Every decision that a business makes has financial implications, and any decision which affects the finances of a business is a corporate finance decision.

Defined broadly, everything that a business does fits under the rubric of corporate finance.
First Principles

Corporate Finance: The Big Picture

- **The hurdle rate**: Should reflect the riskiness of the investment and the mix of debt and equity used to fund it.
- **The return**: Should reflect the magnitude and the timing of the cashflows as well as all side effects.
- **The optimal mix of debt and equity**: Maximizes firm value.
- **The right kind of debt**: Matches the tenor of your assets.
- **How much cash you can return**: Depends upon current & potential investment opportunities.
- **How you choose to return cash to the owners**: Will depend whether they prefer dividends or buybacks.

**The Investment Decision**
Invest in assets that earn a return greater than the minimum acceptable hurdle rate.

**The Financing Decision**
Find the right kind of debt for your firm and the right mix of debt and equity to fund your operations.

**The Dividend Decision**
If you cannot find investments that make your minimum acceptable rate, return the cash to owners of your business.

Maximize the value of the business (firm)
The Objective in Decision Making

- In traditional corporate finance, the objective in decision making is to maximize the value of the firm.
- A narrower objective is to maximize stockholder wealth. When the stock is traded and markets are viewed to be efficient, the objective is to maximize the stock price.

Maximize firm value

Maximize equity value

Maximize market estimate of equity value

Assets

- Existing Investments
  - Generate cashflows today
  - Includes long lived (fixed) and short-lived (working capital) assets
- Expected Value that will be created by future investments

Liabilities

- Debt
  - Fixed Claim on cash flows
  - Little or No role in management
  - Fixed Maturity
  - Tax Deductible
- Equity
  - Residual Claim on cash flows
  - Significant Role in management
  - Perpetual Lives

 Assets in Place

Growth Assets
The Classical Objective Function

STOCKHOLDERS
- Maximize stockholder wealth
- Hire & fire managers:
  - Board
  - Annual Meeting

BONDHOLDERS
- Lend Money
- Protect bondholder interests

MANAGERS
- Reveal information honestly and on time

FINANCIAL MARKETS
- No Social Costs
- Costs can be traced to firm

SOCIETY
- Markets are efficient and assess effect on value
What can go wrong?

STOCKHOLDERS
Have little control over managers
Managers put their interests above stockholders

BONDHOLDERS
Lend Money
Bondholders can get ripped off

Managers
Delay bad news or provide misleading information

SOCIETY
Significant Social Costs
Some costs cannot be traced to firm

FINANCIAL MARKETS
Markets make mistakes and can over react
Who’s on Board? The Disney Experience - 1997

Reveta F. Bowers 1,5
Head of School
Center for Early Education

Roy E. Disney 3
Vice Chairman
The Walt Disney Company

Michael D. Eisner 3
Chairman and Chief Executive Officer
The Walt Disney Company

Stanley P. Gold 4,5
President and Chief Executive Officer
Shamrock Holdings, Inc.

Sanford M. Litvack
Senior Executive Vice President and Chief of Corporate Operations
The Walt Disney Company

Ignacio E. Lozano, Jr. 1,2,4
Editor-in-Chief, LA OPINION

George J. Mitchell 5
Special Counsel
Verner, Liipfert, Bernhard, McPherson and Hand

Thomas S. Murphy
Former Chairman
Capital Cities/ABC, Inc.

Richard A. Nunis
Chairman
Walt Disney Attractions

Leo J. O’Donovan, S.J.
President
Georgetown University

Michael S. Ovitz 3
President
The Walt Disney Company

Sidney Poitier 2,4
Chief Executive Officer
Verdon-Cedric Productions

Irwin E. Russell 2,4
Attorney at Law

Robert A. M. Stern
Senior Partner Productions

E. Cardon Walker 1
Former Chairman and Chief Executive Officer
The Walt Disney Company

Raymond L. Watson 1,2,3
Vice Chairman
The Irvine Company

Gary L. Wilson 5
Co-Chairman
Northwest Airlines Corporation

1 Member of Audit Review Committee
2 Member of Compensation Committee
3 Member of Executive Committee
4 Member of Executive Performance Plan Committee
5 Member of Nominating Committee
Who is on Board? Falabella

<table>
<thead>
<tr>
<th>Chilean I.D. Number</th>
<th>Name</th>
<th>Title</th>
<th>Occupation</th>
<th>Member since</th>
<th>2016 Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 9.585.749-3</td>
<td>Carlo Solari Donaggio</td>
<td>Chairman</td>
<td>Civil Engineer</td>
<td>2011</td>
<td>17</td>
</tr>
<tr>
<td>2. 7.017.522-3</td>
<td>Juan Carlos Cortés Solari</td>
<td>Vice Chairman</td>
<td>Business Administrator</td>
<td>2002</td>
<td>16</td>
</tr>
<tr>
<td>3. 5.718.666-6</td>
<td>Hernán Büchi Buc</td>
<td>Director (Independent)</td>
<td>Civil Engineer</td>
<td>1996</td>
<td>15</td>
</tr>
<tr>
<td>4. 5.082.229-K</td>
<td>Sergio Cardone Solari</td>
<td>Director</td>
<td>Business Administrator</td>
<td>1986</td>
<td>17</td>
</tr>
<tr>
<td>5. 6.888.500-0</td>
<td>Carolina del Río Goudie</td>
<td>Director</td>
<td>Business Administrator</td>
<td>2011</td>
<td>15</td>
</tr>
<tr>
<td>6. 4.773.832-6</td>
<td>José Luis del Río Goudie</td>
<td>Director</td>
<td>Civil Engineer</td>
<td>2003</td>
<td>15</td>
</tr>
<tr>
<td>7. 8.717.000-4</td>
<td>Carlos Heller Solari</td>
<td>Director</td>
<td>Agricultural Engineer</td>
<td>2002</td>
<td>14</td>
</tr>
<tr>
<td>8. 7.005.097-8</td>
<td>María Cecilia Karlezi Solari</td>
<td>Director</td>
<td>Entrepreneur</td>
<td>2003</td>
<td>13</td>
</tr>
<tr>
<td>9. 8.506.868-7</td>
<td>Paola Cúneo Queirolo</td>
<td>Director</td>
<td>Business Administrator</td>
<td>2014</td>
<td>17</td>
</tr>
</tbody>
</table>

Does Falabella have an independent board?
- a. Yes
- b. No

Does Falabella have an effective board?
- a. Yes
- b. No

<table>
<thead>
<tr>
<th>Service</th>
<th>Directors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 3 years</td>
<td>-</td>
</tr>
<tr>
<td>Between 3 and 6 years</td>
<td>3</td>
</tr>
<tr>
<td>Between 6 and 9 years</td>
<td>-</td>
</tr>
<tr>
<td>Between 9 and 12 years</td>
<td>-</td>
</tr>
<tr>
<td>Over 12 Years</td>
<td>6</td>
</tr>
</tbody>
</table>
When traditional corporate financial theory breaks down, the solution is:

- To choose a different mechanism for corporate governance, i.e., assign the responsibility for monitoring managers to someone other than stockholders.
- To choose a different objective for the firm.
- To maximize stock price, but reduce the potential for conflict and breakdown:
  - Making managers (decision makers) and employees into stockholders
  - Protect lenders from expropriation
  - By providing information honestly and promptly to financial markets
  - Minimize social costs
A Market Based Solution

STOCKHOLDERS

Managers of poorly run firms are put on notice.

1. More activist investors
2. Hostile takeovers

Managers

1. More laws
2. Investor/Customer Backlash

Corporate Good Citizen Constraints

BONDHOLDERS

Protect themselves

1. Covenants
2. New Types

Firms are punished for misleading markets

FINANCIAL MARKETS

Investors and analysts become more skeptical
Application Test: Who owns/runs your firm?

- Who are the top stockholders in your firm?
- What are the potential conflicts of interests that you see emerging from this stockholding structure?

<table>
<thead>
<tr>
<th>Outside stockholders</th>
<th>Government</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Size of holding</td>
<td>- Managers</td>
</tr>
<tr>
<td>- Active or Passive?</td>
<td>- Length of tenure</td>
</tr>
<tr>
<td>- Short or Long term?</td>
<td>- Links to insiders</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inside stockholders</th>
<th>Lenders</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of stock held</td>
<td></td>
</tr>
<tr>
<td>Voting and non-voting shares</td>
<td></td>
</tr>
<tr>
<td>Control structure</td>
<td></td>
</tr>
</tbody>
</table>

Control of the firm
Splintering of Stockholders
Disney’s top stockholders in 2003
Falabella: Who’s in control?

FALABELLA OWNERSHIP STRUCTURE

- Auguri: 13%
- Bethia: 10%
- Corso: 12%
- San Vitto: 11%
- Liguria: 12%
- Amalfi: 2%
- Dersa: 17%
- Other shareholders: 23%

Aswath Damodaran
First Principles

Corporate Finance: The Big Picture

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Maximize the value of the business (firm)
What is Risk?

- Risk, in traditional terms, is viewed as a ‘negative’. Webster’s dictionary, for instance, defines risk as “exposing to danger or hazard”. The Chinese symbols for risk, reproduced below, give a much better description of risk:

危険

- The first symbol is the symbol for “danger”, while the second is the symbol for “opportunity”, making risk a mix of danger and opportunity. You cannot have one, without the other.
Alternatives to the CAPM

**Step 1: Defining Risk**

The risk in an investment can be measured by the variance in actual returns around an expected return:

- **Riskless Investment**
- **Low Risk Investment**
- **High Risk Investment**

![Graph showing expected returns (E(R)) for different levels of risk](#)

**Step 2: Differentiating between Rewarded and Unrewarded Risk**

- **Risk that is specific to investment (Firm Specific)**
  - Can be diversified away in a diversified portfolio
  - 1. each investment is a small proportion of portfolio
  - 2. risk averages out across investments in portfolio
  - The marginal investor is assumed to hold a “diversified” portfolio. Thus, only market risk will be rewarded and priced.

- **Risk that affects all investments (Market Risk)**
  - Cannot be diversified away since most assets are affected by it.

**Step 3: Measuring Market Risk**

<table>
<thead>
<tr>
<th>The CAPM</th>
<th>The APM</th>
<th>Multi-Factor Models</th>
<th>Proxy Models</th>
</tr>
</thead>
<tbody>
<tr>
<td>If there is 1. no private information 2. no transactions cost the optimal diversified portfolio includes every traded asset. Everyone will hold this market portfolio. <strong>Market Risk = Risk added by any investment to the market portfolio:</strong></td>
<td>If there are no arbitrage opportunities then the market risk of any asset must be captured by betas relative to factors that affect all investments. <strong>Market Risk = Risk exposures of any asset to market factors:</strong></td>
<td>Since market risk affects most or all investments, it must come from macro economic factors. <strong>Market Risk = Risk exposures of any asset to macro economic factors.</strong></td>
<td>In an efficient market, differences in returns across long periods must be due to market risk differences. Looking for variables correlated with returns should then give us proxies for this risk. <strong>Market Risk = Captured by the Proxy Variable(s)</strong></td>
</tr>
<tr>
<td>Beta of asset relative to Market portfolio (from a regression)</td>
<td>Betas of asset relative to unspecified market factors (from a factor analysis)</td>
<td>Betas of assets relative to specified macro economic factors (from a regression)</td>
<td>Equation relating returns to proxy variables (from a regression)</td>
</tr>
</tbody>
</table>
Inputs required to use the CAPM -

- The capital asset pricing model yields the following expected return:
  - Expected Return = Riskfree Rate + Beta * (Expected Return on the Market Portfolio - Riskfree Rate)

- To use the model we need three inputs:
  a. The current risk-free rate
  b. The expected market risk premium (the premium expected for investing in risky assets (market portfolio) over the riskless asset)
  c. The beta of the asset being analyzed.
I. A Riskfree Rate

- On a riskfree asset, the actual return is equal to the expected return. Therefore, there is no variance around the expected return.
- For an investment to be riskfree, then, it has to have:
  - No default risk
  - No reinvestment risk
- Time horizon matters: Thus, the riskfree rates in valuation will depend upon when the cash flow is expected to occur and will vary across time.
- Not all government securities are riskfree: Some governments face default risk and the rates on bonds issued by them will not be riskfree.
- The conventional practice of estimating riskfree rates is to use the government bond rate, with the government being the one that is in control of issuing that currency. That assumes that governments are default free, and to the extent that is not true, your risk free rate is not risk free.
Getting Risk Free Rates

- In US dollars in November 2013: I used the US ten-year T.Bond rate of 2.75% as my risk free rate in my analysis of Disney.

- For Falabella in July 2017, I started with the ten-year Chilean government bond rate of 4.12%. Chile was rated Aa3, with a default spread of 0.70%. The resulting risk free rate in Chilean pesos is 3.42%.

  Risk free rate in CLP = Government Bond Rate in CLP – Default Spread for Chile
  = 4.12% - 0.70% = 3.42%

- There are two other options available for me on Falabella:
  - Do everything in US dollars: The risk free rate would be the current US treasury bond rate of 2.25%.
  - Do everything in real terms: There is the option of doing your analysis in real terms, in which case your risk free rate will be a real risk free rate.
Risk free rates by currency: January 2017
But the risk free rate is "too low"
II. The Equity Risk Premium – A backward looking estimate

<table>
<thead>
<tr>
<th></th>
<th>Arithmetic Average</th>
<th>Geometric Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stocks - T. Bills</td>
<td>7.96%</td>
<td>6.11%</td>
</tr>
<tr>
<td>Stocks - T. Bonds</td>
<td>6.24%</td>
<td>4.62%</td>
</tr>
<tr>
<td></td>
<td>Std Error</td>
<td></td>
</tr>
<tr>
<td>1928-2016</td>
<td>2.13%</td>
<td>2.28%</td>
</tr>
<tr>
<td>1967-2016</td>
<td>6.57%</td>
<td>5.26%</td>
</tr>
<tr>
<td></td>
<td>Std Error</td>
<td></td>
</tr>
<tr>
<td>2007-2016</td>
<td>2.42%</td>
<td>2.74%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Historical premium for the US

- If you are going to use a historical risk premium, make it
  - Long term (because of the standard error)
  - Consistent with your risk free rate
  - A “compounded” average
- No matter which estimate you use, recognize that it is backward looking, is noisy and may reflect selection bias.
And a forward one..

Base year cash flow (last 12 mths)
Dividends (TTM): 45.39
+ Buybacks (TTM): 63.28
= Cash to investors (TTM): 108.67

Payout ratio assumed to stay stable. 108.67 growing @ 5.54% a year

Expected growth in next 5 years
Top down analyst estimate of earnings growth for S&P 500: 5.54%

Earnings and Cash flows grow @2.45% (set equal to risk free rate) a year forever.

