Finance II (441)

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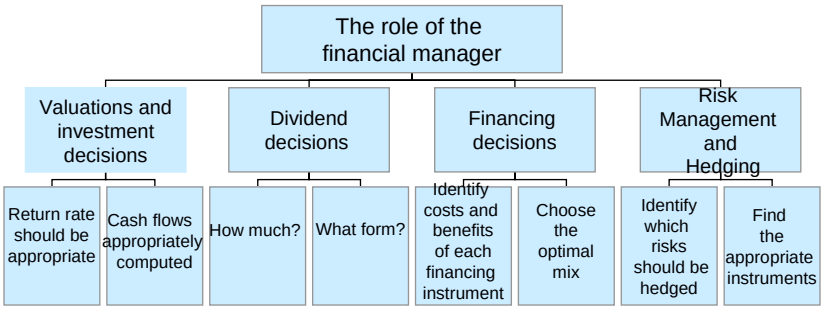
Finance II - Main Themes

- *Capital Budgeting:* What projects should firms undertake?
- *Dividend Policy:* How should firms distribute profits?
- *Capital Structure:* How should firms be financed?
- *Hedging:* What and how to hedge?
- *Applications:* Convertible bonds.

What is corporate finance?



Efficient Capital Markets

- Market efficiency driven by profit motive.
  - No riskless arbitrage.
  - Does not imply that “nobody can beat the market”.
    - Asymmetric information
    - Hard work
    - Luck
- Causes of market inefficiencies: transaction costs, lack of competition, regulation .
- Why should financial managers care if markets are efficient?
  - Can rely on market prices when making decisions.
  - Financing will be a “zero-NPV” proposition.

Capital Budgeting

- Divide expected cash flows by the expected rates of return.
  - What is the correct risk-free rate?

$$r_{10-\text{year gov.bond}} = r_{10-\text{year risk-free rate}} + \text{Risk Premium}$$

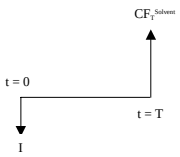
  - What is the correct beta?

$$A = L + E \quad \Rightarrow \quad \beta_{\text{Equity}} = \beta_{\text{Assets}} + \frac{D}{E}(\beta_{\text{Assets}} - \beta_{\text{Debt}})$$

  - Remember to adjust beta for change in asset mix.
- What is the difference between promised and expected returns?

Capital Budgeting

- Promised versus Expected Returns



$$I(1+r_{promised})^T = Cashflow_T^{Solvent}$$

$$I(1+r_{expected})^T = (1-p)*Cashflow_T^{Solvent} + (p)*Cashflow_T^{Default}$$

Corporate valuation

- Definition of free cash flows
  - To the firm, or to shareholders?
- Forecasting futures free cash flows
  - Importance of assumptions
  - Consistency of the model (change in retained earnings affects balance sheet, and plug closes the model)
- Terminal values

Financial Options

- Review payoff diagram for options, forward, futures,….
- Option values account for:
  - Value of Information.
  - Time value of money.
- Comparative Statics: How do option prices change with volatility, T-t, Dividends, ...
- Importance of financial options for Corporate Finance:
  - Financing operations, hedging risks.
  - Analogy to equity versus debt:
    - How are incentives of equityholders affected by option characteristics?

Real Options versus NPV

- Options can't have negative values ,
  - ⇨ ignoring them causes you to underestimate projects' true values.
- Options are only valuable when information is valuable.
  - Information must cause actions to be altered.
- Real option framework allows you to value "flexibility".

Dividend Policy

- Irrelevance
  - Investment held constant.
  - No transaction costs.
  - Perfect capital markets (efficient and no info asymmetry)
  - No differential tax rates.
  - Managers maximize shareholder wealth.
- Why is dividend policy irrelevant?
- Optimal dividend policy under irrelevance: pay dividends when there are no more +NPV projects.
- Mechanics of Dividend Payments and Share Repurchases

Capital Structure Irrelevance

- Firm value (equity value) is independent of capital structure.
- Same assumptions as dividend policy irrelevance *plus:*

  Zero Bankruptcy Costs
- Basic argument.
  - The size of the pie does not depend on how many pieces it is cut into.
  - Investors can lever or de-lever the firm on their own by borrowing.
- Optimal capital budgeting decisions under MM. Invest in positive NPV projects. Ignore the NPV(financing)

Capital Structure with Taxes

- Adjusted Present Value
  - NPV[Project] = NPV[Project|All Equity] + NPV[Financing]
  - NPV[Financing] =NPV[Tax Shields]
  - Value of Tax Shield with **Perpetual** Debt = τD
  - Tax rate should account for tax loss carry-forwards (20 years) and carry-backs (2 years).
- WACC
  - WACC builds the tax shield into the discount rate, but misses other costs/benefits. Thus, the source of value is hidden.
  - Assumes
    - Project is extension of the firm.
    - Capital structure is constant.

Capital Structure Relevance and Costs of Financial Distress

- Costs of Financial Distress $\neq$ Costs of Economic Distress.
- Direct costs of financial distress are small.
- Indirect costs may be large, but they're hard to measure.
  - Asset specificity.
  - Investment distortion (risk shifting).
- Securities can be designed to counter these problems.
- APV
  - NPV[Project] = NPV[Project|All Equity] + NPV[Financing]
  - NPV[Financing] =NPV[CFD]

Capital Structure Relevance (continued)

- Signaling
  - Decision to issue equity signals management's belief that equity is overvalued. (Requires asymmetric information regarding assets in place)
  - APV:
  - NPV[Project] = NPV[Project] + NPV[Financing]
  - NPV[Financing] =NPV[mispricing]
  - Solve by:
    - Using cash on hand.
    - Issuing risky debt.
    - Use bank debt.
    - Rights issue.
- Agency Costs
  - Managers may not maximize shareholder value.
  - Debt may act as a bonding mechanism that limits waste of free cash flow.

Hedging

- Hedging is valuable if it allows the firm to undertake +NPV projects that would otherwise be forgone.
- Hedging can affect firm value if:
  - Capital markets are imperfect (e.g. information asymmetry).
  - +NPV projects become available when cashflows are low.
- Many different mechanisms can be used for hedging purposes:
  - Financial securities are most common.
  - Lower financial leverage.
  - Manage accounts receivable, accounts payable.

Compound securities

- Calculate when is optimal to exercise the option as a function of the firm asset
- Consider optimal exercise in options? Why is it different for compound securities?
- They are less valuable than call options with the same strike value. Why?
  - Consider dilution effects
- Convertible bonds are neither cheap debt nor cheap equity.
- Good reasons for issuing convertibles include:
  - Market is over-estimating volatility.
  - Prevent asset-substitution (or risk shifting or investment distortion)