SESSION 2: INTRINSIC VALUATION
LAYING THE FOUNDATION
The essence of intrinsic value

- In intrinsic valuation, you value an asset based upon its intrinsic characteristics.
- For cash flow generating assets, the intrinsic value will be a function of the magnitude of the expected cash flows on the asset over its lifetime and the uncertainty about receiving those cash flows.
- Discounted cash flow valuation is a tool for estimating intrinsic value, where the expected value of an asset is written as the present value of the expected cash flows on the asset, with either the cash flows or the discount rate adjusted to reflect the risk.
The two faces of discounted cash flow valuation

- The value of a risky asset can be estimated by discounting the expected cash flows on the asset over its life at a risk-adjusted discount rate:

$$\text{Value of asset} = \frac{E(CF_1)}{1+r} + \frac{E(CF_2)}{(1+r)^2} + \frac{E(CF_3)}{(1+r)^3} + \ldots + \frac{E(CF_n)}{(1+r)^n}$$

where the asset has a n-year life, $E(CF_t)$ is the expected cash flow in period $t$ and $r$ is a discount rate that reflects the risk of the cash flows.

- Alternatively, we can replace the expected cash flows with the guaranteed cash flows we would have accepted as an alternative (certainty equivalents) and discount these at the risk-free rate:

$$\text{Value of asset} = \frac{CE(CF_1)}{1+r_f} + \frac{CE(CF_2)}{(1+r_f)^2} + \frac{CE(CF_3)}{(1+r_f)^3} + \ldots + \frac{CE(CF_n)}{(1+r_f)^n}$$

where $CE(CF_t)$ is the certainty equivalent of $E(CF_t)$ and $r_f$ is the risk-free rate.

Aswath Damodaran
Risk Adjusted Value: Two Basic Propositions

Value of asset = \frac{E(CF_1)}{(1 + r)} + \frac{E(CF_2)}{(1 + r)^2} + \frac{E(CF_3)}{(1 + r)^3} + ... + \frac{E(CF_n)}{(1 + r)^n}

Value of asset = \frac{CE(CF_1)}{(1 + r_f)} + \frac{CE(CF_2)}{(1 + r_f)^2} + \frac{CE(CF_3)}{(1 + r_f)^3} + ... + \frac{CE(CF_n)}{(1 + r_f)^n}

- **Proposition 1:** For an asset to have value, the expected cash flows have to be positive some time over the life of the asset.

- **Proposition 2:** Assets that generate cash flows early in their life will be worth more than assets that generate cash flows later; the latter may however have greater growth and higher cash flows to compensate.

Aswath Damodaran
DCF Choices: Equity Valuation versus Firm Valuation

**Firm Valuation:** Value the entire business

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
</table>
| Existing Investments  
Generate cashflows today  
Includes long lived (fixed) and short-lived (working capital) assets | Debt  
Fixed Claim on cash flows  
Little or No role in management  
*Fixed Maturity*  
*Tax Deductible* |
| Assets in Place | Equity  
Residual Claim on cash flows  
Significant Role in management  
*Perpetual Lives* |
| Growth Assets | |

**Equity valuation:** Value just the equity claim in the business

Aswath Damodaran
Equity Valuation

**Figure 5.5: Equity Valuation**

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets in Place</td>
<td>Debt</td>
</tr>
<tr>
<td>Growth Assets</td>
<td>Equity</td>
</tr>
</tbody>
</table>

- Cash flows considered are cashflows from assets, after debt payments and after making reinvestments needed for future growth.
- Discount rate reflects only the cost of raising equity financing.
- Present value is value of just the equity claims on the firm.

Aswath Damodaran
Cash flows considered are cashflows from assets, prior to any debt payments but after firm has reinvested to create growth assets.

Assets:
- Assets in Place
- Growth Assets

Liabilities:
- Debt
- Equity

Discount rate reflects the cost of raising both debt and equity financing, in proportion to their use.

Present value is value of the entire firm, and reflects the value of all claims on the firm.
Generic DCF Valuation Model

DISCOUNTED CASHFLOW VALUATION

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

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

Value
Firm: Value of Firm
Equity: Value of Equity

Discount Rate
Firm: Cost of Capital
Equity: Cost of Equity

Length of Period of High Growth

Terminal Value
Firm is in stable growth: Grows at constant rate forever

 Forever

Aswath Damodaran
First Principle of Valuation

- Consistency principle: Your discount rate should match up to your cash flows.
- The key error to avoid is mismatching cashflows and discount rates:
  - Discounting cashflows to equity at the weighted average cost of capital will lead to an upwardly biased estimate of the value of equity
  - Discounting cashflows to the firm at the cost of equity will yield a downward biased estimate of the value of the firm.