You have to solve for the discount rate (r). I used the solver or Goal seek function in Excel

2238.83 = 114.69 \frac{1}{(1+r)} + 121.04 \frac{1}{(1+r)^2} + 127.75 \frac{1}{(1+r)^3} + 134.82 \frac{1}{(1+r)^4} + 142.28 \frac{1}{(1+r)^5} + \frac{142.28(1.0245)}{(r - 0.0245)(1+r)^5}

r = Implied Expected Return on Stocks = 8.14%

Minus

Risk free rate = T.Bond rate on 1/1/17 = 2.45%

Equals

Implied Equity Risk Premium (1/1/17) = 8.14% - 2.45% = 5.69%
Country Risk: Look at a country’s bond rating and default spreads as a start

- In this approach, the country equity risk premium is set equal to the default spread for the country, estimated in one of three ways:
  - The default spread on a dollar denominated bond issued by the country. (In July 2017, Chilean US $ bond rate of 3.05% was trading at a spread of 0.69% over the US T.Bond rate of 2.36%)
  - The sovereign CDS spread for the country. In July 2017, the ten year CDS spread for Chile was 1.15%. Netting out the CDS spread for the US of 0.34% would have yielded a net default spread of 0.81%
  - The default spread based on the local currency rating for the country. Chile’s sovereign local currency rating is Aa3 and the default spread for an Aa3 rated sovereign was about 0.70% in July 2017.

- Many analysts add this default spread to the US risk premium to come up with a risk premium for a country. This would yield a risk premium of 5.32% for Chile, if we use 4.62% as the US risk premium and the default spread based on the rating.
Beyond the default spread

- Country ratings measure default risk. While default risk premiums and equity risk premiums are highly correlated, one would expect equity spreads to be higher than debt spreads.

- Another is to multiply the bond default spread by the relative volatility of stock and bond prices in that market. Using this approach for Chile in January 2017, you would get:
  - Country Equity risk premium = Default spread on country bond* σ_{Country}
    - Country Equity / σ_{Country} Bond
      - Standard Deviation in Chilean Stock Market Select (Equity) = 18%
      - Standard Deviation in Chilean government bond = 14%
      - Default spread on Chilean $ bond = 0.70%
  - Chile Country Risk Premium = 0.70% (18%/14%) = 0.90%
  - Mature Market Premium in January 2017= 5.69%
  - Chile Total ERP = Mature Market Premium + CRP = 5.69% + 0.90% = 6.59%
<table>
<thead>
<tr>
<th>Country</th>
<th>TRP</th>
<th>E. Europe &amp; Russia</th>
<th>Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angola</td>
<td>10.90%</td>
<td>5.40%</td>
<td>11.22%</td>
</tr>
<tr>
<td>Benin</td>
<td>13.75%</td>
<td>8.25%</td>
<td></td>
</tr>
<tr>
<td>Botswana</td>
<td>7.15%</td>
<td>1.65%</td>
<td></td>
</tr>
<tr>
<td>Burkina Faso</td>
<td>13.75%</td>
<td>8.25%</td>
<td></td>
</tr>
<tr>
<td>Cameroon</td>
<td>13.75%</td>
<td>8.25%</td>
<td></td>
</tr>
<tr>
<td>Cape Verde</td>
<td>12.25%</td>
<td>6.75%</td>
<td></td>
</tr>
<tr>
<td>Egypt</td>
<td>17.50%</td>
<td>12.00%</td>
<td></td>
</tr>
<tr>
<td>Gabon</td>
<td>10.90%</td>
<td>5.40%</td>
<td></td>
</tr>
<tr>
<td>Ghana</td>
<td>12.25%</td>
<td>6.75%</td>
<td></td>
</tr>
<tr>
<td>Kenya</td>
<td>12.25%</td>
<td>6.75%</td>
<td></td>
</tr>
<tr>
<td>Morocco</td>
<td>9.63%</td>
<td>4.13%</td>
<td></td>
</tr>
<tr>
<td>Mozambique</td>
<td>12.25%</td>
<td>6.75%</td>
<td></td>
</tr>
<tr>
<td>Namibia</td>
<td>8.88%</td>
<td>3.38%</td>
<td></td>
</tr>
<tr>
<td>Nigeria</td>
<td>10.90%</td>
<td>5.40%</td>
<td></td>
</tr>
<tr>
<td>Rwanda</td>
<td>13.75%</td>
<td>8.25%</td>
<td></td>
</tr>
<tr>
<td>Senegal</td>
<td>12.25%</td>
<td>6.75%</td>
<td></td>
</tr>
<tr>
<td>South Africa</td>
<td>8.05%</td>
<td>2.55%</td>
<td></td>
</tr>
<tr>
<td>Tunisia</td>
<td>10.23%</td>
<td>4.73%</td>
<td></td>
</tr>
<tr>
<td>Uganda</td>
<td>12.25%</td>
<td>6.75%</td>
<td></td>
</tr>
<tr>
<td>Zambia</td>
<td>12.25%</td>
<td>6.75%</td>
<td></td>
</tr>
<tr>
<td>Bahrain</td>
<td>8.05%</td>
<td>2.55%</td>
<td></td>
</tr>
<tr>
<td>Israel</td>
<td>6.93%</td>
<td>1.43%</td>
<td></td>
</tr>
<tr>
<td>Jordan</td>
<td>12.25%</td>
<td>6.75%</td>
<td></td>
</tr>
<tr>
<td>Kuwait</td>
<td>6.40%</td>
<td>0.90%</td>
<td></td>
</tr>
<tr>
<td>Lebanon</td>
<td>12.25%</td>
<td>6.75%</td>
<td></td>
</tr>
<tr>
<td>Oman</td>
<td>6.93%</td>
<td>1.43%</td>
<td></td>
</tr>
<tr>
<td>Qatar</td>
<td>6.40%</td>
<td>0.90%</td>
<td></td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>6.70%</td>
<td>1.20%</td>
<td></td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td>6.40%</td>
<td>0.90%</td>
<td></td>
</tr>
<tr>
<td>Australia &amp; NZ</td>
<td>5.50%</td>
<td>0.00%</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>5.90%</td>
<td>0.00%</td>
<td></td>
</tr>
<tr>
<td>Cook Islands</td>
<td>12.25%</td>
<td>6.75%</td>
<td></td>
</tr>
<tr>
<td>New Zealand</td>
<td>5.50%</td>
<td>0.00%</td>
<td></td>
</tr>
<tr>
<td>AVG: GDP weighted average</td>
<td></td>
<td></td>
<td>6.72%</td>
</tr>
<tr>
<td>AVG: Total ERP</td>
<td></td>
<td></td>
<td>12.25%</td>
</tr>
<tr>
<td>AVG: Country risk premium</td>
<td></td>
<td></td>
<td>5.82%</td>
</tr>
</tbody>
</table>
Incorporation: The conventional practice on equity risk premiums is to estimate an ERP based upon where a company is incorporated. Thus, the cost of equity for Disney would be computed based on the US equity risk premium, because it is a US company, and the Brazilian ERP would be used for Vale, because it is a Brazilian company.

Operations: The more sensible practice on equity risk premium is to estimate an ERP based upon where a company operates. For Disney in 2013:

<table>
<thead>
<tr>
<th>Region/ Country</th>
<th>Proportion of Disney’s Revenues</th>
<th>ERP</th>
</tr>
</thead>
<tbody>
<tr>
<td>US &amp; Canada</td>
<td>82.01%</td>
<td>5.50%</td>
</tr>
<tr>
<td>Europe</td>
<td>11.64%</td>
<td>6.72%</td>
</tr>
<tr>
<td>Asia-Pacific</td>
<td>6.02%</td>
<td>7.27%</td>
</tr>
<tr>
<td>Latin America</td>
<td>0.33%</td>
<td>9.44%</td>
</tr>
<tr>
<td>Disney</td>
<td>100.00%</td>
<td>5.76%</td>
</tr>
</tbody>
</table>
A Template for Estimating the ERP – January 2017

ERP Estimation Procedure

Step 1: Mature Market Premium
Estimate the implied equity risk premium for S&P 500
In January 2017, ERP for S&P 500 was 5.69%

Step 2: Assess country risk
Check the sovereign local currency rating for the country, with Moody’s.
If rating not available on Moody’s, check on S&P & convert into Moody’s equivalent

Step 3: Convert country risk measure into an additional country risk premium for equity
If sovereign rating is less than AAA, get a default spread for the country, using one of:
1. Spread on sovereign bond in US$ 2. CDS spread 3. Ratings table
If there is no sovereign rating, get a country risk score from PRS.

Step 4: Estimate an ERP for country
Relative Equity Market Volatility = Std dev of emerging market equity index/ Std dev of emerging market bond index
ERP for country = US ERP + Default Spread * Relative Equity Market Volatility

In January 2017 = 1.23

Every six months (in January and July)

Aswath Damodaran
<table>
<thead>
<tr>
<th>Country</th>
<th>ERP</th>
<th>CRP</th>
<th>Country</th>
<th>ERP</th>
<th>CRP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algeria</td>
<td>13.72%</td>
<td>7.47%</td>
<td>Malawi</td>
<td>17.24%</td>
<td>10.99%</td>
</tr>
<tr>
<td>Brunei</td>
<td>9.75%</td>
<td>3.50%</td>
<td>Mali</td>
<td>13.90%</td>
<td>7.65%</td>
</tr>
<tr>
<td>Gambia</td>
<td>13.72%</td>
<td>7.47%</td>
<td>Myanmar</td>
<td>13.72%</td>
<td>7.47%</td>
</tr>
<tr>
<td>Guinea</td>
<td>20.00%</td>
<td>13.75%</td>
<td>Niger</td>
<td>17.24%</td>
<td>10.99%</td>
</tr>
<tr>
<td>Guinea-Bissau</td>
<td>12.48%</td>
<td>6.23%</td>
<td>Sierra Leone</td>
<td>16.61%</td>
<td>10.36%</td>
</tr>
<tr>
<td>Guyana</td>
<td>12.48%</td>
<td>6.23%</td>
<td>Somalia</td>
<td>20.00%</td>
<td>13.75%</td>
</tr>
<tr>
<td>Haiti</td>
<td>16.61%</td>
<td>10.36%</td>
<td>Sudan</td>
<td>20.00%</td>
<td>13.75%</td>
</tr>
<tr>
<td>Iran</td>
<td>11.22%</td>
<td>4.97%</td>
<td>Syria</td>
<td>20.00%</td>
<td>13.75%</td>
</tr>
<tr>
<td>Korea, D.P.R.</td>
<td>17.24%</td>
<td>10.99%</td>
<td>Tanzania</td>
<td>13.90%</td>
<td>7.65%</td>
</tr>
<tr>
<td>Liberia</td>
<td>17.24%</td>
<td>10.99%</td>
<td>Togo</td>
<td>13.72%</td>
<td>7.47%</td>
</tr>
<tr>
<td>Libya</td>
<td>20.00%</td>
<td>13.75%</td>
<td>Yemen, Republic</td>
<td>17.24%</td>
<td>10.99%</td>
</tr>
<tr>
<td>Madagascar</td>
<td>12.48%</td>
<td>6.23%</td>
<td>Zimbabwe</td>
<td>17.24%</td>
<td>10.99%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Region</th>
<th>ERP</th>
<th>CRP</th>
<th>Region</th>
<th>ERP</th>
<th>CRP</th>
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</thead>
<tbody>
<tr>
<td>Canada</td>
<td>5.69%</td>
<td>0.00%</td>
<td>USA</td>
<td>5.69%</td>
<td>0.00%</td>
</tr>
<tr>
<td>North America</td>
<td>5.69%</td>
<td>0.00%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Caribbean** 13.81% 8.12%

<table>
<thead>
<tr>
<th>Country</th>
<th>ERP</th>
<th>CRP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>14.93%</td>
<td>9.24%</td>
</tr>
<tr>
<td>Belize</td>
<td>18.48%</td>
<td>12.79%</td>
</tr>
<tr>
<td>Bolivia</td>
<td>10.81%</td>
<td>5.12%</td>
</tr>
<tr>
<td>Brazil</td>
<td>9.96%</td>
<td>4.27%</td>
</tr>
<tr>
<td>Chile</td>
<td>6.55%</td>
<td>0.86%</td>
</tr>
<tr>
<td>Colombia</td>
<td>8.40%</td>
<td>2.71%</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>9.24%</td>
<td>3.55%</td>
</tr>
<tr>
<td>Ecuador</td>
<td>14.93%</td>
<td>9.24%</td>
</tr>
<tr>
<td>El Salvador</td>
<td>14.93%</td>
<td>9.24%</td>
</tr>
<tr>
<td>Guatemala</td>
<td>9.24%</td>
<td>3.55%</td>
</tr>
<tr>
<td>Honduras</td>
<td>13.51%</td>
<td>7.82%</td>
</tr>
<tr>
<td>Mexico</td>
<td>7.40%</td>
<td>1.71%</td>
</tr>
<tr>
<td>Nicaragua</td>
<td>13.51%</td>
<td>7.82%</td>
</tr>
<tr>
<td>Panama</td>
<td>8.40%</td>
<td>2.71%</td>
</tr>
<tr>
<td>Paraguay</td>
<td>9.24%</td>
<td>3.55%</td>
</tr>
<tr>
<td>Peru</td>
<td>7.40%</td>
<td>1.71%</td>
</tr>
<tr>
<td>Suriname</td>
<td>12.09%</td>
<td>6.40%</td>
</tr>
<tr>
<td>Uruguay</td>
<td>8.40%</td>
<td>2.71%</td>
</tr>
<tr>
<td>Venezuela</td>
<td>19.89%</td>
<td>14.20%</td>
</tr>
<tr>
<td>Latin America</td>
<td>10.11%</td>
<td>4.42%</td>
</tr>
</tbody>
</table>

**AVG: GDP weighted average**

- Black #: Total ERP
- Red #: Country risk premium
- AVG: GDP weighted average

- **Eurasia**
  - Albania: 12.09% 6.40%
  - Armenia: 12.09% 6.40%
  - Azerbaijan: 9.24% 3.55%
  - Belarus: 16.34% 10.65%
  - Bosnia and Herzegovina: 14.93% 9.24%
  - Bulgaria: 8.40% 2.71%
  - Croatia: 9.36% 4.27%
  - Czech Republic: 6.69% 1.00%
  - Estonia: 6.69% 1.00%
  - Georgia: 10.81% 5.12%
  - Hungary: 8.81% 3.12%
  - Kazakhstan: 8.81% 3.12%
  - Kyrgyzstan: 13.51% 7.82%
  - Latvia: 7.40% 1.71%
  - Lithuania: 7.40% 1.71%
  - Macedonia: 10.81% 5.12%
  - Moldova: 14.93% 9.24%
  - Montenegro: 12.09% 6.40%
  - Poland: 6.30% 1.21%
  - Romania: 8.31% 3.12%
  - Russia: 9.34% 3.55%
  - Serbia: 12.09% 6.40%
  - Slovakia: 6.30% 1.21%
  - Slovenia: 8.31% 3.12%
  - Ukraine: 19.89% 14.20%
  - E.Europe: 9.09% 3.40%

