INVESTMENT RETURNS III: LOOSE ENDS

No garnishing allowed in investment analysis.
Set Up and Objective
1: What is corporate finance
2: The Objective: Utopia and Let Down
3: The Objective: Reality and Reaction

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

Hurdle Rate
4. Define & Measure Risk
5. The Risk free Rate
6. Equity Risk Premiums
7. Country Risk Premiums
8. Regression Betas
9. Beta Fundamentals
10. Bottom-up Betas
11. The "Right" Beta
12. Debt: Measure & Cost
13. Financing Weights

Investment Return
14. Earnings and Cash flows
15. Time Weighting Cash flows
16. Loose Ends

Financing Mix
17. The Trade off
18. Cost of Capital Approach
19. Cost of Capital: Follow up
20. Cost of Capital: Wrap up
21. Alternative Approaches
22. Moving to the optimal

Financing Type
23. The Right Financing

Dividend Policy
24. Trends & Measures
25. The trade off
26. Assessment
27. Action & Follow up
28. The End Game

Valuation
29. First steps
30. Cash flows
31. Growth
32. Terminal Value
33. To value per share
34. The value of control
35. Relative Valuation

36. Closing Thoughts
## Rio Disney: The US Dollar Assessment

<table>
<thead>
<tr>
<th>Year</th>
<th>Annual Cashflow</th>
<th>Terminal Value</th>
<th>Present Value</th>
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<td>$715</td>
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Discounted at Rio Disney cost of capital of 8.46%
Does the currency matter?

- The analysis was done in dollars. Would the conclusions have been any different if we had done the analysis in Brazilian Reais?
  
  a. Yes
  
  b. No
Disney Theme Park: $R NPV

Discount at $R cost of capital
= (1.0846) (1.09/1.02) – 1 = 15.91%

Expected Exchange Rate\textsubscript{t}
= Exchange Rate today \times (1.09/1.02)^t

<table>
<thead>
<tr>
<th>Year</th>
<th>Cashflow ($)</th>
<th>$R/$</th>
<th>Cashflow (Bt)</th>
<th>Present Value</th>
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<td>R$ 4.56</td>
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NPV = R$ 7,745/2.35 = $3,296 Million
NPV is equal to NPV in dollar terms
Uncertainty in Project Analysis: What can we do?

- Based on our expected cash flows and the estimated cost of capital, the proposed theme park looks like a very good investment for Disney. Which of the following may affect your assessment of value?
  a. Revenues may be overestimated (crowds may be smaller and spend less)
  b. Actual costs may be higher than estimated costs
  c. Tax rates may go up
  d. Interest rates may rise
  e. Risk premiums and default spreads may increase
  f. All of the above

- How would you respond to this uncertainty?
  a. Will wait for the uncertainty to be resolved
  b. Will not take the investment
  c. Ignore it.
  d. Other
One simplistic solution: See how quickly you can get your money back...

- If your biggest fear is losing the billions that you invested in the project, one simple measure that you can compute is the number of years it will take you to get your money back.

![Table showing cash flows and discounted cash flows](image)

Payback = 10.3 years

Discounted Payback = 16.8 years
A slightly more sophisticated approach: Sensitivity Analysis & What-if Questions...

- The NPV, IRR and accounting returns for an investment will change as we change the values that we use for different variables.

- One way of analyzing uncertainty is to check to see how sensitive the decision measure (NPV, IRR..) is to changes in key assumptions. While this has become easier and easier to do over time, there are caveats that we would offer.

- **Caveat 1**: When analyzing the effects of changing a variable, we often hold all else constant. In the real world, variables move together.

- **Caveat 2**: The objective in sensitivity analysis is that we make better decisions, not churn out more tables and numbers.
  - Corollary 1: Less is more. Not everything is worth varying...
  - Corollary 2: A picture is worth a thousand numbers (and tables).
And here is a really good picture...
The final step up: Incorporate probabilistic estimates.. Rather than expected values..

**Actual Revenues as % of Forecasted Revenues (Base case = 100%)**

**Country Risk Premium (Base Case = 3% (Brazil))**

**Operating Expenses at Parks as % of Revenues (Base Case = 60%)**
The resulting simulation...

Average = $3.40 billion
Median = $3.28 billion

NPV ranges from -$1 billion to +$8.5 billion. NPV is negative 12% of the time.
A side bar: Should you hedge risks?

- Disney can reduce the risk in this project by hedging against exchange rate risk. Should it?
  
a. Yes
b. No
c. Maybe
Will the benefits persist if investors hedge the risk instead of the firm?

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

No
- 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?

Yes
- Can marginal investors hedge this risk cheaper than the firm can?
  
  Yes
  - Hedge this risk. The benefits to the firm will exceed the costs
  
  No
  - Do not hedge this risk. The benefits are small relative to costs

No
- Indifferent to hedging risk

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

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

No
- Discount rate benefits
  - Hedge "macro" risks (cost of equity)
  - Reduce default risk (cost of debt or debt ratio)

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

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

High
- Do not hedge this risk.
A final thought: Side Costs and Benefits

- Most projects considered by any business create side costs and benefits for that business.
  - The side costs include the costs created by the use of resources that the business already owns (opportunity costs) and lost revenues for other projects that the firm may have.
  - The benefits that may not be captured in the traditional capital budgeting analysis include project synergies (where cash flow benefits may accrue to other projects) and options embedded in projects (including the options to delay, expand or abandon a project).

- The returns on a project should incorporate these costs and benefits.
First Principles

Maximize the value of the business (firm)

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

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

The optimal mix of debt and equity maximizes firm value.

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

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

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.
Task

Draw up a risk profile for your company & make a judgment on which risks, if any, you would hedge.

Read

Chapter 6