Cash Flow Valuation Methods

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- I am not a registered investment advisor and I do not offer any investment advise

- No parts of this talk are suggestions to invest, not invest, buy or sell any kind of securities or other financial instruments

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Buffettology

- Current earnings extended to the future 10 years using ROE: $ROE \cdot Equity \cdot (1+ROE)^9$
- Future market cap calculated using fixed P/E
- Rate of return back calculated from future market cap
- OCF/FCF could be used if ROE is replaced by CFROE
- Assumes all earnings reinvested at ROE rate
  - Optimistic!
  - Insight: It is possible to adjust the formula for partial reinvestment
  - Insight: It is possible to represent partial reinvestment and payout of remaining CF using current Buffettology formulas
- Method does not calculate intrinsic value based on sum of cash flows to eternity, hence it does no discounting
- Return depends on 10 year earnings guesses and terminal PE
- Why not use current PE instead?
  - If we assume 15 PE in next year, while this year's PE is 18 => projects drop in price
  - Not so if company grows for 10 years, while PE drops from 18 to 15
  - If we assume 15 PE in next year, while this year's PE is 10 => projects rise in price from multiple expansion
  - Less multiple expansion effect in Buffettology
  - Still some multiple-expansion return via terminal PE!

Buffettology Example

- ROE 15, Current equity=100 (which means 15 Earnings=OCF=FCF), Terminal P/E=15:
  - Current market cap: 200 = 12.9% return (13 current PE)
  - Current market cap : 150 = 16.03% return (10 current PE)
- ROE 20, Current equity=100 (which means 20 Earnings=OCF=FCF), Terminal P/E=15:
  - Current market cap: 300 = 15.78% return (15 current PE)
  - Current market cap: 200 = 20.38% return (10 current PE)
  - Current market cap: 150 = 23.8% return (7.5 current PE)

"Hurdle" DCF

- Take current earnings/OCF/FCF
- Assume certain growth rate (5% for 10 years, 10% for 5 years)
- Assume flat earnings afterwards
- Assume desired return discount rate (hurdle): 15%
- Calculate current market cap that would satisfy the high hurdle rate – invest below that market cap
- Does not use ROE at all – growth is guessed
  - Insight: Damodoran growth calculation could be used
- Hurdle is used, since we assume that alternative high return investments are available

"Hurdle" DCF Example

- 15 Earnings=OCF=FCF (ROE 15, Current equity=100 - unused):
  - 10% growth in 5 years: Current market cap: 146 (9.7 current PE)
  - 5% growth in 10 years: Current market cap: 134 (8.9 current PE)
  - 7.5% growth in 10 years: 156 (10 current PE)
  - 15% growth in 10 years (corresponds to Buffettology scenario): 250 (this is much higher than market cap that has 15% return in Buffettology!) (16.7 current PE)
- 20 Earnings=OCF=FCF (ROE 20, Current equity=100 - unused):
  - 10% growth in 5 years: Current market cap: 194 (9.7 current PE)
  - 5% growth in 10 years: Current market cap: 179 (8.9 current PE)
  - 10% growth in 10 years: Current market cap: 243 (12.1 current PE)
  - 20% growth in 10 years (corresponds to Buffettology scenario): 458 (22.9 current PE)

Intrinsic Value DCF

- Take current earnings/OCF/FCF
- Assume certain growth rate (5% for 10 years, 10% for 5 years)
- Assume flat earnings afterwards
- Assume some kind of discount rate:
  - Riskless return? 4%
  - WACC? 10%
- Calculations give current intrinsic value – invest below that market cap
- Does not use ROE at all – growth is guessed
- Discount rate is very debatable
- Return is unknown
- A variation of this is used by Trefis, analysts, etc.

Intrinsic Value DCF Example

- 15 Earnings=OCF=FCF (ROE 15, Current equity=100 - unused):
    - 10% growth in 5 years, discount rate 4%: Intrinsic value: 585 (39 current PE)
    - 5% growth in 10 years, discount rate 4%: Intrinsic value: 570 (38 current PE)
    - 15% growth in 10 years, discount rate 4%: (corresponds to Buffettology scenario): 1297 (86 current PE)
        - Huge values for low discount rates!
    - 10% growth in 5 years, discount rate 10%: Intrinsic value: 225 (15 current PE)
    - 5% growth in 10 years, discount rate 10%: Intrinsic value: 211 (14 current PE)
    - 15% growth in 10 years (corresponds to Buffettology scenario): 427 (28.5 current PE)

Damodoran

- Variation on Intrinsic Value DCF
- Take current EBIT*(1-taxrate)
- Calculate EBIT*(1-taxrate) growth rate:
  - Expected growth rate = Equity reinvestment rate × Return on equity
  - Might vary year-to-year
- Calculate FCF based on EBIT*(1-taxrate) growth rate and reinvestment rate
- Couple different calculations for terminal year(s)
- Calculate discount rate:
  - Couple models - WACC?
- Calculations give current intrinsic value – invest below that market cap
- Discount rate is debatable
- Return is unknown
- Insight: this is Intrinsic Value DCF only spiced up to be more "scientific" and flexible

Damodoran Example

- Example does not differ from Intrinsic DCF example:
  - Assume EBIT*(1-taxrate) = 30, reinvestment 50%, then FCF = 15
  - Expected growth rate = Equity reinvestment rate × Return on equity
    - 15% ROE * 50% = 7.5% growth rate
  - Note: EBIT*(1-taxrate) is not necessary at all unless you use it for terminal value, change taxrate in calculated years or change reinvestment %
- 15 Earnings=OCF=FCF, ROE 15:
  - 7.5% growth in 5 years, discount rate 10%: Intrinsic value: 204 (13.6 current PE)
  - 7.5% growth in 10 years, discount rate 10%: Intrinsic value: 251 (16.7 current PE)

Graham

- All the methods above result in acceptable valuations above 1.5 P/B

- Valuations < 1P/B would be very undervalued based on cash flow methods (assuming decent ROE/reinvestment/etc.)

- Might be interesting to compare results to Graham Number calculation (SQRT(15*E*1.5*B))
  - For our example, 15 Earnings, 100 Book -> GN = 184 (12 current PE)

Conclusions