- **Africa**
  - Angola: 12.09% 6.40%
  - Botswana: 6.90% 1.21%
  - Burkina Faso: 14.93% 9.24%
  - Cameroon: 13.51% 7.82%
  - Cape Verde: 13.51% 7.82%
  - Congo (DR): 14.93% 9.24%
  - Congo (Rep): 14.93% 9.24%
  - Côte d’Ivoire: 10.81% 5.12%
  - Egypt: 14.93% 9.24%
  - Ethiopia: 12.09% 6.40%
  - Gabon: 12.09% 6.40%
  - Ghana: 14.93% 9.24%
  - Kenya: 12.09% 6.40%
  - Morocco: 9.24% 3.55%
  - Mozambique: 19.89% 14.20%
  - Namibia: 8.81% 3.12%
  - Nigeria: 12.09% 6.40%
  - Rwanda: 13.51% 7.82%
  - Senegal: 12.09% 6.40%
  - South Africa: 8.40% 2.71%
  - Tunisia: 10.81% 5.12%
  - Uganda: 13.51% 7.82%
  - Zambia: 14.93% 9.24%
  - Africa: 11.98% 6.29%

- **Middle East**
  - Bahrain: 9.96% 4.27%
  - Iraq: 14.94% 9.25%
  - Israel: 6.69% 1.00%
  - Jordan: 12.09% 6.40%
  - Kuwait: 6.40% 0.71%
  - Lebanon: 13.51% 7.82%
  - Oman: 7.96% 2.27%
  - Qatar: 6.40% 0.71%
  - Ras Al Khaimah: 6.90% 1.21%
  - Saudi Arabia: 6.69% 1.00%
  - Sharjah: 7.40% 1.71%
  - United Arab Emirates: 6.40% 0.71%
  - Middle East: 7.50% 1.81%

- **Asia**
  - Bangladesh: 10.81% 5.12%
  - Cambodia: 13.51% 7.82%
  - China: 6.55% 0.86%
  - Fiji: 12.09% 6.40%
  - Hong Kong: 6.26% 0.57%
  - India: 8.81% 3.12%
  - Indonesia: 8.81% 3.12%
  - Japan: 6.69% 1.00%
  - Korea: 6.39% 0.70%
  - Macao: 6.55% 0.86%
  - Malaysia: 7.40% 1.71%
  - Mauritius: 7.95% 2.26%
  - Mongolia: 16.34% 10.65%
  - Pakistan: 14.93% 9.24%
  - Papua New Guinea: 13.51% 7.82%
  - Philippines: 8.40% 2.71%
  - Singapore: 5.69% 0.00%
  - Sri Lanka: 12.09% 6.40%
  - Taiwan: 6.55% 0.86%
  - Thailand: 7.95% 2.26%
  - Vietnam: 12.09% 6.40%
  - Asia: 7.12% 1.43%
### Falabella: Estimating the Equity Risk Premium in 2017

<table>
<thead>
<tr>
<th>Country</th>
<th>Revenues (in billions)</th>
<th>Weight</th>
<th>ERP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chile</td>
<td>CLP 2,769</td>
<td>53.52%</td>
<td>6.55%</td>
</tr>
<tr>
<td>Peru</td>
<td>CLP 1,429</td>
<td>27.62%</td>
<td>7.40%</td>
</tr>
<tr>
<td>Argentina</td>
<td>CLP 459</td>
<td>8.87%</td>
<td>14.94%</td>
</tr>
<tr>
<td>Colombia</td>
<td>CLP 350</td>
<td>6.76%</td>
<td>8.40%</td>
</tr>
<tr>
<td>Brazil</td>
<td>CLP 167</td>
<td>3.23%</td>
<td>9.96%</td>
</tr>
<tr>
<td>Falabella</td>
<td>CLP 5,174</td>
<td>100.00%</td>
<td>7.76%</td>
</tr>
</tbody>
</table>
III. The Beta

- The beta of a stock (asset) measures its exposure to market risk, i.e., the risk that cannot be diversified away by the marginal investors. It is therefore a measure of exposure to broad macroeconomic risk factors.

- The beta of a stock is standardized around one.
  - A beta that is greater than one indicates above-average risk
  - A beta that is close to one indicates average risk
  - A beta less than one indicates below average risk
  - A beta below zero is a indication of a market risk reducing investment

- Implications:
  - The weighted average beta of stocks in any market (even the most risky ones) is one. Thus, beta cannot carry the weight of country risk.
  - A stock can be risky and have a low beta, if most of the risk in the stock is firm-specific risk.
Measuring Beta

- The standard procedure is to regress stock returns ($R_j$) against market returns ($R_m$):
  \[ R_j = a + b R_m \]

- **Risk measure**: The slope of the regression ($b$) corresponds to the beta of the stock, and measures the riskiness of the stock. The regression yields a range on the beta that can be computed from the standard error of the beta estimate.
  - Plus (minus) one standard errors: 67% confidence interval
  - Plus (minus) two standard errors: 95% confidence interval

- **Performance measure**: The intercept ($a$) of the regression is a measure of how well or badly the stock performed during the period of the regression, after adjusting for risk and market performance. If the regression is run with raw returns, the intercept has to be compared to $R_f (1 - Beta)$ to measure what’s called **Jensen’s alpha ($a - R_f (1 - Beta)$)**
  - $a > R_f (1-b)$: Positive Jensen’s alpha = Stock did better than expected during regression period
  - $a = R_f (1-b)$: Zero Jensen’s alpha = Stock did better than expected during regression period
  - $a < R_f (1-b)$: Negative Jensen’s alpha = Stock did better than expected during regression period

- **Risk source**: The $R^2$ of the regression provides an estimate of the proportion of the risk (variance) of a firm that can be attributed to market risk.
Disney: Beta Regression

\[ Y = \text{WALT DISNEY CO/ THE} \]
\[ X = \text{S&P 500 INDEX} \]

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw BETA</td>
<td>1.245</td>
</tr>
<tr>
<td>Adjusted BETA</td>
<td>1.163</td>
</tr>
<tr>
<td>ALPHA(Intercept)</td>
<td>0.572</td>
</tr>
<tr>
<td>R^2(Correlation^2)</td>
<td>0.734</td>
</tr>
<tr>
<td>R(Correlation)</td>
<td>0.856</td>
</tr>
<tr>
<td>Std Dev of Error</td>
<td>3.985</td>
</tr>
<tr>
<td>Std Error of ALPHA</td>
<td>0.524</td>
</tr>
<tr>
<td>Std Error of BETA</td>
<td>0.099</td>
</tr>
<tr>
<td>t-Test</td>
<td>12.526</td>
</tr>
<tr>
<td>Significance</td>
<td>0.000</td>
</tr>
<tr>
<td>Last T-Value</td>
<td>-0.640</td>
</tr>
<tr>
<td>Last P-Value</td>
<td>0.262</td>
</tr>
<tr>
<td>Number of Points</td>
<td>59</td>
</tr>
</tbody>
</table>

- Beta = 1.25
- 73% of risk is from market
- 67% (95%) range on beta: 1.15 - 1.35 (1.05-1.45)

Jensen's alpha = 0.57% - (0.5%/12) (1-1.245) = 0.58%
Annualized = 7.19%
Falabella: Beta Regression
The problem with regression betas

- They are backward looking: By definition, a regression beta is backward looking because it is computed based upon past returns. Consequently, if a company’s business mix or financial leverage has changed during the regression period, the regression beta (even if well estimated) is no longer operational.

- They are subject to manipulation: Changing the market index used, the time period of the regression or even the return intervals (daily, weekly, monthly) can yield very different regression output.

- They are noisy: A regression slope (which is what we use as a beta) comes with a standard error, and if you regress a stock against a broad enough index, the regression beta should have a high standard error (it is a feature, not a bug).
Determinants of Betas

Beta of Equity (Levered Beta)

Beta of Firm (Unlevered Beta)

Financial Leverage:
Other things remaining equal, the greater the proportion of capital that a firm raises from debt, the higher its equity beta will be.

Implications
- Highly levered firms should have higher betas than firms with less debt.
- Equity Beta (Levered beta) = Unlev Beta (1 + (1 - t) (Debt/Equity Ratio))

Nature of product or service offered by company:
Other things remaining equal, the more discretionary the product or service, the higher the beta.

Implications
- Cyclical companies should have higher betas than non-cyclical companies.
- Luxury goods firms should have higher betas than basic goods.
- High priced goods/service firms should have higher betas than low priced goods/services firms.
- Growth firms should have higher betas.

Operating Leverage (Fixed Costs as percent of total costs):
Other things remaining equal, the greater the proportion of the costs that are fixed, the higher the beta of the company.

Implications
- Firms with high infrastructure needs and rigid cost structures should have higher betas than firms with flexible cost structures.
- Smaller firms should have higher betas than larger firms.
- Young firms should have higher betas than more mature firms.
## Disney’s business betas

<table>
<thead>
<tr>
<th>Business</th>
<th>Comparable firms</th>
<th>Sample size</th>
<th>Median Beta</th>
<th>Median D/E</th>
<th>Median Tax rate</th>
<th>Company Unlevered Beta</th>
<th>Median Cash/Firm Value</th>
<th>Business Unlevered Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media Networks</td>
<td>US firms in broadcasting business</td>
<td>26</td>
<td>1.43</td>
<td>71.09%</td>
<td>40.00%</td>
<td>1.0024</td>
<td>2.80%</td>
<td>1.0313</td>
</tr>
<tr>
<td>Parks &amp; Resorts</td>
<td>Global firms in amusement park business</td>
<td>20</td>
<td>0.87</td>
<td>46.76%</td>
<td>35.67%</td>
<td>0.6677</td>
<td>4.95%</td>
<td>0.7024</td>
</tr>
<tr>
<td>Studio Entertainment</td>
<td>US movie firms</td>
<td>10</td>
<td>1.24</td>
<td>27.06%</td>
<td>40.00%</td>
<td>1.0668</td>
<td>2.96%</td>
<td>1.0993</td>
</tr>
<tr>
<td>Consumer Products</td>
<td>Global firms in toys/games production &amp; retail</td>
<td>44</td>
<td>0.74</td>
<td>29.53%</td>
<td>25.00%</td>
<td>0.6034</td>
<td>10.64%</td>
<td>0.6752</td>
</tr>
<tr>
<td>Interactive</td>
<td>Global computer gaming firms</td>
<td>33</td>
<td>1.03</td>
<td>3.26%</td>
<td>34.55%</td>
<td>1.0085</td>
<td>17.25%</td>
<td>1.2187</td>
</tr>
</tbody>
</table>
## Disney’s Levered beta by division

<table>
<thead>
<tr>
<th>Business</th>
<th>Revenues</th>
<th>EV/Sales</th>
<th>Value of Business</th>
<th>Proportion of Disney</th>
<th>Unlevered beta</th>
<th>Value</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media Networks</td>
<td>$20,356</td>
<td>3.27</td>
<td>$66,580</td>
<td>49.27%</td>
<td>1.03</td>
<td>$66,579.81</td>
<td>49.27%</td>
</tr>
<tr>
<td>Parks &amp; Resorts</td>
<td>$14,087</td>
<td>3.24</td>
<td>$45,683</td>
<td>33.81%</td>
<td>0.70</td>
<td>$45,682.80</td>
<td>33.81%</td>
</tr>
<tr>
<td>Studio Entertainment</td>
<td>$5,979</td>
<td>3.05</td>
<td>$18,234</td>
<td>13.49%</td>
<td>1.10</td>
<td>$18,234.27</td>
<td>13.49%</td>
</tr>
<tr>
<td>Consumer Products</td>
<td>$3,555</td>
<td>0.83</td>
<td>$2,952</td>
<td>2.18%</td>
<td>0.68</td>
<td>$2,951.50</td>
<td>2.18%</td>
</tr>
<tr>
<td>Interactive</td>
<td>$1,064</td>
<td>1.58</td>
<td>$1,684</td>
<td>1.25%</td>
<td>1.22</td>
<td>$1,683.72</td>
<td>1.25%</td>
</tr>
<tr>
<td>Disney Operations</td>
<td><strong>$45,041</strong></td>
<td><strong>135,132</strong></td>
<td><strong>100.00%</strong></td>
<td><strong>0.9239</strong></td>
<td><strong>135,132.11</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Business</th>
<th>Unlevered beta</th>
<th>Value of business</th>
<th>D/E ratio</th>
<th>Levered beta</th>
<th>Cost of Equity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media Networks</td>
<td>1.0313</td>
<td>$66,580</td>
<td>10.03%</td>
<td>1.0975</td>
<td>9.07%</td>
</tr>
<tr>
<td>Parks &amp; Resorts</td>
<td>0.7024</td>
<td>$45,683</td>
<td>11.41%</td>
<td>0.7537</td>
<td>7.09%</td>
</tr>
<tr>
<td>Studio Entertainment</td>
<td>1.0993</td>
<td>$18,234</td>
<td>20.71%</td>
<td>1.2448</td>
<td>9.92%</td>
</tr>
<tr>
<td>Consumer Products</td>
<td>0.6752</td>
<td>$2,952</td>
<td>117.11%</td>
<td>1.1805</td>
<td>9.55%</td>
</tr>
<tr>
<td>Interactive</td>
<td>1.2187</td>
<td>$1,684</td>
<td>41.07%</td>
<td>1.5385</td>
<td>11.61%</td>
</tr>
<tr>
<td>Disney Operations</td>
<td>0.9239</td>
<td><strong>$135,132</strong></td>
<td>13.10%</td>
<td>1.0012</td>
<td>8.52%</td>
</tr>
</tbody>
</table>

Aswath Damodaran
### Estimating Bottom Up Betas: Falabella

<table>
<thead>
<tr>
<th>Business</th>
<th>Revenues</th>
<th>EV/Sales</th>
<th>Estimated Value</th>
<th>Weight</th>
<th>Unlevered Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail (General)</td>
<td>$2,886.00</td>
<td>0.7399</td>
<td>$2,135.37</td>
<td>23.24%</td>
<td>0.8148</td>
</tr>
<tr>
<td>Retail (Grocery and Food)</td>
<td>$2,001.00</td>
<td>0.6488</td>
<td>$1,298.32</td>
<td>14.13%</td>
<td>0.5678</td>
</tr>
<tr>
<td>Retail (Building Supply)</td>
<td>$1,372.00</td>
<td>1.4657</td>
<td>$2,010.92</td>
<td>21.88%</td>
<td>0.7273</td>
</tr>
<tr>
<td>Real Estate (General/Diversified)</td>
<td>$332.00</td>
<td>3.4183</td>
<td>$1,134.88</td>
<td>12.35%</td>
<td>0.6751</td>
</tr>
<tr>
<td>Banking</td>
<td>$497.00</td>
<td>5.2507</td>
<td>$2,609.58</td>
<td>28.40%</td>
<td>0.4490</td>
</tr>
<tr>
<td>Falabella</td>
<td>$7,088.00</td>
<td></td>
<td>$9,189.07</td>
<td></td>
<td>0.6396</td>
</tr>
</tbody>
</table>
## Falabella: Cost of Equity by Business

<table>
<thead>
<tr>
<th>Business</th>
<th>Unlevered Beta</th>
<th>D/E ratio</th>
<th>Levered Beta</th>
<th>Risk free</th>
<th>ERP</th>
<th>Cost of Equity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail (General)</td>
<td>0.8148</td>
<td>32.47%</td>
<td>1.0159</td>
<td>3.42%</td>
<td>8.31%</td>
<td>11.86%</td>
</tr>
<tr>
<td>Retail (Grocery and Food)</td>
<td>0.5678</td>
<td>32.47%</td>
<td>0.7079</td>
<td>3.42%</td>
<td>6.96%</td>
<td>8.35%</td>
</tr>
<tr>
<td>Retail (Building Supply)</td>
<td>0.7273</td>
<td>32.47%</td>
<td>0.9068</td>
<td>3.42%</td>
<td>6.94%</td>
<td>9.71%</td>
</tr>
<tr>
<td>Real Estate (General/Diversified)</td>
<td>0.6751</td>
<td>32.47%</td>
<td>0.8417</td>
<td>3.42%</td>
<td>6.55%</td>
<td>8.93%</td>
</tr>
<tr>
<td>Banking</td>
<td>0.4490</td>
<td>NA</td>
<td>0.8800</td>
<td>3.42%</td>
<td>8.49%</td>
<td>10.89%</td>
</tr>
<tr>
<td>Falabella</td>
<td>0.6396</td>
<td>32.47%</td>
<td>0.7974</td>
<td>3.42%</td>
<td>7.76%</td>
<td>9.61%</td>
</tr>
</tbody>
</table>

Different country mixes for different businesses
Discussion Issue

- The head of the supermarket business has come to you with a new acquisition of a supermarket chain in Brazil, that he would like you to fund. He claims that his analysis of the investment indicates that it will generate a return on equity of 12% (in Brazilian Reais). Would you fund it?
  a. Yes.
  b. No.

