- **Average PEG**: 1.20

**Expected Growth**

- CINAR Films: 25.4%
- Family Golf Centers: 33.1%
- Premier Parks: 28.0%
- AMC Entertainment: 20.0%
- Walt Disney: 18.0%
- Regal Cinemas: 20.0%
- Polygram NV ADR: 13.0%
- Cinerent Circus Enterprises: 17.0%
- GC Companies: 15.0%
- All American Communications: 18.0%
- Viacom: 12.0%
- Aztec: 7.0%
- King World Productions: 10.4%
Is Disney fairly valued?

Based upon the PE ratio, is Disney under valued?
- Under Valued
- Over Valued
- Correctly Valued

Based upon the PEG ratio, is Disney under valued?
- Under Valued
- Over Valued
- Correctly Valued

Will this valuation give you a higher or lower valuation than the discounted CF valuation?
- Higher
- Lower
Assume that you are reading an equity research report where a buy recommendation for a company is being based upon the fact that its P/E ratio is lower than the average for the industry. Implicitly, what is the underlying assumption or assumptions being made by this analyst?

- The sector itself is on average, fairly priced.
- The earnings of the firms in the group are being measured consistently.
- The firms in the group are at the same stage in the growth cycle.
- The firms in the group are of equivalent risk.
- The firms in the group are all of equivalent risk and have similar cash flow patterns.
- All of the above.

Assume that you are reading an equity research report where a buy recommendation for a company is being based upon the fact that its P/E ratio is lower than the average for the industry. Implicitly, what is the underlying assumption or assumptions being made by this analyst?
Objective: Maximize the Value of the Firm

- The form of returns—dividends and stock buybacks—will depend upon cash flows to stockholders.

- If there are not enough investments that earn the hurdle rate, return the cash to stockholders.

- Choose a financing mix that minimizes the hurdle rate and matches the assets being financed.

- 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 or stock buybacks—will depend upon the characteristics of the stockholders.

- If there are not enough investments that earn the hurdle rate, return the cash to stockholders.

- The hurdle rate should be higher for riskier projects.

- Invest in projects that yield a return greater than the minimum acceptable hurdle rate.

First Principles