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Relative Valuation:
Using ratios of comparable firms to value your firm

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What is relative valuation?

- Relative Valuation – compares the price of an asset sold in the market to the market value of similar assets.
- Relative valuation requires peer companies in the same industry, preferably with similar:
  - Businesses
  - Technologies
  - size
  - geographies
- We use:
  - Historical data - most actual data or trailing multiples
  - Forecasted data - Forward multiples
- The approach
  - Equity approach – share prices data
  - Entity approach – enterprise value data

Advantages

- Very easy to use

Disadvantages of this method

- Can be applied if there is quoted companies for comparison or data from other transactions
- Peers may not serve as a proper comparable
- Peers may not be valued correctly
- Historical data and actual data may not be a good indicator of value (future matters for valuation)
- Share prices have expectations incorporated, and market may have different expectations for different peers

The process of a relative valuation

1. Identify comparable companies with the SUBJET OF VALUATION (company or business you want to value) – Similar businesses, similar size, similar technology, similar geographies, etc.
2. Obtain market values for those comparable companies
3. Create multiples (ratios) using market values and financial data for these comparable companies
4. Multiply these multiples of comparable firms to the financial data of the SUBJECT OF VALUATION
5. Control for any differences that may exist between the COMPARABLE FIRMS and the SUBJECT OF VALUATION, to judge whether the value of the target is under or over valued

The use of relative valuation

- SUBJECT OF VALUATION:
  - Quoted firms
  - Unquoted firms
  - Group of companies
  - Subsidiaries
  - Strategic Business Units (SBU)
  - One business
- SOURCE OF COMPARABLES:
  - Quoted firms – daily market prices (between minority shareholders)
  - Quoted firms – takeover bid (acquisition of control includes the premium for control)
  - Transactions of unquoted firms
  - Transactions of businesses

Relative valuation is commonly used

- Most of stock market investors use relative valuations.
- Almost all of equity research reports use, in some way, multiples and comparables.
- Rules of thumb based on multiples are common and eventually are often the basis for final judgments.
- Discounted cash flow valuations (Intrinsic value) are more and more used by consulting and corporate finance firms, but they often use relative valuations for testing the Intrinsic Value.
- When applying discounted cash flow valuation, it is necessary to calculate the continuing value (or terminal value). There are two approaches:
  - Discounted cash flow approach or;
  - Relative valuation approach

Comparable should be comparable

- The sample of comparable firms should be comparable to the TARGET – size, industry, businesses, technology, etc.;
- And use identical accounting principles such as:
  - Capitalization of expenses
  - Depreciation & Amortization
  - Provisions
  - impairments
  - Capital gains and losses

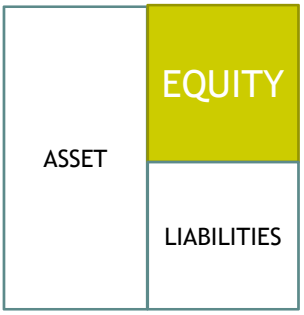
Why relative valuation is relevant

- Even if you are an apologist of discounted cash flow valuation (like me), you must agree that presenting your findings on a relative valuation basis, will make your audience more receptive to your valuation.
- Relative valuation can also help to find some weak spots in discounted cash flow valuations, to fix them.
- The problem with multiples is not their use, but their abuse.
- If you can find ways to frame multiples right, you should be able to use them better.

Most traditional EQUITY approach multiples:

- PER - Price Earnings Ratio
- PBV - Price Book Value
- PCE - Price to Cash Earnings
- PS - Price to Sales
- Price per unit of specific industry variable
  - Production capacity;
  - Effective production
  - (price per ton; price to kWh, price per number of golf rounds, etc.)