What return on equity would this investment need to make to be justified? Why? (The inflation rate in Reais is 7% whereas the inflation rate in pesos is 3%).
To convert a discount rate in one currency to another, all you need are expected inflation rates in the two currencies:

\[
(1 + \text{Cost of Equity in CLP}) \left( \frac{1 + \text{Inflation Rate}_{\text{Brazil}}}{1 + \text{Inflation Rate}_{\text{Chile}}} \right)
\]

To estimate the cost of equity that Falabella should use for a supermarket investment in Brazil, let’s start by estimating the cost of equity in Chilean pesos:

\[
\text{Cost of equity in CLP} = 3.42\% + 0.6499 (9.96\%) = 9.89\%
\]

The risk free rate is in US dollars, the beta is that of the supermarket business and the equity risk premium is for Brazil.

\[
\text{Cost of equity in } R = (1.0989) (1.07/1.03) -1 = 14.16\%
\]
Estimating the Cost of Debt

- If the firm has bonds outstanding, and the bonds are traded, the yield to maturity on a long-term, straight (no special features) bond can be used as the interest rate.

- If the firm is rated, use the rating and a typical default spread on bonds with that rating to estimate the cost of debt.

- If the firm is not rated,
  - and it has recently borrowed long term from a bank, use the interest rate on the borrowing or
  - estimate a synthetic rating for the company, and use the synthetic rating to arrive at a default spread and a cost of debt

- The cost of debt has to be estimated in the same currency as the cost of equity and the cash flows in the valuation.
Estimating Synthetic Ratings

- The rating for a firm can be estimated using the financial characteristics of the firm. In its simplest form, we can use just the interest coverage ratio:

  Interest Coverage Ratio = EBIT / Interest Expenses

- The interest coverage ratio measures how much operating income a firm generates relative to a dollar of interest expenses.

<table>
<thead>
<tr>
<th>Company</th>
<th>Operating income</th>
<th>Interest Expense</th>
<th>Interest coverage ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disney</td>
<td>$10,023</td>
<td>$444</td>
<td>22.57</td>
</tr>
<tr>
<td>Falabella</td>
<td>$1,056</td>
<td>$193</td>
<td>5.48</td>
</tr>
</tbody>
</table>
## Interest Coverage Ratios, Ratings and Default Spreads - November 2013

<table>
<thead>
<tr>
<th>Large cap (&gt; $5 billion)</th>
<th>Small cap or risky (&lt; $5 billion)</th>
<th>Rating is (S&amp;P/ Moody's)</th>
<th>Spread (11/13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 8.50</td>
<td>&gt; 12.5</td>
<td>Aaa/AAA</td>
<td>0.40%</td>
</tr>
<tr>
<td>6.5-8.5</td>
<td>9.5-12.5</td>
<td>Aa2/AA</td>
<td>0.70%</td>
</tr>
<tr>
<td>5.5-6.5</td>
<td>7.5-9.5</td>
<td>A1/A+</td>
<td>0.85%</td>
</tr>
<tr>
<td>4.25-5.5</td>
<td>6-7.5</td>
<td>A2/A</td>
<td>1.00%</td>
</tr>
<tr>
<td>3-4.25</td>
<td>4.5-6</td>
<td>A3/A-</td>
<td>1.30%</td>
</tr>
<tr>
<td>2.5-3</td>
<td>4-4.5</td>
<td>Baa2/BBB</td>
<td>2.00%</td>
</tr>
<tr>
<td>2.25-2.5</td>
<td>3.5-4</td>
<td>Ba1/BB+</td>
<td>3.00%</td>
</tr>
<tr>
<td>2-2.25</td>
<td>3-3.5</td>
<td>Ba2/BB</td>
<td>4.00%</td>
</tr>
<tr>
<td>1.75-2.25</td>
<td>2.5-3</td>
<td>B1/B+</td>
<td>5.50%</td>
</tr>
<tr>
<td>1.5-1.75</td>
<td>2-2.5</td>
<td>B2/B</td>
<td>6.50%</td>
</tr>
<tr>
<td>1.25-1.5</td>
<td>1.5-2</td>
<td>B3/B-</td>
<td>7.25%</td>
</tr>
<tr>
<td>0.8-1.25</td>
<td>1.25-1.5</td>
<td>Caa/CCC</td>
<td>8.75%</td>
</tr>
<tr>
<td>0.65-0.8</td>
<td>0.8-1.25</td>
<td>Ca2/CC</td>
<td>9.50%</td>
</tr>
<tr>
<td>0.2-0.65</td>
<td>0.5-0.8</td>
<td>C2/C</td>
<td>10.50%</td>
</tr>
<tr>
<td>&lt; 0.2</td>
<td>&lt; 0.5</td>
<td>D2/D</td>
<td>12.00%</td>
</tr>
</tbody>
</table>

Disney: Large cap, developed  
Falabella: Small cap, emerging

Disney: Large cap, developed  
Falabella: Small cap, emerging

22.57 ➔ AAA
5.58 ➔ A-
Synthetic versus Actual Ratings: Rated Firms

- Disney’s synthetic rating is AAA, whereas its actual rating is A. The difference can be attributed to any of the following:
  - Synthetic ratings reflect only the interest coverage ratio whereas actual ratings incorporate all of the other ratios and qualitative factors
  - Synthetic rating was based on 2013 operating income whereas actual rating reflects normalized earnings

  Cost of debt for Disney (pre-tax) = 2.75% + 1.00% = 3.75%
  After-tax cost of debt = 3.75% (1-.361) = 2.40%

- Falabella’s synthetic rating is A-, but the actual rating for dollar debt is, probably because it is Chile-based.

  Cost of debt for Falabella = Risk free rate + Default Spread_{Country} + Default Spread_{Company} = 3.42% + 0.70% + 1.25% = 5.37%
  After-tax cost of debt = 5.37% (1-.24) = 4.08%
# Divisional Costs of Capital: Disney and Falabella

## Disney

<table>
<thead>
<tr>
<th>Business</th>
<th>Cost of Equity</th>
<th>E/(D+E)</th>
<th>Cost of Debt</th>
<th>D/(D+E)</th>
<th>Cost of capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media Networks</td>
<td>9.07%</td>
<td>3.75%</td>
<td>36.10%</td>
<td>2.40%</td>
<td>9.12%</td>
</tr>
<tr>
<td>Parks &amp; Resorts</td>
<td>7.09%</td>
<td>3.75%</td>
<td>36.10%</td>
<td>2.40%</td>
<td>10.24%</td>
</tr>
<tr>
<td>Studio Entertainment</td>
<td>9.92%</td>
<td>3.75%</td>
<td>36.10%</td>
<td>2.40%</td>
<td>17.16%</td>
</tr>
<tr>
<td>Consumer Products</td>
<td>9.55%</td>
<td>3.75%</td>
<td>36.10%</td>
<td>2.40%</td>
<td>53.94%</td>
</tr>
<tr>
<td>Interactive</td>
<td>11.65%</td>
<td>3.75%</td>
<td>36.10%</td>
<td>2.40%</td>
<td>29.11%</td>
</tr>
<tr>
<td>Disney Operations</td>
<td>8.52%</td>
<td>3.75%</td>
<td>36.10%</td>
<td>2.40%</td>
<td>11.58%</td>
</tr>
</tbody>
</table>

## Falabella

<table>
<thead>
<tr>
<th>Business</th>
<th>Cost of Equity</th>
<th>E/(D+E)</th>
<th>Cost of Debt</th>
<th>D/(D+E)</th>
<th>Cost of capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail (General)</td>
<td>11.86%</td>
<td>75.49%</td>
<td>4.08%</td>
<td>24.51%</td>
<td>9.95%</td>
</tr>
<tr>
<td>Retail (Grocery and Food)</td>
<td>8.35%</td>
<td>75.49%</td>
<td>4.08%</td>
<td>24.51%</td>
<td>7.30%</td>
</tr>
<tr>
<td>Retail (Building Supply)</td>
<td>9.71%</td>
<td>75.49%</td>
<td>4.08%</td>
<td>24.51%</td>
<td>8.33%</td>
</tr>
<tr>
<td>Real Estate (General/Diversified)</td>
<td>8.93%</td>
<td>75.49%</td>
<td>4.08%</td>
<td>24.51%</td>
<td>7.74%</td>
</tr>
<tr>
<td>Banking</td>
<td>10.89%</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Falabella</td>
<td>9.61%</td>
<td>75.49%</td>
<td>4.08%</td>
<td>24.51%</td>
<td>8.25%</td>
</tr>
</tbody>
</table>
Back to First Principles

Chapters 3 & 4: Risk, Financing Mix and Hurdle Rates

- The hurdle rate should reflect the riskiness of the investment and the mix of debt and equity used to fund it.
- The return should reflect the magnitude and the timing of the cashflows as well as all side effects.
- The optimal mix of debt and equity maximizes firm value.
- The right kind of debt matches the tenor of your assets.
- How much cash you can return depends upon current & potential investment opportunities.
- How you choose to return cash to the owners will depend whether they prefer dividends or buybacks.

The Investment Decision
Invest in assets that earn a return greater than the minimum acceptable hurdle rate.

The Financing Decision
Find the right kind of debt for your firm and the right mix of debt and equity to fund your operations.

The Dividend Decision
If you cannot find investments that make your minimum acceptable rate, return the cash to owners of your business.

Maximize the value of the business (firm)
Measuring Returns Right: The Basic Principles

- Use cash flows rather than earnings. You cannot spend earnings.
- Use “incremental” cash flows relating to the investment decision, i.e., cashflows that occur as a consequence of the decision, rather than total cash flows.
- Use “time weighted” returns, i.e., value cash flows that occur earlier more than cash flows that occur later.

Earnings versus Cash Flows: A Disney Theme Park

- The theme parks to be built near Rio, modeled on Euro Disney in Paris and Disney World in Orlando.
- The complex will include a “Magic Kingdom” to be constructed, beginning immediately, and becoming operational at the beginning of the second year, and a second theme park modeled on Epcot Center at Orlando to be constructed in the second and third year and becoming operational at the beginning of the fourth year.
- The earnings and cash flows are estimated in nominal U.S. Dollars.
Step 1: Estimate Accounting Earnings on Project

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magic Kingdom - Revenues</td>
<td>$0</td>
<td>$1,000</td>
<td>$1,400</td>
<td>$1,700</td>
<td>$2,000</td>
<td>$2,200</td>
<td>$2,420</td>
<td>$2,662</td>
<td>$2,928</td>
<td>$2,987</td>
<td></td>
</tr>
<tr>
<td>Epcot Rio - Revenues</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$300</td>
<td>$500</td>
<td>$550</td>
<td>$605</td>
<td>$666</td>
<td>$732</td>
<td>$747</td>
<td></td>
</tr>
<tr>
<td>Resort &amp; Properties - Revenues</td>
<td>$0</td>
<td>$250</td>
<td>$350</td>
<td>$500</td>
<td>$625</td>
<td>$688</td>
<td>$756</td>
<td>$832</td>
<td>$915</td>
<td>$933</td>
<td></td>
</tr>
<tr>
<td><strong>Total Revenues</strong></td>
<td><strong>$1,250</strong></td>
<td><strong>$1,750</strong></td>
<td><strong>$2,500</strong></td>
<td><strong>$3,125</strong></td>
<td><strong>$3,438</strong></td>
<td><strong>$3,781</strong></td>
<td><strong>$4,159</strong></td>
<td><strong>$4,575</strong></td>
<td><strong>$4,667</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magic Kingdom – Direct Expenses</td>
<td>$0</td>
<td>$600</td>
<td>$840</td>
<td>$1,020</td>
<td>$1,200</td>
<td>$1,320</td>
<td>$1,452</td>
<td>$1,597</td>
<td>$1,757</td>
<td>$1,792</td>
<td></td>
</tr>
<tr>
<td>Epcot Rio – Direct Expenses</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$180</td>
<td>$300</td>
<td>$330</td>
<td>$363</td>
<td>$399</td>
<td>$439</td>
<td>$448</td>
<td></td>
</tr>
<tr>
<td>Resort &amp; Property – Direct Expenses</td>
<td>$0</td>
<td>$188</td>
<td>$263</td>
<td>$375</td>
<td>$469</td>
<td>$516</td>
<td>$567</td>
<td>$624</td>
<td>$686</td>
<td>$700</td>
<td></td>
</tr>
<tr>
<td><strong>Total Direct Expenses</strong></td>
<td><strong>$788</strong></td>
<td><strong>$1,103</strong></td>
<td><strong>$1,575</strong></td>
<td><strong>$1,969</strong></td>
<td><strong>$2,166</strong></td>
<td><strong>$2,382</strong></td>
<td><strong>$2,620</strong></td>
<td><strong>$2,882</strong></td>
<td><strong>$2,940</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depreciation &amp; Amortization</td>
<td>$50</td>
<td>$425</td>
<td>$469</td>
<td>$444</td>
<td>$372</td>
<td>$367</td>
<td>$364</td>
<td>$364</td>
<td>$366</td>
<td>$368</td>
<td></td>
</tr>
<tr>
<td>Allocated G&amp;A Costs</td>
<td>$0</td>
<td>$188</td>
<td>$263</td>
<td>$375</td>
<td>$469</td>
<td>$516</td>
<td>$567</td>
<td>$624</td>
<td>$686</td>
<td>$700</td>
<td></td>
</tr>
<tr>
<td><strong>Operating Income</strong></td>
<td><strong>-50</strong></td>
<td><strong>-150</strong></td>
<td><strong>-84</strong></td>
<td><strong>106</strong></td>
<td><strong>315</strong></td>
<td><strong>389</strong></td>
<td><strong>467</strong></td>
<td><strong>551</strong></td>
<td><strong>641</strong></td>
<td><strong>658</strong></td>
<td></td>
</tr>
<tr>
<td>Taxes</td>
<td>-$18</td>
<td>-$54</td>
<td>-$30</td>
<td>-$38</td>
<td>-$114</td>
<td>-$141</td>
<td>-$169</td>
<td>-$199</td>
<td>-$231</td>
<td>-$238</td>
<td></td>
</tr>
<tr>
<td><strong>Operating Income after Taxes</strong></td>
<td>-$32</td>
<td>-$96</td>
<td>-$54</td>
<td>$68</td>
<td>$202</td>
<td>$249</td>
<td>$299</td>
<td>$352</td>
<td>$410</td>
<td>$421</td>
<td></td>
</tr>
</tbody>
</table>

