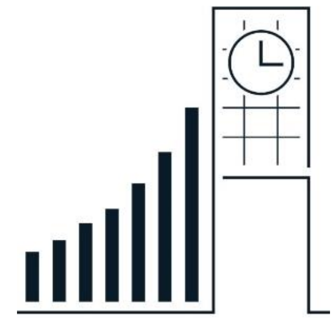
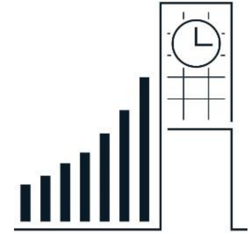


Discounted Cash Flow Analysis Workshop

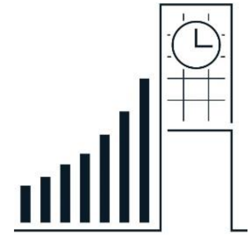
Fall 2023

AGENDA



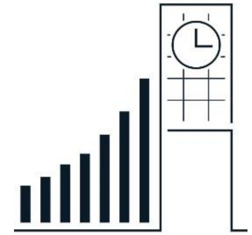
- Enterprise value v. equity value
- Calculating weighted average cost of capital (WACC)
- Forecasting and discounting free cash flows to the firm (FCFF)
- Calculating the terminal value of the firm
  - Multiples method v. Gordon growth method
- Arriving at implied enterprise value
  - Moving from enterprise value to equity value per share
- Example Coca Cola DCF

Enterprise Value vs. Equity Value



- Enterprise Value: the total market value of the firm's assets available to all capital suppliers
  - The market value of the firm's assets is equal to the PV of all claims to all claimants (debtholders and equity holders)
- Enterprise Value = Equity Value + Debt – Cash + Minority Interest + Preferred Stock + Other Unfunded Liabilities
- Equity Value: value available to stockholders
  - Market Capitalization is one way to measure equity value

ESTIMATING WACC

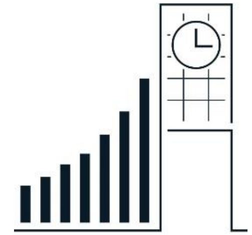


- Weighted Average Cost of Capital

$$WACC = \frac{D}{E + D} \times K_D \times (1 - T) + \frac{E}{E + D} \times K_E$$

  - Use market values of Debt & Equity, not book value
  - Use costs of capital and capitalization ratios for the target company, not the combined company or acquirer
  - T is the Tax Rate
  - K_D is the Cost of Debt
  - K_E is the Cost of Equity

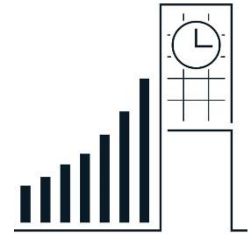
DISCOUNTED CASH FLOW



5 Steps to a DCF:

1. Project 3 – 10 years of Free Cash Flows to the Firm (FCFF)
2. Arrive at Terminal Value (TV) using Exit Multiples Method or Gordon Growth Model
3. Discount FCFF and TV to present using WACC to arrive at implied Enterprise Value (EV)
4. Calculate Equity Value by using the implied EV
5. Divide Equity Value by Diluted Shares Outstanding to arrive at equity value per share

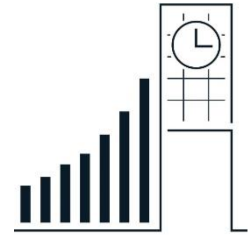
Step 1: Project FCFF



- $\text{FCFF} = EBIT \times (1 - t) + D\&A - CapEx - \Delta NWC$

- Start with tax-affected EBIT
- Add back non-cash expenses from income statement
- Subtract out cash expenses not on income statement
- Subtract additions to net working capital
  - NWC = Current Assets (excl. cash) – Current Liabilities (excl. short-term interest-bearing items)

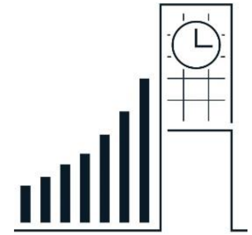
Step 2: Terminal Value



- Multiples Method
  - TV = EV/EBITDA x EBITDA
  - TV = EV/EBIT x EBIT
  - TV = EV/Revenue x Revenue
- Gordon Growth Model
  - $TV = \frac{FCFF_n \times (1+g)}{(WACC - g)}$
    - n = years in DCF
    - g = perpetual growth rate
      - Often the long-term GDP growth rate

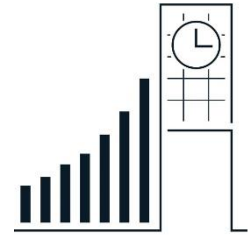
For multiples method, use terminal year projections

STEP 3: DISCOUNT FCFF



- Discount all future cash flows and the terminal value back to the present to get Enterprise Value
- $PV = \sum_{i=i}^{n} \frac{FCFF_i}{(1+WACC)^i} + \frac{TV_n}{(1+WACC)^n}$

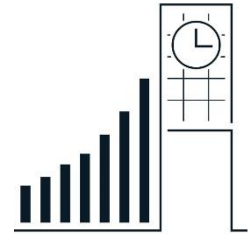
STEP 4: EV & EQUITY VALUE



- Enterprise Value = Equity Value + Debt – Cash + Minority Interest + Preferred Stock + Other Unfunded Liabilities

- Minority Interest (non-controlling interest) is the portion of a subsidiary corporation's stock that is not owned by the parent corporation
- Debt means interest bearing liabilities, not all liabilities
- Other unfunded liabilities include things like **unfunded** pension obligations

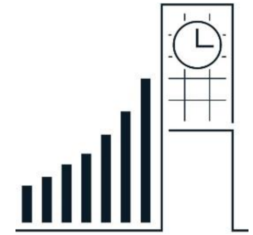
STEP 5: SHARE PRICE



- Used Diluted Shares Outstanding because options will vest in a change of control
- Arrive at Diluted Shares Outstanding through Treasury Stock Method (TSM)
  - Use option proceeds to repurchase as many shares as possible to fight dilutive effects
  - E.g. If 20 options are exercised at a strike price of $10, the company will use the $200 proceeds to repurchase their own shares at the current market price
- Divide Equity Value by Diluted Shares Outstanding to get implied share price

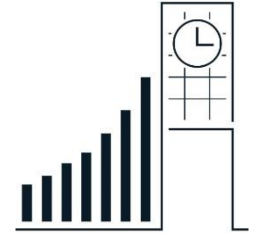
If the current stock price is $25, how many net new shares are issued?

Deliverable 4



- Please build out a DCF for PayPal
  - Use this presentation and the example DCF of Coca Cola
- Due on Sunday, October 15th at 11:59 PM
  - This deliverable is **mandatory**
- Email to bingfinancesociety@gmail.com with the subject line "Team X – Deliverable 4"

QUESTIONS?



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