This is a **direct estimation** of the equity value



Multiples based on Share Prices

$$PER = \frac{Share\ Price}{Earnings\ Per\ Share}$$

$$PBV = \frac{Share\ Price}{Equity\ Book\ Value\ Per\ Share}$$

$$PCF = \frac{Share\ Price}{Cash\ Earnings\ Per\ Share}$$

$$Cash\ Earnings = Net\ Profit + Amort\ \&\ Depr + Provisions + Impairments$$

$$Cement\ Industry = 200USD\ per\ Ton\ of\ Capacity$$

Descriptive tests for multiples

- What is the average and standard deviation for this multiple, across the universe/sample?
- What is the median for this multiple?
- The median is often a more reliable comparison multiple.
- How large are the outliers to the distribution?
- How do you deal with the outliers? Throwing out outliers may seem an obvious solution, however if all the outliers lie on one side of the distribution (they usually are large positive numbers), this can biased the estimate.
- Are there many cases where the multiple cannot be estimated? Ignoring these cases may bias the estimate of the multiple?
- How has the multiple changed over time?

Analytical tests

- What are the fundamentals that drive the multiple?
  - Every multiple has a embedded model with variables that drive discounted cash flow valuation such as growth, risk, return, etc.
  - Using a simple discounted cash flow model and basic algebra should yield the fundamentals that drive a multiple
- How do changes in these drivers change the multiple?
  - There is a specific relationship between a fundamental (like growth, cost of capital) and a multiple (such as PER).

Rationale of equity approach multiples using the Gordon model for a stable-growth model

$$P_0 = \frac{DPS}{k_e - g}$$

$$PER = \frac{P_0}{EPS_0} = \frac{DPS_0 \times (1+g)}{EPS_0} \times \frac{1}{k-g} = \frac{Payout\ ratio \times (1+g)}{k-g}$$

$$PBV = \frac{P_0}{BVPS_0} = \frac{DPS_0 \times (1+g)}{BVPS_0} \times \frac{1}{k-g} = \frac{ROE \times Payout\ Ratio \times (1+g)}{k-g}$$

$$PS = \frac{P_0}{SalesPS_0} = \frac{DPS_0 \times (1+g)}{SalesPS_0} \times \frac{1}{k-g} = \frac{\text{Profit Margin} \times Payout\ Ratio \times (1+g)}{k-g}$$

P0 – Price per share
DPS – Dividens per share
k – cost of equity
g – growth rate
Payout = Dividends/Net Profit

PER – Price earnings ratio
EPS – Earnings per share

PBV – Price book value
BVPS – Book value per share
ROE – Return on equity

PS – Price to sales
SalesPS – Sales per share
Profit margin = Net profit / Sales

PER versus PEG

Which share is better?

$PER_A = 15$
$PER_B = 12$

$$PEG\ ratio = \frac{PER}{5\ Yr\ growth\ rate}$$

What if the 5 year growth rate is:
$g_A = 13\%$
$g_B = 14\%$

$$PEG_A = \frac{15}{13} = 1{,}15$$

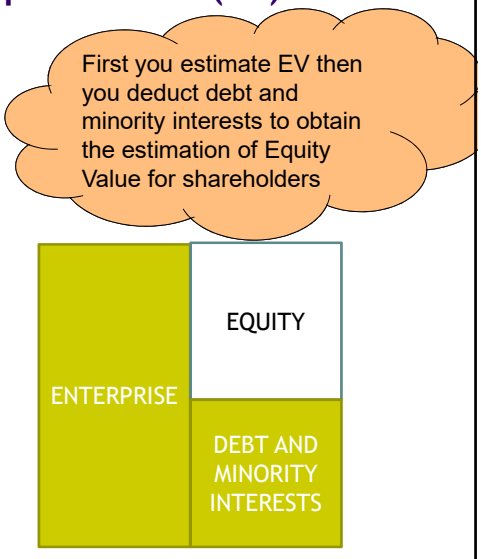
$$PEG_B = \frac{12}{14} = 0{,}86$$

Problems with this approach:
1. Do not account for the risk of those earnings
2. Do take in consideration the return of the reinvestment of these earnings

Conclusion:
Is one more additional information for reflexion

Multiples based on Enterprise Value (EV) approach

- EV to EBITDA
- EV to EBIT
- EV to Sales
- EV to Book value of assets
- EV to Replacement value of assets (Tobin's Q)
- EV per unit of specific industry variable
  - Production capacity;
  - Effective production
  - (price per ton; price to kWh, price per number of golf rounds, etc.)