Direct expenses: 60% of revenues for theme parks, 75% of revenues for resort properties
Allocated G&A: Company G&A allocated to project, based on projected revenues. Two thirds of expense is fixed, rest is variable.
Taxes: Based on marginal tax rate of 36.1%

Aswath Damodaran
And the Accounting View of Return

<table>
<thead>
<tr>
<th>Year</th>
<th>After-tax Operating Income</th>
<th>BV of pre-project investment</th>
<th>BV of fixed assets</th>
<th>BV of Working capital</th>
<th>BV of Capital</th>
<th>Average BV of Capital</th>
<th>ROC(a)</th>
<th>ROC(b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td>500</td>
<td>2000</td>
<td>0</td>
<td>$2,500</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>-$32</td>
<td>$450</td>
<td>$3,000</td>
<td>$0</td>
<td>$3,450</td>
<td>$2,975</td>
<td>-1.07%</td>
<td>-1.28%</td>
</tr>
<tr>
<td>2</td>
<td>-$96</td>
<td>$400</td>
<td>$3,813</td>
<td>$63</td>
<td>$4,275</td>
<td>$3,863</td>
<td>-2.48%</td>
<td>-2.78%</td>
</tr>
<tr>
<td>3</td>
<td>-$54</td>
<td>$350</td>
<td>$4,145</td>
<td>$88</td>
<td>$4,582</td>
<td>$4,429</td>
<td>-1.22%</td>
<td>-1.26%</td>
</tr>
<tr>
<td>4</td>
<td>$68</td>
<td>$300</td>
<td>$4,027</td>
<td>$125</td>
<td>$4,452</td>
<td>$4,517</td>
<td>1.50%</td>
<td>1.48%</td>
</tr>
<tr>
<td>5</td>
<td>$202</td>
<td>$250</td>
<td>$3,962</td>
<td>$156</td>
<td>$4,368</td>
<td>$4,410</td>
<td>4.57%</td>
<td>4.53%</td>
</tr>
<tr>
<td>6</td>
<td>$249</td>
<td>$200</td>
<td>$3,931</td>
<td>$172</td>
<td>$4,302</td>
<td>$4,335</td>
<td>5.74%</td>
<td>5.69%</td>
</tr>
<tr>
<td>7</td>
<td>$299</td>
<td>$150</td>
<td>$3,931</td>
<td>$189</td>
<td>$4,270</td>
<td>$4,286</td>
<td>6.97%</td>
<td>6.94%</td>
</tr>
<tr>
<td>8</td>
<td>$352</td>
<td>$100</td>
<td>$3,946</td>
<td>$208</td>
<td>$4,254</td>
<td>$4,262</td>
<td>8.26%</td>
<td>8.24%</td>
</tr>
<tr>
<td>9</td>
<td>$410</td>
<td>$50</td>
<td>$3,978</td>
<td>$229</td>
<td>$4,257</td>
<td>$4,255</td>
<td>9.62%</td>
<td>9.63%</td>
</tr>
<tr>
<td>10</td>
<td>$421</td>
<td>$0</td>
<td>$4,010</td>
<td>$233</td>
<td>$4,243</td>
<td>$4,250</td>
<td>9.90%</td>
<td>9.89%</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.18%</td>
<td>4.11%</td>
</tr>
</tbody>
</table>

(a) Based upon book capital at the start of each year  
(b) Based upon average book capital over the year

Aswath Damodaran
Estimating a hurdle rate for Rio Disney

- We did estimate a cost of capital of 6.61% for the Disney theme park business, using a bottom-up levered beta of 0.7537 for the business.

- This cost of equity may not adequately reflect the additional risk associated with the theme park being in an emerging market.

- The only concern we would have with using this cost of equity for this project is that it may not adequately reflect the additional risk associated with the theme park being in an emerging market (Brazil). We first computed the Brazil country risk premium (by multiplying the default spread for Brazil by the relative equity market volatility) and then re-estimated the cost of equity:
  - Country risk premium for Brazil = 5.5% + 3% = 8.5%
  - Cost of Equity in US$ = 2.75% + 0.7537 (8.5%) = 9.16%

- Using this estimate of the cost of equity, Disney’s theme park debt ratio of 10.24% and its after-tax cost of debt of 2.40% (see chapter 4), we can estimate the cost of capital for the project:
  - Cost of Capital in US$ = 9.16% (0.8976) + 2.40% (0.1024) = 8.46%

Aswath Damodaran
A Tangent: From New to Existing Investments: ROC for the entire firm

How “good” are the existing investments of the firm?

Measuring ROC for existing investments..

<table>
<thead>
<tr>
<th>Company</th>
<th>EBIT (1-t)</th>
<th>BV of Debt</th>
<th>BV of Equity</th>
<th>Cash</th>
<th>BV of Capital</th>
<th>Return on Capital</th>
<th>Cost of Capital</th>
<th>ROC - Cost of Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disney</td>
<td>$6,920</td>
<td>$16,328</td>
<td>$41,958</td>
<td>$3,387</td>
<td>$54,899</td>
<td>12.61%</td>
<td>7.81%</td>
<td>4.80%</td>
</tr>
<tr>
<td>Falabella</td>
<td>835 CLP</td>
<td>3938 CLP</td>
<td>4812 CLP</td>
<td>1133 CLP</td>
<td>7616 CLP</td>
<td>10.54%</td>
<td>7.55%</td>
<td>2.99%</td>
</tr>
</tbody>
</table>
The cash flow view of this project...

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>After-tax Operating Income</td>
<td>-$32</td>
<td>-$96</td>
<td>-$54</td>
<td>$68</td>
<td>$202</td>
<td>$249</td>
<td>$299</td>
<td>$352</td>
<td>$410</td>
<td>$421</td>
<td></td>
</tr>
<tr>
<td>+ Depreciation &amp; Amortization</td>
<td>$0</td>
<td>$50</td>
<td>$425</td>
<td>$469</td>
<td>$444</td>
<td>$372</td>
<td>$367</td>
<td>$364</td>
<td>$366</td>
<td>$368</td>
<td></td>
</tr>
<tr>
<td>- Capital Expenditures</td>
<td>$2,500</td>
<td>$1,000</td>
<td>$1,188</td>
<td>$752</td>
<td>$276</td>
<td>$258</td>
<td>$285</td>
<td>$314</td>
<td>$330</td>
<td>$347</td>
<td>$350</td>
</tr>
<tr>
<td>- Change in non-cash Work Capital</td>
<td>$0</td>
<td>$63</td>
<td>$25</td>
<td>$38</td>
<td>$31</td>
<td>$16</td>
<td>$17</td>
<td>$19</td>
<td>$21</td>
<td>$5</td>
<td></td>
</tr>
<tr>
<td>Cashflow to firm</td>
<td>($2,500)</td>
<td>($982)</td>
<td>($921)</td>
<td>($361)</td>
<td>$198</td>
<td>$285</td>
<td>$314</td>
<td>$332</td>
<td>$367</td>
<td>$407</td>
<td>$434</td>
</tr>
</tbody>
</table>

To get from income to cash flow, we

I. added back all non-cash charges such as depreciation. Tax benefits:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depreciation</td>
<td>$50</td>
<td>$425</td>
<td>$469</td>
<td>$444</td>
<td>$372</td>
<td>$367</td>
<td>$364</td>
<td>$364</td>
<td>$366</td>
<td>$368</td>
</tr>
<tr>
<td>Tax Benefits from Depreciation</td>
<td>$18</td>
<td>$153</td>
<td>$169</td>
<td>$160</td>
<td>$134</td>
<td>$132</td>
<td>$132</td>
<td>$132</td>
<td>$132</td>
<td>$133</td>
</tr>
</tbody>
</table>

II. subtracted out the capital expenditures

III. subtracted out the change in non-cash working capital

Aswath Damodaran
The incremental cash flows on the project

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>After-tax Operating Income</td>
<td>-$32</td>
<td>-$96</td>
<td>-$54</td>
<td>$68</td>
<td>$202</td>
<td>$249</td>
<td>$299</td>
<td>$352</td>
<td>$410</td>
<td>$421</td>
<td></td>
</tr>
<tr>
<td>+ Depreciation &amp; Amortization</td>
<td>$0</td>
<td>$50</td>
<td>$425</td>
<td>$469</td>
<td>$444</td>
<td>$372</td>
<td>$367</td>
<td>$364</td>
<td>$364</td>
<td>$366</td>
<td>$368</td>
</tr>
<tr>
<td>- Capital Expenditures</td>
<td>$2,500</td>
<td>$1,000</td>
<td>$1,188</td>
<td>$752</td>
<td>$276</td>
<td>$258</td>
<td>$285</td>
<td>$314</td>
<td>$330</td>
<td>$347</td>
<td>$350</td>
</tr>
<tr>
<td>- Change in non-cash Working Capital</td>
<td>$0</td>
<td>$63</td>
<td>$25</td>
<td>$38</td>
<td>$31</td>
<td>$16</td>
<td>$17</td>
<td>$19</td>
<td>$21</td>
<td>$5</td>
<td></td>
</tr>
<tr>
<td>Cashflow to firm</td>
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<td>($982)</td>
<td>($921)</td>
<td>($361)</td>
<td>$198</td>
<td>$285</td>
<td>$314</td>
<td>$332</td>
<td>$367</td>
<td>$407</td>
<td>$434</td>
</tr>
<tr>
<td>+ Pre-project investment (sunk)</td>
<td>$500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Pre-project Depreciation * tax rate</td>
<td>$18</td>
<td>$18</td>
<td>$18</td>
<td>$18</td>
<td>$18</td>
<td>$18</td>
<td>$18</td>
<td>$18</td>
<td>$18</td>
<td>$18</td>
<td></td>
</tr>
<tr>
<td>+ Non-incremental Allocated Expense (1-t)</td>
<td>$0</td>
<td>$80</td>
<td>$112</td>
<td>$160</td>
<td>$200</td>
<td>$220</td>
<td>$242</td>
<td>$266</td>
<td>$292</td>
<td>$298</td>
<td></td>
</tr>
<tr>
<td>Incremental Cash flow to the firm</td>
<td>($2,000)</td>
<td>($1,000)</td>
<td>($860)</td>
<td>($267)</td>
<td>$340</td>
<td>$467</td>
<td>$516</td>
<td>$555</td>
<td>$615</td>
<td>$681</td>
<td>$715</td>
</tr>
</tbody>
</table>

$500 million has already been spent & $50 million in depreciation will exist anyway

2/3rd of allocated G&A is fixed. Add back this amount (1-t) Tax rate = 36.1%
In a project with a finite and short life, you would need to compute a salvage value, which is the expected proceeds from selling all of the investment in the project at the end of the project life. It is usually set equal to book value of fixed assets and working capital.

In a project with an infinite or very long life, we compute cash flows for a reasonable period, and then compute a terminal value for this project, which is the present value of all cash flows that occur after the estimation period ends.

Assuming the project lasts forever, and that cash flows after year 10 grow 2% (the inflation rate) forever, the present value at the end of year 10 of cash flows after that can be written as:

\[
\text{Terminal Value in year 10} = \frac{\text{CF in year 11}}{(\text{Cost of Capital} - \text{Growth Rate})} \\
= 715 \times (1.02) \times (0.0846 - 0.02) = \$ 11,275 \text{ million}
\]
Which yields a NPV of...

