CLOSING THOUGHTS

Alas, it is time to leave.
The Investment Decision
Invest in assets that earn a return greater than the minimum acceptable hurdle rate

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

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

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

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

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

Set Up and Objective
1: What is corporate finance
2: The Objective: Utopia and Let Down
3: The Objective: Reality and Reaction

36. Closing Thoughts
Ponderous Thoughts, or maybe not

1. There are few facts and lots of opinions.
   a. Even the givens (cash & risk free rate) are not
   b. With accounting and market numbers, all bets are off.

2. The real world is a messy place.
   a. Money making firms can become money losers
   b. Companies can be restructured/ given facelifts

3. Models don’t compute values and optimal paths. You do.

4. Change is the only constant.
I. What are the conflicts of interest?

- **Inside stockholders**
  - Want to maximize value while retaining control

- **Outside stockholders**
  - Want to maximize their returns (stock price plus dividends)

- **Board of Directors**
  - Want to preserve personal connections with the managers and personal perks.

- **Managers**
  - Want to maximize their compensation and increase personal marketability.

- **Employees**
  - Want to minimize job risk and maximize wages/benefits.

- **Customers**
  - Want the best possible product/service at the lowest price.

- **Regulators**
  - Want to ensure that you follow the rules and do not create problems for them.

- **Lenders**
  - Bankers/Bondholders want to minimize credit risk and ensure that interest/principal get paid.

- **Society**
  - Wants companies to add to economic pie without creating social costs.

- **Consultants**

- **Auditors**

- **Government**
II. Risk and the Marginal Investor

Figure 3.5: A Break Down of Risk

- **Firm-specific**
  - Projects may do better or worse than expected
  - Firm can reduce by investing in lots of projects
  - Investors can mitigate by diversifying across domestic stocks

- **Actions/Risk that affect only one firm**
  - Affects few firms
  - Firm can reduce by acquiring competitors
  - Investors can mitigate by diversifying across domestic stocks

- **Actions/Risk that affect few firms**
  - Affects many firms
  - Firm can reduce by diversifying across sectors
  - Investors can mitigate by diversifying globally

- **Market**
  - Entire Sector may be affected by action
  - Market can reduce by diversifying across countries
  - Investors can mitigate by diversifying globally

- **Actions/Risk that affect all investments**
  - Affects many firms
  - Firm can reduce by diversifying across countries
  - Investors can mitigate by diversifying across asset classes

- **Market**
  - Exchange rate and Political risk
  - Market can reduce by diversifying across asset classes
  - Investors can mitigate by diversifying globally

- **Entire Sector**
  - Entire Sector may be affected by action
  - Entire Sector can reduce by diversifying across sectors
  - Investors can mitigate by diversifying globally

- **Market**
  - Exchange rate and Political risk
  - Market can reduce by diversifying across asset classes
  - Investors can mitigate by diversifying globally
III. Risk Profiles and Costs of Equity

Risk free Rate + Risk premium for average risk investment × Relative Risk Measure

Macro Economic Uncertainty
Investor risk aversion

The Fundamentals
- How discretionary is your product/service to your customers?
- What proportion of your costs are fixed costs?
- How much have you borrowed?

The Observables
- Earnings Variability
- Stock price Volatility
- Balance Sheet Ratios

Expected Inflation
Expected real interest rate

Expected Inflation
Expected real interest rate
Cost of Capital

\[ \text{Cost of Capital} = \text{Cost of Equity} \left( \frac{E}{D+E} \right) + \text{After-tax cost of debt} \left( \frac{D}{D+E} \right) \]

**Cost of Equity**

**Cost of Debt**
- Riskfree Rate + Default Spread

**Market-value Weights of Debt & Equity**
- Equity includes Options
- Debt includes all fixed commitments

**Rating**
- Actual Rating
- Synthetic Rating
IV. The Quality of Investments: The Firm View

Cost of Capital = Cost of Equity \( \frac{E}{D+E} \) + After-tax cost of debt \( \frac{D}{D+E} \)

\[
\text{Return on Capital} = \frac{\text{After-tax Operating Income}}{\text{Capital Invested in Assets in Place}}
\]

\[
\text{Return Spread} = \text{ROC} - \text{WACC}
\]

\[
\text{EVA} = (\text{ROC} - \text{WACC}) \times \text{Capital Invested}
\]

