



AAI Subgroup

Investment Analysis by Lauren Rudd

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Methods of Valuing Stocks

- Dividend Discount Model
- Discounted Earnings
- Discounted Free Cash Flow to the Firm
- Residual Income Valuation Model

CAPM

- **Capital Asset Pricing Model**

- $r = R_f + \text{beta} \times (K_m - R_f)$ where:

r = the expected rate return rate on a security

R_f = the rate of a "risk-free" investment

K_m = the return rate of the appropriate asset class

Beta measures the volatility of the security, relative to the asset class.

Expected Return

- The asset class for our purposes is the market itself.
- For calculation purposes we will use the S&P 500 index
- The historical return on the S&P 500 is 11%

Expected Return

- The risk free rate is defined as a 10 year Treasury whose rate we will assume to be 5%

Expected Return

- $r = R_f + \text{beta} \times (K_m - R_f)$

Therefore

$$r = 5 + \text{beta} \times (11 - 5)$$

$$r = 5 + \text{beta} \times 6$$

Expected Return

- Therefore:
 - if a security is just as risky as the overall market, investors would demand a return of 11 percent.
 - If a security is twice as risky as the overall market, investors would demand a return of 17 percent.

Expected Return

- Do not try to calculate a stock's beta
- Betas are published by Merrill Lynch, Value Line, S&P among others.

Enterprise Value (EV)

- Value of a company from the point of view of all financing sources
- Enterprise Value = Market Cap
- + Debt at market value
- + Minority Interest (if any)
- + Preferred Equity at Market Value
- - Cash and cash equivalents

Enterprise Value (EV) cont.

- $EV/EBITA$ = Length of time to pay back an investment
- $EBITA/EV$ = cash rate of return on investment. Used to compare returns on equivalent companies on a risk adjusted basis.

Economic Profit

- The economic profit of a company after deducting the cost of all capital, debt and equity.
- It is sometimes referred to as residual income analysis
- The commercial version is "EVA," (economic value added) trade marked Stern Stuart & Co.

Economic Profit

- EVA is essentially net operating profit, from which is subtracted the cost of capital.
- $EVA = NOPAT - (C\% \times TC)$
- $C\% = \text{Cost of Capital}$ $TC = \text{Total Cap.}$
- $\text{Cost of Capital} = \text{Weighted Average Cost of Capital or WACC}$

Market Value Added

- Market Value Added is a related concept
- $MVA = \text{Market Value of a company} - \text{Total Capital}$
- A company with a positive EVA should have a market value in excess of the book value of its capital

Intrinsic Value - FCFF

Definitions

- Operating Expenses = CGS + SG&A + R&D
- Net Operating Profit (NOP) = Operating Revenues – Operating Expenses
- Net Operating Profit Margin = NOP/Revenue

Intrinsic Value - FCFF

Definitions cont.

- Net Investment = New Investment – Depreciation
- Working Capital = Acc't Rec + Inventories – Acct's Payable

Intrinsic Value - FCFF

FCFF - the cash that is left over after payment of all hard cash expenses and all operating investment

$$\text{FCFF} = \text{NOP} - \text{Taxes} - \text{Net Inv} - \text{Net Change in Working Capital}$$

Intrinsic Value - FCFF

Four Step Process

- Forecast Expected Cash Flows
- Estimate the WACC (weighted average cost of capital)
- Calculate Enterprise (Corporate) Value
- Calculate Intrinsic Value

Intrinsic Value - FCFF

Corporate Value

Corporate Value = Cash Flow
from Operations + Residual
Value + Short-term Assets

Intrinsic Value - FCFF

Intrinsic Value:

Corporate Value – (Debt + Preferred) – Short-term Liabilities / Number of outstanding shares