<table>
<thead>
<tr>
<th>Year</th>
<th>Annual Cashflow</th>
<th>Terminal Value</th>
<th>Present Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-$2,000</td>
<td></td>
<td>-$2,000</td>
</tr>
<tr>
<td>1</td>
<td>-$1,000</td>
<td></td>
<td>-$922</td>
</tr>
<tr>
<td>2</td>
<td>-$859</td>
<td></td>
<td>-$730</td>
</tr>
<tr>
<td>3</td>
<td>-$267</td>
<td></td>
<td>-$210</td>
</tr>
<tr>
<td>4</td>
<td>$340</td>
<td></td>
<td>$246</td>
</tr>
<tr>
<td>5</td>
<td>$466</td>
<td></td>
<td>$311</td>
</tr>
<tr>
<td>6</td>
<td>$516</td>
<td></td>
<td>$317</td>
</tr>
<tr>
<td>7</td>
<td>$555</td>
<td></td>
<td>$314</td>
</tr>
<tr>
<td>8</td>
<td>$615</td>
<td></td>
<td>$321</td>
</tr>
<tr>
<td>9</td>
<td>$681</td>
<td></td>
<td>$328</td>
</tr>
<tr>
<td>10</td>
<td>$715</td>
<td>$11,275</td>
<td>$5,321</td>
</tr>
</tbody>
</table>

Discounted at Rio Disney cost of capital of 8.46%
The IRR of this project

Internal Rate of Return = 12.60%

Aswath Damodaran
## Disney Theme Park: $R$ NPV

**Discount at $R$ cost of capital**

\[
\text{Discount at } R \text{ cost of capital} = (1.0846) \times (1.09/1.02) - 1 = 15.91\%
\]

**Expected Exchange Rate, \(t\)**

\[
\text{Expected Exchange Rate, } t = \text{Exchange Rate today} \times (1.09/1.02)^t
\]

<table>
<thead>
<tr>
<th>Year</th>
<th>Cashflow ($)</th>
<th>$R/$</th>
<th>Cashflow ($R)</th>
<th>Present Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-R$ 2,000.00</td>
<td>R$ 2.35</td>
<td>-R$ 4,700.00</td>
<td>-R$ 4,700.00</td>
</tr>
<tr>
<td>1</td>
<td>-R$ 1,000.00</td>
<td>R$ 2.51</td>
<td>-R$ 2,511.27</td>
<td>-R$ 2,166.62</td>
</tr>
<tr>
<td>2</td>
<td>-R$ 859.03</td>
<td>R$ 2.68</td>
<td>-R$ 2,305.29</td>
<td>-R$ 1,715.95</td>
</tr>
<tr>
<td>3</td>
<td>-R$ 267.39</td>
<td>R$ 2.87</td>
<td>-R$ 766.82</td>
<td>-R$ 492.45</td>
</tr>
<tr>
<td>4</td>
<td>R$ 340.22</td>
<td>R$ 3.06</td>
<td>R$ 1,042.63</td>
<td>R$ 577.68</td>
</tr>
<tr>
<td>5</td>
<td>R$ 466.33</td>
<td>R$ 3.27</td>
<td>R$ 1,527.21</td>
<td>R$ 730.03</td>
</tr>
<tr>
<td>6</td>
<td>R$ 516.42</td>
<td>R$ 3.50</td>
<td>R$ 1,807.31</td>
<td>R$ 745.36</td>
</tr>
<tr>
<td>7</td>
<td>R$ 555.08</td>
<td>R$ 3.74</td>
<td>R$ 2,075.89</td>
<td>R$ 738.63</td>
</tr>
<tr>
<td>8</td>
<td>R$ 614.95</td>
<td>R$ 4.00</td>
<td>R$ 2,457.65</td>
<td>R$ 754.45</td>
</tr>
<tr>
<td>9</td>
<td>R$ 681.46</td>
<td>R$ 4.27</td>
<td>R$ 2,910.36</td>
<td>R$ 770.81</td>
</tr>
<tr>
<td>10</td>
<td>R$ 11,989.85</td>
<td>R$ 4.56</td>
<td>R$ 54,719.84</td>
<td>R$ 12,503.50</td>
</tr>
</tbody>
</table>

\[
\text{NPV} = \frac{R\$ 7,745}{2.35} = \$ 3,296 \text{ Million}
\]

NPV is equal to NPV in dollar terms.
The investment analysis can be done entirely in equity terms, as well. The returns, cashflows and hurdle rates will all be defined from the perspective of equity investors.

- If using accounting returns,
  - Return will be Return on Equity (ROE) = Net Income/BV of Equity
  - ROE has to be greater than cost of equity

- If using discounted cashflow models,
  - Cashflows will be cashflows after debt payments to equity investors
  - Hurdle rate will be cost of equity
A New Supermarket Acquisition in Brazil: Cash Flows to Equity and NPV

Assume that Falabella is considering an acquisition of Sonda, the Brazilian supermarket chain for R$ 1 billion.

In 2016, Sonda generated net income of R$70 million on revenues of R$ 3.4 billion. After reinvestments and net debt issuances, the free cash flow to equity for the year was R$ 50 million.

Net Income = R$ 70 million
(minus) Reinvestment = R$ 30 million
(plus) Net Debt raised = R$ 10 million
FCFE = R$ 50 million

The net income and FCFE is expected to grow 8% a year in perpetuity, in $R terms.

The cost of equity, for a Brazilian supermarket investment, in $R and using the debt ratio that Falabella uses is 14.16%.
Valuing Sonda’s equity

- Value of Sonda’s equity
  = FCFE next year/ (Cost of equity – Expected growth rate)
  = R$50 (1.08)/ (.1416 - .08) = R$ 811.68 million

- Since the acquisition cost is R$ 1 billion, as a stand alone investment, this acquisition does not make sense.

- It is possible that Falabella could gain synergies that account for the difference, but if that is the rationale, you need specifics about what these synergies are and their effect on cash flows.
Macro Risks

- If Disney opens a new theme part in Rio, it will be exposed to exchange rate risk. Should Disney hedge this risk?
  a. Yes
  b. No

- If Falabella acquires Sonda, it will be exposed to exchange rate risk. Should Falabella hedge this risk?
  a. Yes
  b. No
Will the benefits persist if investors hedge the risk instead of the firm?

No

Yes

Let the risk pass through to investors and let them hedge the risk.

Hedge this risk. The benefits to the firm will exceed the costs

Is there a significant benefit in terms of higher cash flows or a lower discount rate?

No

Yes

Can marginal investors hedge this risk cheaper than the firm can?

No

Yes

Hedge this risk. The benefits to the firm will exceed the costs

Indifferent to hedging risk

Do not hedge this risk. The benefits are small relative to costs

Is there a significant benefit in terms of higher expected cash flows or a lower discount rate?

No

Yes

What is the cost to the firm of hedging this risk?

Negligible

High

Survival benefits (truncation risk)
- Protect against catastrophic risk
- Reduce default risk

Discount rate benefits
- Hedge "macro" risks (cost of equity)
- Reduce default risk (cost of debt or debt ratio)

Cash flow benefits
- Tax benefits
- Better project choices

Value Trade Off

Pricing Trade

\[ \text{Earnings Multiple} \times \text{Earnings} \]
- Effect on multiple
- Level
- Volatility

Aswath Damodaran
First Principles

Chapters 7 & 8: Financing Choices and an Optimal Mix

- The hurdle rate should reflect the riskiness of the investment and the mix of debt and equity used to fund it.
- The return should reflect the magnitude and the timing of the cashflows as well as all side effects.
- The optimal mix of debt and equity maximizes firm value.
- The right kind of debt matches the tenor of your assets.
- How much cash you can return depends upon current & potential investment opportunities.
- How you choose to return cash to the owners will depend whether they prefer dividends or buybacks.

The Investment Decision
Invest in assets that earn a return greater than the minimum acceptable hurdle rate.

The Financing Decision
Find the right kind of debt for your firm and the right mix of debt and equity to fund your operations.

The Dividend Decision
If you cannot find investments that make your minimum acceptable rate, return the cash to owners of your business.

Maximize the value of the business (firm)
### Debt: Summarizing the trade off

<table>
<thead>
<tr>
<th>Advantages of Debt</th>
<th>Disadvantages of debt</th>
</tr>
</thead>
</table>
| **1. Tax Benefit:** Interest expenses on debt are tax deductible but cash flows to equity are generally not.  
*Implication: The higher the marginal tax rate, the greater the benefits of debt.* | **1. Expected Bankruptcy Cost:** The expected cost of going bankrupt is a product of the probability of going bankrupt and the cost of going bankrupt. The latter includes both direct and indirect costs. The probability of going bankrupt will be higher in businesses with more volatile earnings and the cost of bankruptcy will also vary across businesses.  
*Implication:*  
1. Firms with more stable earnings should borrow more, for any given level of earnings.  
2. Firms with lower bankruptcy costs should borrow more, for any given level of earnings. |
| **2. Added Discipline:** Borrowing money may force managers to think about the consequences of the investment decisions a little more carefully and reduce bad investments.  
*Implication: As the separation between managers and stockholders increases, the benefits to using debt will go up.* | **2. Agency Costs:** Actions that benefit equity investors may hurt lenders. The greater the potential for this conflict of interest, the greater the cost borne by the borrower (as higher interest rates or more covenants).  
*Implication: Firms where lenders can monitor/control how their money is being used should be able to borrow more than firms where this is difficult to do.* |
| **3. Loss of flexibility:** Using up available debt capacity today will mean that you cannot draw on it in the future. This loss of flexibility can be disastrous if funds are needed and access to capital is shut off.  
*Implication:*  
1. Firms that can forecast future funding needs better should be able to borrow more.  
2. Firms with better access to capital markets should be more willing to borrow more today. |
Mechanics of Cost of Capital Estimation

1. Estimate the Cost of Equity at different levels of debt:
   Equity will become riskier -> Beta will increase -> Cost of Equity will increase.
   Estimation will use levered beta calculation

2. Estimate the Cost of Debt at different levels of debt:
   Default risk will go up and bond ratings will go down as debt goes up -> Cost of Debt will increase.
   To estimating bond ratings, we will use the interest coverage ratio (EBIT/Interest expense)

3. Estimate the Cost of Capital at different levels of debt

4. Calculate the effect on Firm Value and Stock Price.
Disney’s cost of capital schedule...

<table>
<thead>
<tr>
<th>Debt Ratio</th>
<th>Beta</th>
<th>Cost of Equity</th>
<th>Cost of Debt (after-tax)</th>
<th>WACC</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>0.9239</td>
<td>8.07%</td>
<td>2.01%</td>
<td>8.07%</td>
</tr>
<tr>
<td>10%</td>
<td>0.9895</td>
<td>8.45%</td>
<td>2.01%</td>
<td>7.81%</td>
</tr>
<tr>
<td>20%</td>
<td>1.0715</td>
<td>8.92%</td>
<td>2.01%</td>
<td>7.54%</td>
</tr>
<tr>
<td>30%</td>
<td>1.1770</td>
<td>9.53%</td>
<td>2.20%</td>
<td>7.33%</td>
</tr>
<tr>
<td>40%</td>
<td>1.3175</td>
<td>10.34%</td>
<td>2.40%</td>
<td>7.16%</td>
</tr>
<tr>
<td>50%</td>
<td>1.5143</td>
<td>11.48%</td>
<td>6.39%</td>
<td>8.93%</td>
</tr>
<tr>
<td>60%</td>
<td>1.8095</td>
<td>13.18%</td>
<td>7.35%</td>
<td>9.68%</td>
</tr>
<tr>
<td>70%</td>
<td>2.3762</td>
<td>16.44%</td>
<td>7.75%</td>
<td>10.35%</td>
</tr>
<tr>
<td>80%</td>
<td>3.6289</td>
<td>23.66%</td>
<td>8.97%</td>
<td>11.90%</td>
</tr>
<tr>
<td>90%</td>
<td>7.4074</td>
<td>45.43%</td>
<td>10.33%</td>
<td>13.84%</td>
</tr>
</tbody>
</table>
Extension to a firm with volatile earnings: Falabella’s Optimal Debt Ratio

<table>
<thead>
<tr>
<th>Debt Ratio</th>
<th>Beta</th>
<th>Cost of Equity</th>
<th>Bond Rating</th>
<th>Interest rate on debt</th>
<th>Tax Rate</th>
<th>Cost of Debt (after-tax)</th>
<th>WACC</th>
<th>Enterprise Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>0.6396</td>
<td>8.38%</td>
<td>Aaa/AAA</td>
<td>4.72%</td>
<td>24.00%</td>
<td>3.59%</td>
<td>8.38%</td>
<td>$17,503,548</td>
</tr>
<tr>
<td>10%</td>
<td>0.6936</td>
<td>8.80%</td>
<td>Aa2/AA</td>
<td>4.92%</td>
<td>24.00%</td>
<td>3.74%</td>
<td>8.30%</td>
<td>$17,822,098</td>
</tr>
<tr>
<td>20%</td>
<td>0.7611</td>
<td>9.33%</td>
<td>A3/A-</td>
<td>5.37%</td>
<td>24.00%</td>
<td>4.08%</td>
<td>8.28%</td>
<td>$17,892,292</td>
</tr>
<tr>
<td>30%</td>
<td>0.8479</td>
<td>10.00%</td>
<td>B3/B-</td>
<td>9.62%</td>
<td>24.00%</td>
<td>7.31%</td>
<td>9.19%</td>
<td>$12,032,681</td>
</tr>
<tr>
<td>40%</td>
<td>0.9986</td>
<td>11.17%</td>
<td>C2/C</td>
<td>14.62%</td>
<td>15.80%</td>
<td>12.31%</td>
<td>11.63%</td>
<td>$7,037,576</td>
</tr>
<tr>
<td>50%</td>
<td>1.1983</td>
<td>12.72%</td>
<td>C2/C</td>
<td>14.62%</td>
<td>12.64%</td>
<td>12.77%</td>
<td>12.75%</td>
<td>$6,184,629</td>
</tr>
<tr>
<td>60%</td>
<td>1.5254</td>
<td>15.26%</td>
<td>D2/D</td>
<td>18.12%</td>
<td>7.67%</td>
<td>16.73%</td>
<td>16.14%</td>
<td>$4,076,088</td>
</tr>
<tr>
<td>70%</td>
<td>2.0338</td>
<td>19.20%</td>
<td>D2/D</td>
<td>18.12%</td>
<td>6.58%</td>
<td>16.93%</td>
<td>17.61%</td>
<td>$3,651,308</td>
</tr>
<tr>
<td>80%</td>
<td>3.0507</td>
<td>27.09%</td>
<td>D2/D</td>
<td>18.12%</td>
<td>5.75%</td>
<td>17.08%</td>
<td>19.08%</td>
<td>$3,306,708</td>
</tr>
<tr>
<td>90%</td>
<td>6.1014</td>
<td>50.77%</td>
<td>D2/D</td>
<td>18.12%</td>
<td>5.12%</td>
<td>17.19%</td>
<td>20.55%</td>
<td>$3,021,543</td>
</tr>
</tbody>
</table>

Falabella’s actual debt ratio is 24.51% and its current cost of capital is 8.25%.

Aswath Damodaran
A Framework for Getting to the Optimal

Is the actual debt ratio greater than or lesser than the optimal debt ratio?

Actual > Optimal
Overlevered

Is the firm under bankruptcy threat?

Yes
Reduce Debt quickly
1. Equity for Debt swap
2. Sell Assets; use cash to pay off debt
3. Renegotiate with lenders

No
Does the firm have good projects?
ROE > Cost of Equity
ROC > Cost of Capital

Yes
Take good projects with new equity or with retained earnings.

No
1. Pay off debt with retained earnings.
2. Reduce or eliminate dividends
3. Issue new equity and pay off debt.

Actual < Optimal
Underlevered

Is the firm a takeover target?

Yes
Increase leverage quickly
1. Debt/Equity swaps
2. Borrow money & buy shares.

No
Does the firm have good projects?
ROE > Cost of Equity
ROC > Cost of Capital

Yes
Take good projects with debt.

No
Do your stockholders like dividends?

Yes
Pay Dividends

No
Buy back stock
Disney: Applying the Framework

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3. Renegotiate with lenders

No
Does the firm have good projects?
ROE > Cost of Equity
ROC > Cost of Capital

Yes
Take good projects with new equity or with retained earnings.

No
1. Pay off debt with retained earnings.
2. Reduce or eliminate dividends.
3. Issue new equity and pay off debt.

Actual < Optimal
Actual (11.58%) < Optimal (40%)

Is the firm a takeover target?

Yes
No. Large mkt cap & positive Jensen’s α

Yes
Increase leverage quickly
1. Debt/Equity swaps
2. Borrow money & buy shares.

