What is a company worth?

What is your company worth?

You have a machine that converts piece of paper strips to $1.00 bill, reliably, once every year.

Pick what it is worth below ☑:
- Worth $1.00
- $70 – lifetime of a person running machine.
- $\infty$ - machine lasts forever.
- $10$-$25$ depending on interest rate?

All of them?
We will argue: Between $10$-$25

Why does the value matter?

• True value- line
• Overvalued:
  – Sell when it is over its true value
  – Make a profit!
• Undervalued: Buy when it is:
  – below its true value
  – Great deal

• Here: In general expect growth – a company goes up in value over time
• Problem: Need to be identify the true value of the company.
What is a company worth?

- **Book Value**
  - Assets
  - Intangible Assets
  - Liability

- **Intrinsic Value**
  - Estimated by future dividends.
    - Profit distribution
    - Quarterly.
    - Apple over $2 per year

- **Market Cap**
  - #Stocks outstanding & price of stock.
  - What does the market think the company is worth

Value of a future dollar

- How much is the promise worth?
  - Which guarantee is more reliable?
  - Risk -> Interest Rate.
- If not delivered yet the value “now” is worth less than a $1.00
- Which is worth more?
  - $1.00 Government bond
  - $1.00 Machine bond

$$PV = \frac{FV}{(1+IR)^i}$$

Example: Rank Future value

- $1.00 Right now.
- $1.00 US Government Bond
- $1.00 bond on company that makes $1.00 every year.

Value of a future dollar in 1 Year

- **0% interest.**
  - PV is $1.00
  - No risk, same as dollar being delivered today.
- **1% interest.**
  - Slightly safe – government bond.
  - Decreases slower in value
- **5% interest.**
  - Less safe / more risky
  - Company generates the dollar less trustworthy.
  - Decreases faster in value
Dividend Payment

• Dividend per stock.
• AFLAC is about $1.00 per year.
• Every year in future.
• DR - Discount rate –
  – Want higher rate for riskier investment.
  – Need less for less risky.
• How much dividends to expect?
  – \( (i \rightarrow \infty) \)
• Compound it over infinite years.
• 5% Interest

\[
PV = \frac{FV}{(1 + IR)^i}
\]

\[
\sum_{i=1}^{n} \frac{FV}{(n-1)} = \frac{FV}{DR} = \text{Dividend}
\]

\[
\frac{$1.00}{.05} = $20
\]

• Paying Dividends at %5 rate for the $1.00 we are paying the future.
• Here company is worth $20.00, its intrinsic value.

Book Value

• Total Assets minus intangible Assets and Liabilities.

  – Factories 4 @ 10M each.
  – Patents 3 @ 5M each.
  – Liabilities 1 @ 10 M Loan
  = 40M + $15M − 10M = 45M
  = 40M + $15M − 10M = 30M

Market Capitalization

• Market Cap = #shares * price
Would you buy this stock? Calculate each.

• Book Value
  – 10 airplanes at 10M each
  – Brand name at 10M
  – 20M loan
• Intrinsic Value:
  – 1M dividends per year %5 DR
• Market Cap
  – 1M shares outstanding
  – $75 stock price

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100M -20M = 80M

1/0.05 = 20M

1M*$75 = 75M

→ You can buy entire company for $75M
Would you buy this stock?  
Calculate each.

- **Book Value**
  - 10 airplanes at 10M each
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- **Intrinsic Value:**
  - 1M dividends per year %5 DR

- **Market Cap**
  - 1M shares outstanding
  - $75 stock price

→ You can buy entire company for $75M

Would you buy the stock?  
Would you buy the company?  

• Book Value
  - 100M
  - 20M
  = 80M

• Intrinsic Value:
  - 1M/0.05 = 20M

• Market Cap
  - 1M*$75 = 75M

Would you buy the stock?  
Yes it is undervalued
Would you buy the company?  
Yes 5M profit

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**Summary**

- **Intrinsic Value**
  - Based on future dividends

- **Book Value**
  - Value of company if you split it into pieces and sold individual pieces

- **Market Capitalization**
  - Value the market is placing on the company

- **Investors looks at deviation between intrinsic value and market capitalization.**
  - IV go down, and stock is high -> short stock
  - Dividends go up, and market cap is low -> buy stock.