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\text{Cost of Capital} = \text{Cost of Equity} \left( \frac{E}{D+E} \right) + \text{After-tax cost of debt} \left( \frac{D}{D+E} \right)
\]

\[
\text{Return on Equity} = \frac{\text{Net Income}}{\text{Equity Invested in Assets in Place}}
\]

\[
\text{Return Spread} = \text{ROE} - \text{COE}
\]

\[
\text{Equity EVA} = (\text{ROE} - \text{COE}) \times \text{Equity Invested}
\]

\[
\text{Cost of Equity}
\]
V. The Trade Off on Debt

<table>
<thead>
<tr>
<th>Advantages of Debt</th>
<th>Disadvantages of debt</th>
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| **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. |
VI. The Optimal Mix of Debt and Equity

Bankruptcy costs are built into both the cost of equity the pre-tax cost of debt.

Cost of capital = Cost of Equity (Equity/ (Debt + Equity)) + Pre-tax cost of debt (1- tax rate) (Debt/ (Debt + Equity))

As you borrow more, the equity in the firm will become more risky as financial leverage magnifies business risk. The cost of equity will increase.

As you borrow more, your default risk as a firm will increase pushing up your cost of debt.

At some level of borrowing, your tax benefits may be put at risk, leading to a lower tax rate.
VII. Getting to the Optimal Mix

- How quickly?
  - If under levered, are you the potential target of a hostile acquisition?
  - If over levered, are you under threat of bankruptcy?

- How?
  - Recapitalizations: Borrow money & buy back stock, if under levered, or Issue equity and retire debt, if over levered.
  - Investments: Take investments primarily with debt, if under levered, or take investments primarily with equity, if over levered.
The perfect financing: Provides you with the tax benefits of debt, while also giving you the flexibility of equity.
IX. Measuring Potential Dividends

Begin with the net income (which is after interest expenses and taxes)

Add back the non-cash charges such as depreciation & amortization

Subtract out reinvestment needs
- Capital expenditures
- Investments in Non-cash Working Capital (Change)

Subtract out payments to non-equity investors
- Principal Repayments
- Preferred Stock Dividends

Add any cash inflows from new debt
- New Debt Issues

To get to the Cash that is available for return to Owners
IX. Measuring Potential Dividends

Begin with the net income (which is after interest expenses and taxes)

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To get to the Cash that is available for return to Owners
X. Valuation:
Match up cashflows and discount rates...

EQUITY VALUATION WITH FCFE

Cashflow to Equity
Net Income
- (Cap Ex - Depr) (1- DR)
- Change in WC (!-DR)
= FCFE

Expected Growth
Retention Ratio * Return on Equity

Firm is in stable growth:
Grows at constant rate forever

Terminal Value = FCFE \[ \frac{n+1}{(k_e-g)n} \]

Value of Equity
FCFE1  FCFE2  FCFE3  FCFE4  FCFE5  FCFE_n

Discount at Cost of Equity

DISCOUNTED CASHFLOW VALUATION

Cashflow to Firm
EBIT (1-t)
- (Cap Ex - Depr)
- Change in WC
= FCFF

Expected Growth
Reinvestment Rate * Return on Capital

Firm is in stable growth:
Grows at constant rate forever

Terminal Value = FCFF \[ \frac{n+1}{(r-g)n} \]

Firm Value
- Value of Debt
= Value of Equity

Discount at Cost of Capital (WACC) = Cost of Equity (Equity/(Debt + Equity)) + Cost of Debt (Debt/(Debt + Equity))
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 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

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.

Maximize the value of the business (firm)
Task
From a first principles standpoint, judge your firm.