No
Does the firm have good projects?
ROE > Cost of Equity
ROC > Cost of Capital

Yes
Take good projects With debt.

No
Do your stockholders like dividends?

Yes
Pay Dividends

No
Buy back stock
Is the actual debt ratio greater than or lesser than the optimal debt ratio?

- **Actual > Optimal**
  - Overlevered
  - Is the firm under bankruptcy threat?
    - Yes
      - Reduce Debt quickly
        1. Equity for Debt swap
        2. Sell Assets; use cash to pay off debt
        3. Renegotiate with lenders
    - No
      - Does the firm have good projects?
        - Yes
          - Take good projects with new equity or with retained earnings.
        - No
          - 1. Pay off debt with retained earnings.
          - 2. Reduce or eliminate dividends.
          - 3. Issue new equity and pay off debt.

- **Actual < Optimal**
  - Actual (24.5%) = Optimal (20-30%)
  - Does the firm have good projects?
    - Yes. ROC > Cost of capital
      - Take good projects with existing debt ratio
    - No
      - Use regular and special dividends to keep debt ratio stable.
The objective in designing debt is to make the cash flows on debt match up as closely as possible with the cash flows that the firm makes on its assets.

By doing so, we reduce our risk of default, increase debt capacity and increase firm value.
Designing Debt: Bringing it all together

Start with the cash flows on assets/projects

Define debt characteristics

Overlay tax preferences

Factor in agency conflicts between stock and bond holders

Consider information asymmetries

Duration  Currency  Effect of Inflation  Uncertainty about Future  Growth Patterns  Cyclicality & Other Effects

Duration/Maturity  Currency Mix  Fixed vs. Floating Rate
* More floating rate
  - if CF move with inflation
  - with greater uncertainty on future

Straight versus Convertible
* Convertible if cash flows low now but high exp. growth

Special Features on Debt
* Options to make cash flows on debt match cash flows on assets

Commodity Bonds  Catastrophe Notes

Design debt to have cash flows that match up to cash flows on the assets financed

Deductibility of cash flows for tax purposes  Differences in tax rates across different locales

If tax advantages are large enough, you might override results of previous step

Analyst Concerns
- Effect on EPS
- Value relative to comparables

Ratings Agency
- Effect on Ratios
- Ratios relative to comparables

Regulatory Concerns
- Measures used

Can securities be designed that can make these different entities happy?

Observability of Cash Flows by Lenders
- Less observable cash flows lead to more conflicts

Type of Assets financed
- Tangible and liquid assets create less agency problems

Existing Debt covenants
- Restrictions on Financing

If agency problems are substantial, consider issuing convertible bonds

Can securities be designed that can make these different entities happy?

Uncertainty about Future Cashflows
- When there is more uncertainty, it may be better to use short term debt

Credibility & Quality of the Firm
- Firms with credibility problems will issue more short term debt

Ifagency problems are substantial, consider issuing convertible bonds

Commodity Bonds  Convertibles  Puttable Bonds  Rating Sensitive Notes  LYONs

Operating Leases  MIPs  Surplus Notes

Zero Coupons
I. Disney’s perfect debt

<table>
<thead>
<tr>
<th>Business</th>
<th>Project Cash Flow Characteristics</th>
<th>Type of Financing</th>
</tr>
</thead>
</table>
| Studio entertainment | Movie projects are likely to  
• Be short-term  
• Have cash outflows primarily in dollars (because Disney makes most of its movies in the U.S.), but cash inflows could have a substantial foreign currency component (because of overseas revenues)  
• Have net cash flows that are heavily driven by whether the movie is a hit, which is often difficult to predict | Debt should be  
1. Short-term  
2. Mixed currency debt, reflecting audience make-up.  
3. If possible, tied to the success of movies. |
| Media networks    | Projects are likely to be  
1. Short-term  
2. Primarily in dollars, though foreign component is growing, especially for ESPN.  
3. Driven by advertising revenues and show success (Nielsen ratings) | Debt should be  
1. Short-term  
2. Primarily dollar debt  
3. If possible, linked to network ratings |
| Park resorts      | Projects are likely to be  
1. Very long-term  
2. Currency will be a function of the region (rather than country) where park is located.  
3. Affected by success of studio entertainment and media networks divisions | Debt should be  
1. Long-term  
2. Mix of currencies, based on tourist makeup at the park. |
| Consumer products | Projects are likely to be short- to medium-term and linked to the success of the movie division; most of Disney’s product offerings and licensing revenues are derived from their movie productions | Debt should be  
1. Medium-term  
2. Dollar debt |
| Interactive       | Projects are likely to be short-term, with high growth potential and significant risk. While cash flows will initially be primarily in US dollars, the mix of currencies will shift as the business ages. | Debt should be short-term, convertible US dollar debt. |
II. Falabella’s perfect debt

- **Typical investment**: Falabella’s typical investment is a new retail outlet, a department store, a supermarket or a home improvement outlet.

- **Recommendation**: If the property is acquired, the debt should be long term, fixed rate and in the currency of whichever country the property is in. If it is leased, the lease should be a long term lease, with flexibility built into the lease to allow for Falabella to abandon the lease if the retail outlet does not do as well as expected.

- **Actual**: The existing debt at Vale is primarily long term, local currency debt.
Chapter 10: Dividend Policy

The hurdle rate should reflect the riskiness of the investment and the mix of debt and equity used to fund it.

The return should reflect the magnitude and the timing of the cashflows as well as all side effects.

The optimal mix of debt and equity maximizes firm value.

The right kind of debt matches the tenor of your assets.

How much cash you can return depends upon current & potential investment opportunities.

How you choose to return cash to the owners will depend whether they prefer dividends or buybacks.

The Investment Decision: Invest in assets that earn a return greater than the minimum acceptable hurdle rate.

The Financing Decision: Find the right kind of debt for your firm and the right mix of debt and equity to fund your operations.

The Dividend Decision: If you cannot find investments that make your minimum acceptable rate, return the cash to owners of your business.

Maximize the value of the business (firm)
Assessing Dividend Policy

- Step 1: How much could the company have paid out during the period under question?
- Step 2: How much did the company actually pay out during the period in question?
- Step 3: How much do I trust the management of this company with excess cash?
  - How well did they make investments during the period in question?
  - How well has my stock performed during the period in question?
How much has the company returned to stockholders?

- As firms increasing use stock buybacks, we have to measure cash returned to stockholders as not only dividends but also buybacks.
- Looking at Disney & Falabella

<table>
<thead>
<tr>
<th>Year</th>
<th>Disney Dividends</th>
<th>Disney Buybacks</th>
<th>Falabella Dividends</th>
<th>Falabella Buybacks</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>$648</td>
<td>$648</td>
<td>2012</td>
<td>$291</td>
</tr>
<tr>
<td>2009</td>
<td>$653</td>
<td>$2,669</td>
<td>2013</td>
<td>$171</td>
</tr>
<tr>
<td>2010</td>
<td>$756</td>
<td>$4,993</td>
<td>2014</td>
<td>$179</td>
</tr>
<tr>
<td>2011</td>
<td>$1,076</td>
<td>$3,015</td>
<td>2015</td>
<td>$197</td>
</tr>
<tr>
<td>2012</td>
<td>$1,324</td>
<td>$4,087</td>
<td>2016</td>
<td>$216</td>
</tr>
<tr>
<td>2008-12</td>
<td>$4,457</td>
<td>$15,412</td>
<td></td>
<td>$1054</td>
</tr>
</tbody>
</table>
The Free Cashflow to Equity (FCFE) is a measure of how much cash 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’s assets and future growth.

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
## Disney’s FCFE and Cash Returned: 2008 – 2012

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Income</td>
<td>$6,136</td>
<td>$5,682</td>
<td>$4,807</td>
<td>$3,963</td>
<td>$3,307</td>
<td>$23,895</td>
</tr>
<tr>
<td>(Cap. Exp - Depr)</td>
<td>$604</td>
<td>$1,797</td>
<td>$1,718</td>
<td>$397</td>
<td>$122</td>
<td>$4,638</td>
</tr>
<tr>
<td>- δ Working Capital</td>
<td>($133)</td>
<td>$940</td>
<td>$950</td>
<td>$308</td>
<td>($109)</td>
<td>$1,956</td>
</tr>
<tr>
<td>Free CF to Equity (pre-debt)</td>
<td>$5,665</td>
<td>$2,945</td>
<td>$2,139</td>
<td>$3,258</td>
<td>$3,294</td>
<td>$17,301</td>
</tr>
<tr>
<td>+ Net Debt Issued</td>
<td>$1,881</td>
<td>$4,246</td>
<td>$2,743</td>
<td>$1,190</td>
<td>($235)</td>
<td>$9,825</td>
</tr>
<tr>
<td>= Free CF to Equity (actual debt)</td>
<td>$7,546</td>
<td>$7,191</td>
<td>$4,882</td>
<td>$4,448</td>
<td>$3,059</td>
<td>$27,126</td>
</tr>
<tr>
<td>Free CF to Equity (target debt ratio)</td>
<td>$5,720</td>
<td>$3,262</td>
<td>$2,448</td>
<td>$3,340</td>
<td>$3,296</td>
<td>$18,065</td>
</tr>
<tr>
<td>Dividends</td>
<td>$1,324</td>
<td>$1,076</td>
<td>$756</td>
<td>$653</td>
<td>$648</td>
<td>$4,457</td>
</tr>
<tr>
<td>Dividends + Buybacks</td>
<td>$5,411</td>
<td>$4,091</td>
<td>$5,749</td>
<td>$3,322</td>
<td>$1,296</td>
<td>$19,869</td>
</tr>
</tbody>
</table>

Disney returned about $1.5 billion more than the $18.1 billion it had available as FCFE with a normalized debt ratio of 11.58% (its current debt ratio).
## Falabella – Dividends versus FCFE

<table>
<thead>
<tr>
<th></th>
<th>Aggregate</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Income</td>
<td>$57,404</td>
<td>$5,740</td>
</tr>
<tr>
<td>Dividends</td>
<td>$36,766</td>
<td>$3,677</td>
</tr>
<tr>
<td>Dividend Payout Ratio</td>
<td>$1</td>
<td>$1</td>
</tr>
<tr>
<td>Stock Buybacks</td>
<td>$6,032</td>
<td>$603</td>
</tr>
<tr>
<td>Dividends + Buybacks</td>
<td>$42,798</td>
<td>$4,280</td>
</tr>
<tr>
<td>Cash Payout Ratio</td>
<td>$1</td>
<td></td>
</tr>
<tr>
<td>Free CF to Equity (pre-debt)</td>
<td>($1,903)</td>
<td>($190)</td>
</tr>
<tr>
<td>Free CF to Equity (actual debt)</td>
<td>$1,036</td>
<td>$104</td>
</tr>
<tr>
<td>Free CF to Equity (target debt)</td>
<td>$19,138</td>
<td>$1,914</td>
</tr>
<tr>
<td>Cash payout as % of pre-debt FCFE</td>
<td>FCFE negative</td>
<td></td>
</tr>
<tr>
<td>Cash payout as % of actual FCFE</td>
<td>4131.08%</td>
<td></td>
</tr>
<tr>
<td>Cash payout as % of target FCFE</td>
<td>223.63%</td>
<td></td>
</tr>
</tbody>
</table>
A Practical Framework for Analyzing Dividend Policy

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

What it could have paid out
Net Income
- (Cap Ex - Depn) (1-DR)
- Chg Working Capital (1-DR)
= FCFE

What it actually paid out
Dividends
+ Equity Repurchase

Firm pays out too little
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 pays out too much
FCFE < Dividends

What investment opportunities does the firm have?
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
Give managers the flexibility to keep cash and set dividends

Firm has history of poor project choice
Force managers to justify holding cash or return cash to stockholders

Firm has good projects
Firm should cut dividends and reinvest more

Firm has poor projects
Firm should deal with its investment problem first and then cut dividends
Can investors trust Falabella’s management?

- Given Falabella’s track record, if you were a Falabella common stockholder, would you be comfortable with Falabella’s dividend policy?
  - Yes
  - No
- If you were not comfortable, would you be able to change Falabella’s dividend policy?
  - Yes
  - No
First Principles

Chapter 12: Value and Corporate Decisions

- The hurdle rate should reflect the riskiness of the investment and the mix of debt and equity used to fund it.
- The return should reflect the magnitude and the timing of the cashflows as well as all side effects.
- The optimal mix of debt and equity maximizes firm value.
- The right kind of debt matches the tenor of your assets.
- How much cash you can return depends upon current & potential investment opportunities.
- How you choose to return cash to the owners will depend whether they prefer dividends or buybacks.

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The Dividend Decision
If you cannot find investments that make your minimum acceptable rate, return the cash to owners of your business.

Maximize the value of the business (firm)
The Ingredients that determine value.