Enterprise value to EBITDA

Classic Version

$$\frac{Firm\ Value}{EBITDA} = \frac{Market\ Value\ of\ \ Equity + Market\ Value\ of\ \ Debt}{Earnings\ \ before\ \ Interest, Taxes\ and\ \ Depreciation}$$

The No-cash Version is the more used nowadays

$$\frac{Enterprise\ \ Value}{EBITDA} = \frac{Market\ Value\ of\ Equity + Market\ Value\ of\ Debt\ \ - Cash}{Earnings\ \ before\ Interest,\ Taxes\ and\ \ Depreciation}$$

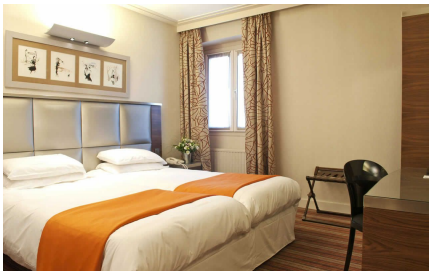
Technical Note:
When cash and marketable securities are netted out of the enterprise value then, income from the cash and securities shouldn´t be in the denominator

Reasons for market use of EBITDA

- The multiple can be computed even for firms that are reporting net losses, as long as EBITDA is positive
- The multiple seems to be more appropriate than the price/earnings ratio in most cases
- EBITDA is a better estimate of cash flows from operations that can be used to support debt payment, at least in the short term.
- EBITDA is a good estimate of cash flow prior to CAPEX
- By looking at enterprise value and cash flows to the firm, allows for comparison across firms with different financial leverage.

Example: Information about an hotel

- Fixed assets per room = 55 000 €
- No. of rooms = 900
- Working capital requirements = 2 300 k€
- Cash in hand = 300 k€
- Debt = 45 000 k€
- No. of shares = 1 000 000

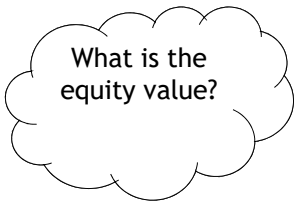


European Hotel Firms Multiples: An example in 31/12/20xx

European Firms	EV/Sales	EV/EBITDA
Accor	1,7	9,6
De Vere	1,7	7,9
Hilton Group	1,1	9,5
Jarvis Hotels	1,9	6,9
Millenium & Copthrn	2,7	10,6
NH Hotels	2,7	9,7
Six Continents	1,7	6,9
Sol Meliá	3,0	12,7
Thistle Hotels	3,3	8,7
Whitebread	1,5	7,2
Average	**2,13**	**8,97**
Median	**1,80**	**9,10**
Standard Deviation	**0,73**	**1,85**

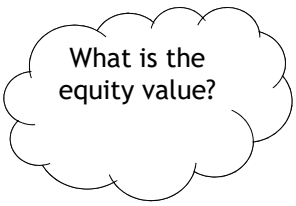
Example: Valuing the hotel with EV to Sales

- The amount of sales of the hotel: 24 500 k€.
- Average of EV to Sales of 10 european companies in 31/12/20XX: 2,13



Example: Valuing the hotel with EV to EBITDA

- The average of the EBITDA margin is 24,5%.
- The target hotel has an EBITDA margin that is identical to the industry.
- The average of the EV to EBITDA of 10 comparative hotels is 8,97



Advantages of Multiples based on Enterprise Value Vs Equity Value

- Debt effect
- Tax effect
- Accounting policies avoided such as – Amortizations & Depreciations, Provisions and Impairments

Pros and Cons

Pros

- Easy to apply

Cons

- Market is efficient
- Recent market deals
- Identical accounting principles
- Identical cost structure
- Similar product mix and product pricing
- Similar market segment and Customer behavior
- Etc.