Cashflows can be
a. After debt payments to equity
   - Dividends
   - Free Cashflow to Equity
b. Before debt payments to firm
   - Free Cashflow to Firm

Growth rate can be
a. In Equity Earnings
   - Net Income
   - Earnings per share
b. In Operating Earnings

Firm is in stable growth which it can sustain forever

Expected Cashflows during extraordinary growth phase

Discount the cashflows and terminal value to the present

Present value is
a. Value of equity, if cashflows to equity discounted at cost of equity
b. Value of operating assets of the firm, if cashflows to firm discounted at the cost of capital

Discount Rate can be
a. Cost of equity, if cashflows are equity cashflows
b. Cost of capital, if cashflows are to the firm
Good valuation = Story + Numbers

Favored Tools
- Accounting statements
- Excel spreadsheets
- Statistical Measures
- Pricing Data

Illusions/Delusions
1. Precision: Data is precise
2. Objectivity: Data has no bias
3. Control: Data can control reality

Favored Tools
- Anecdotes
- Experience (own or others)
- Behavioral evidence

Illusions/Delusions
1. Creativity cannot be quantified
2. If the story is good, the investment will be.
3. Experience is the best teacher

The Numbers People

A Good Valuation

The Narrative People
Disney - November 2013

Current Cashflow to Firm
EBIT(1-t) = 10,032(1-.31) = 6,920
- (Cap Ex - Deprecn) 3,629
- Chg Working capital 103
= FCF 3,188
Reinvestment Rate = 3,732/6920 = 53.93%
Return on capital = 12.61%

Expected Growth
.5393 * 1.261 = .068 or 6.8%

Return on Capital
12.61%

Reinvestment Rate
53.93%

Cost of Capital (WACC)
8.52% (0.885) + 2.40% (0.115) = 7.81%

Op. Assets 125,477
+ Cash: 3,931
+ Non op inv 2,849
- Debt 15,961
- Minority Int 2,721
= Equity 113,575
-Options 972

Value/Share $ 62.56

In November 2013, Disney was trading at $67.71/share

Beta
1.0013

ERP for operations
5.76%

D/E = 13.10%

Riskfree Rate:
Riskfree rate = 2.75%

Unlevered Beta for Sectors: 0.9239

Beta
1.00

Beta
1.0013

Return on Capital
12.61%

Reinvestment Rate
53.93%

Cost of Capital (WACC)
8.52% (0.885) + 2.40% (0.115) = 7.81%

Stable Growth
g = 2.75%; Beta = 1.00;
Debt %= 20%; k(debt)=3.75
Cost of capital = 7.29%
Tax rate=36.1%; ROC= 10%;
Reinvestment Rate=2.5/10=25%

Terminal Value$_{10}$ = 7,980/(.0729-.025) = 165,323

Cost of capital declines gradually to 7.29%

Expected Growth
.5393 * 1.261 = .068 or 6.8%

Current Cashflow to Firm
EBIT(1-t) = 10,032(1-.31) = 6,920
- (Cap Ex - Deprecn) 3,629
- Chg Working capital 103
= FCF 3,188
Reinvestment Rate = 3,732/6920 = 53.93%
Return on capital = 12.61%

First 5 years

<table>
<thead>
<tr>
<th>Year</th>
<th>EBIT * (1 - tax rate)</th>
<th>Reinvestment</th>
<th>FCF</th>
<th>Terminal Value$_{10}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$7,391</td>
<td>$3,985</td>
<td>$3,405</td>
<td>10,639</td>
</tr>
<tr>
<td>2</td>
<td>$7,893</td>
<td>$4,256</td>
<td>$3,637</td>
<td>2,660</td>
</tr>
<tr>
<td>3</td>
<td>$8,430</td>
<td>$4,546</td>
<td>$3,884</td>
<td>7,980</td>
</tr>
<tr>
<td>4</td>
<td>$9,003</td>
<td>$4,855</td>
<td>$4,148</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>$9,615</td>
<td>$5,185</td>
<td>$4,430</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>$10,187</td>
<td>$4,904</td>
<td>$5,283</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>$10,704</td>
<td>$4,534</td>
<td>$6,170</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>$11,156</td>
<td>$4,080</td>
<td>$7,076</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>$11,531</td>
<td>$3,550</td>
<td>$7,981</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>$11,819</td>
<td>$2,955</td>
<td>$8,864</td>
<td></td>
</tr>
</tbody>
</table>

Cost of Capital (WACC) = 8.52% (0.885) + 2.40% (0.115) = 7.81%

In November 2013, Disney was trading at $67.71/share

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Falabella: History

Revenue Growth (2012-17) = 10.8%
Operating Margin (2012-17) = 10.53%
Falabella

**The Story**

Falabella’s will continue with the status quo, growing at an aggressive rate and its operating margin, which is much higher than industry averages, will decline slightly to Falabella’s long term average. Its reinvestment to sustain growth will taper down to reflect industry averages, as the company continues to grow and it will maintain its current debt ratio (which is close to its optimal).

### The Assumptions

<table>
<thead>
<tr>
<th></th>
<th>Base year</th>
<th>Years 1-5</th>
<th>Years 6-10</th>
<th>After year 10</th>
<th>Link to story</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues (a)</td>
<td>10.99%</td>
<td>10.83%</td>
<td>3.42%</td>
<td>3.42%</td>
<td></td>
</tr>
<tr>
<td>Operating margin (b)</td>
<td>11.04%</td>
<td>11.04%</td>
<td>10.53%</td>
<td>10.53%</td>
<td></td>
</tr>
<tr>
<td>Tax rate</td>
<td>22.66%</td>
<td>22.66%</td>
<td>24.00%</td>
<td>24.00%</td>
<td></td>
</tr>
<tr>
<td>Reinvestment (c)</td>
<td>8.25%</td>
<td>8.25%</td>
<td>7.92%</td>
<td>7.92%</td>
<td></td>
</tr>
</tbody>
</table>

**The Cash Flows**

<table>
<thead>
<tr>
<th></th>
<th>Revenues</th>
<th>Operating Margin</th>
<th>EBIT</th>
<th>EBIT (1-t)</th>
<th>Reinvestment</th>
<th>FCFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10.99%</td>
<td>$1,057,249</td>
<td>$817,677</td>
<td>$354,060</td>
<td>$463,616</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>10.94%</td>
<td>$1,166,342</td>
<td>$902,049</td>
<td>$392,405</td>
<td>$509,644</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>10.88%</td>
<td>$1,286,664</td>
<td>$995,106</td>
<td>$434,903</td>
<td>$560,203</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>10.83%</td>
<td>$1,419,368</td>
<td>$1,097,739</td>
<td>$482,003</td>
<td>$615,737</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>10.78%</td>
<td>$1,565,725</td>
<td>$1,210,932</td>
<td>$534,204</td>
<td>$676,728</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>10.73%</td>
<td>$1,704,040</td>
<td>$1,313,337</td>
<td>$511,039</td>
<td>$802,298</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>10.68%</td>
<td>$1,829,397</td>
<td>$1,405,050</td>
<td>$470,219</td>
<td>$934,831</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>10.63%</td>
<td>$1,936,949</td>
<td>$1,482,463</td>
<td>$411,646</td>
<td>$1,070,817</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>10.58%</td>
<td>$2,022,209</td>
<td>$1,542,298</td>
<td>$336,264</td>
<td>$1,206,034</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>10.53%</td>
<td>$2,081,348</td>
<td>$1,581,824</td>
<td>$246,103</td>
<td>$1,335,721</td>
<td></td>
</tr>
<tr>
<td>Terminal year</td>
<td>10.53%</td>
<td>$2,152,530</td>
<td>$1,635,923</td>
<td>$706,421</td>
<td>$929,502</td>
<td></td>
</tr>
</tbody>
</table>

### The Value

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal value</td>
<td>$20,655,591</td>
<td></td>
</tr>
<tr>
<td>PV(Terminal value)</td>
<td>$9,434,847</td>
<td></td>
</tr>
<tr>
<td>PV (CF over next 10 years)</td>
<td>$5,019,781</td>
<td></td>
</tr>
<tr>
<td>Value of operating assets</td>
<td>$14,454,628</td>
<td></td>
</tr>
<tr>
<td>Adjustment for distress</td>
<td>$-</td>
<td>Probability of failure = 0.00%</td>
</tr>
<tr>
<td>- Debt &amp; Minority Interests</td>
<td>$5,818,846</td>
<td></td>
</tr>
<tr>
<td>+ Cash &amp; Other Non-operating assets</td>
<td>$1,497,330</td>
<td></td>
</tr>
<tr>
<td>Value of equity</td>
<td>$10,133,111</td>
<td></td>
</tr>
<tr>
<td>- Value of equity options</td>
<td>$-</td>
<td></td>
</tr>
<tr>
<td>Number of shares</td>
<td>2,434.46</td>
<td></td>
</tr>
<tr>
<td>Value per share</td>
<td>$4,162.37</td>
<td></td>
</tr>
</tbody>
</table>

Stock was trading at = $5,959.50
Value Creation 1: Increase Cash Flows from Assets in Place

- More efficient operations and cost cutting: Higher Margins
- Divest assets that have negative EBIT
- Reduce tax rate
  - moving income to lower tax locales
  - transfer pricing
  - risk management

Revenues
* Operating Margin
= EBIT
- Tax Rate * EBIT
= EBIT (1-t)
+ Depreciation
- Capital Expenditures
- Chg in Working Capital
= FCFF

- Live off past over-investment
- Better inventory management and tighter credit policies
Value Creation 2: Increase Expected Growth

- Keeping all else constant, increasing the expected growth in earnings will increase the value of a firm, but only if the firm earns a return on capital that exceeds the cost of capital:

\[
\text{Reinvestment Rate} \times \text{Return on Capital} = \text{Expected Growth Rate}
\]

- Reinvest more in projects
- Do acquisitions
- Increase operating margins
- Increase capital turnover ratio
A postscript on creating growth: The Role of Acquisitions and Divestitures

- An acquisition is just a large-scale project. All of the rules that apply to individual investments apply to acquisitions, as well. For an acquisition to create value, it has to
  - Generate a higher return on capital, after allowing for synergy and control factors, than the cost of capital.
  - Put another way, an acquisition will create value only if the present value of the cash flows on the acquired firm, inclusive of synergy and control benefits, exceeds the cost of the acquisitions.

- A divestiture is the reverse of an acquisition, with a cash inflow now (from divesting the assets) followed by cash outflows (i.e., cash flows foregone on the divested asset) in the future. If the present value of the future cash outflows is less than the cash inflow today, the divestiture will increase value.

- A fair-price acquisition or divestiture is value neutral.
Value Creating Growth… Evaluating the Alternatives.

Modes of organic growth vary in value creation intensity—consumer goods industry

<table>
<thead>
<tr>
<th>Category of growth</th>
<th>Shareholder value created for incremental $1 million of growth/ target acquisition size</th>
<th>Revenue growth/ acquisition size necessary to double typical company’s share price/$ billions</th>
</tr>
</thead>
<tbody>
<tr>
<td>New-product market development</td>
<td>1.75–2.00</td>
<td>5–6</td>
</tr>
<tr>
<td>Expanding an existing market</td>
<td>0.30–0.75</td>
<td>13–33</td>
</tr>
<tr>
<td>Maintaining/growing share in a growing market</td>
<td>0.10–0.50</td>
<td>20–100</td>
</tr>
<tr>
<td>Competing for share in a stable market</td>
<td>−0.25–0.40</td>
<td>n/m–25</td>
</tr>
<tr>
<td>Acquisition (25th to 75th percentile result)</td>
<td>−0.5–0.20</td>
<td>n/m–50</td>
</tr>
</tbody>
</table>
III. Building Competitive Advantages: Increase length of the growth period

*Increase length of growth period*

- Build on existing competitive advantages
- Find new competitive advantages
  - Brand name
  - Legal Protection
  - Switching Costs
  - Cost advantages
Value Creation 4: Reduce Cost of Capital

Cost of Equity \( \frac{E}{(D+E)} \) + Pre-tax Cost of Debt \( \frac{D}{(D+E)} \) = Cost of Capital

- Change financing mix
  - Match debt to assets, reducing default risk
    - Swaps
    - Derivatives
    - Hybrids
  - More effective advertising
- Reduce operating leverage
- Make product or service less discretionary to customers
- Changing product characteristics
- Flexible wage contracts & cost structure
- Outsourcing
  - Flexible wage contracts & cost structure

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You can always play the pricing game.

The market gives...

And takes away....

NAME THAT STOCK

New Markets, New Names
In the bull market, adding dot-com to a company name made a stock soar. Lately those zippy new monikers are disappearing.

New Name, Higher Price
But the stocks still get a bounce when dot-com goes away. Chart shows returns in the days before and after the name change.

Sources: Thomson Datastream; P. BaglaVerdia Raj, Michael J. Cooper, Igor Olevici, Purdue Univ.; Arv Ngoranav, Virginia Univ.; Arv Patel, Whirl Forest Univ.
Ways of changing value...

- **Cashflows from existing assets**
  Cashflows before debt payments, but after taxes and reinvestment to maintain existing assets

- **Growth from new investments**
  Growth created by making new investments; function of amount and quality of investments

- **Efficiency Growth**
  Growth generated by using existing assets better

- **Expected Growth during high growth period**

- **Length of the high growth period**
  Since value creating growth requires excess returns, this is a function of
  - Magnitude of competitive advantages
  - Sustainability of competitive advantages

- **Stable growth firm, with no or very limited excess returns**

- **Cost of capital to apply to discounting cashflows**
  Determined by
  - Operating risk of the company
  - Default risk of the company
  - Mix of debt and equity used in financing

- **Are you investing optimally for future growth?**

- **Are you managing your existing investments/assets?**

- **Are you building on your competitive advantages?**

- **Are you using the right amount and kind of debt for your firm?**

- **Is there scope for more efficient utilization of existing assets?**
Disney (Restructured) - November 2013

Current Cashflow to Firm
EBIT(1-t) = 10,032(1-.31) = 6,920
- (Cap Ex - Deprec) 3,629
- Chg Working capital 103
= FCFF 3,188
Reinvestment Rate = 3,732/6920 =53.93%
Return on capital = 12.61%

Op. Assets 147,704
+ Cash: 3,931
+ Non op inv 2,849
- Debt 15,961
- Minority Int 2,721
=Equity 135,802
-Opts 972
Value/Share $ 74.91

EBIT * (1 - tax rate) $7,404 $7,923 $8,477 $9,071 $9,706 $10,298 $10,833 $11,299 $11,683 $11,975
- Reinvestment $3,702 $3,961 $4,239 $4,535 $4,853 $4,634 $4,333 $3,955 $3,505 $2,994
Free Cashflow to Firm $3,702 $3,961 $4,239 $4,535 $4,853 $4,634 $4,333 $3,955 $3,505 $2,994

Expected Growth .50*.14 = .07 or 7%
Stable Growth
g = 2.75%; Beta = 1.20; Debt % = 40%; k(debt)=3.75%
Cost of capital =6.76%
Tax rate=36.1%; ROC= 10%;
Reinvestment Rate=2.5/10=25%
Terminal Value_{10} = 9,206/(.0676-.025) = 216,262

Cost of Capital (WACC) = 8.52% (0.60) + 2.40%(0.40) = 7.16%
Cost of Equity 10.34%
Riskfree Rate: Riskfree rate = 2.75%
Beta 1.3175
ERP for operations 5.76%
Unlevered Beta for Sectors: 0.9239
D/E=66.67%

In November 2013, Disney was trading at $67.71/share
Move to optimal debt ratio, with higher beta.

First 5 years

<table>
<thead>
<tr>
<th>Year</th>
<th>Expected Growth</th>
<th>Reinvestment Rate</th>
<th>More selective acquisitions &amp; payoff from gaming</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>50.00%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In November 2013, Disney was trading at $67.71/share
Move to optimal debt ratio, with higher beta.
A Roadmap to destroying value: Petrobras (2015)

Step 1: Reinvest a lot, and reinvest badly.

Step 2: Grow revenues, while letting profit margins slide

Step 3: Pay dividends like a utility

Step 4: Borrow money to cover the difference

Step 5: Mission Accomplished
First Principles

Corporate Finance: The Big Picture

The hurdle rate should reflect the riskiness of the investment and the mix of debt and equity used to fund it.

The return should reflect the magnitude and the timing of the cashflows as well as all side effects.

The optimal mix of debt and equity maximizes firm value.

The right kind of debt matches the tenor of your assets.

How much cash you can return depends upon current & potential investment opportunities.

How you choose to return cash to the owners will depend whether they prefer dividends or buybacks.

The Investment Decision
Invest in assets that earn a return greater than the minimum acceptable hurdle rate.

The Financing Decision
Find the right kind of debt for your firm and the right mix of debt and equity to fund your operations.

The Dividend Decision
If you cannot find investments that make your minimum acceptable rate, return the cash to owners of your business.

Maximize the value of the business (firm)