

Workshop III:

Relative Valuation

Agenda

- Financial Instruments – stocks, bonds, derivatives
- Equities
- Bonds
- Current Markets

In relative valuation, the value of an asset is compared to the values assessed by the market for similar or comparable assets.

- identify comparable assets and obtain market values for these assets
- convert these market values into standardized values, since the absolute prices cannot be compared. This process of standardizing creates price multiples.
- compare the standardized value or multiple for the asset being analyzed

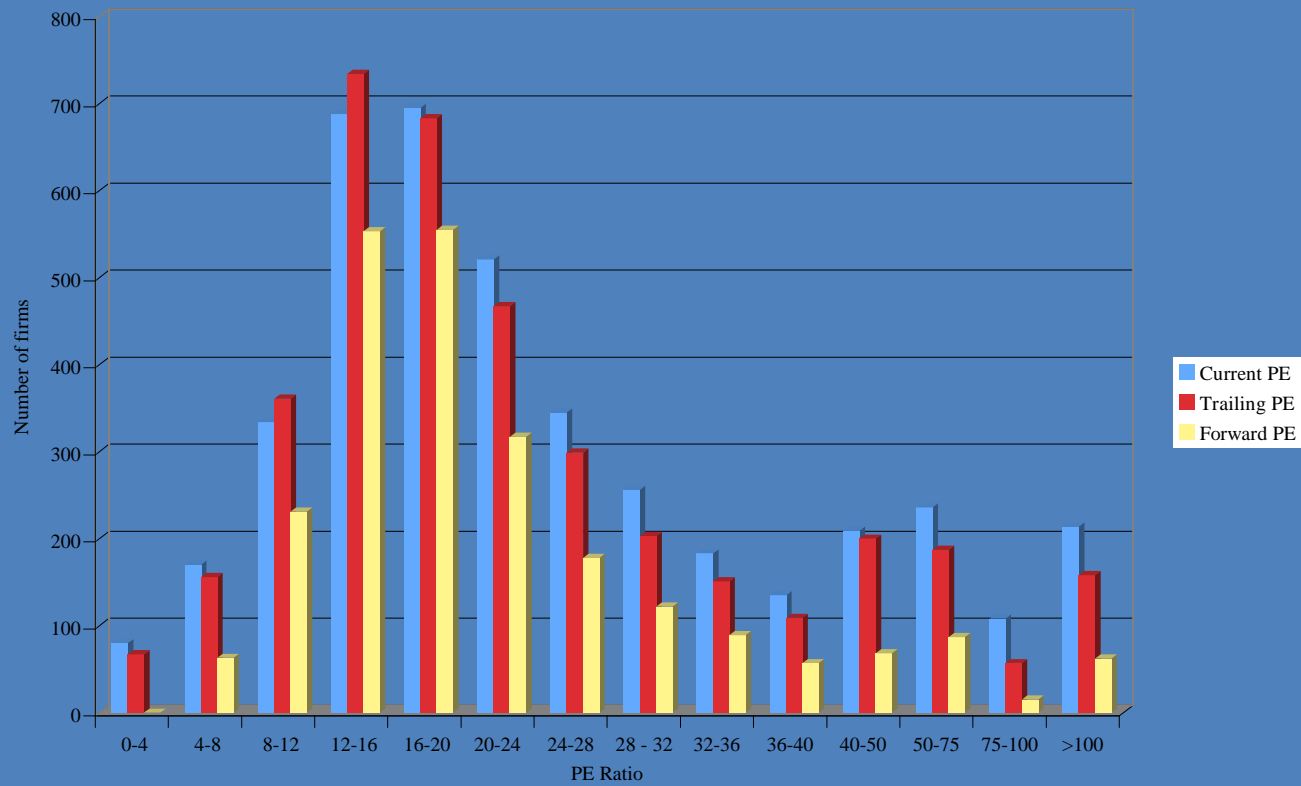
- Most valuations on Wall Street are relative valuations.
 - Almost 85% of equity research reports are based upon a multiple and comparables.
 - More than 50% of all acquisition valuations are based upon multiples

You can standardize by dividing by the

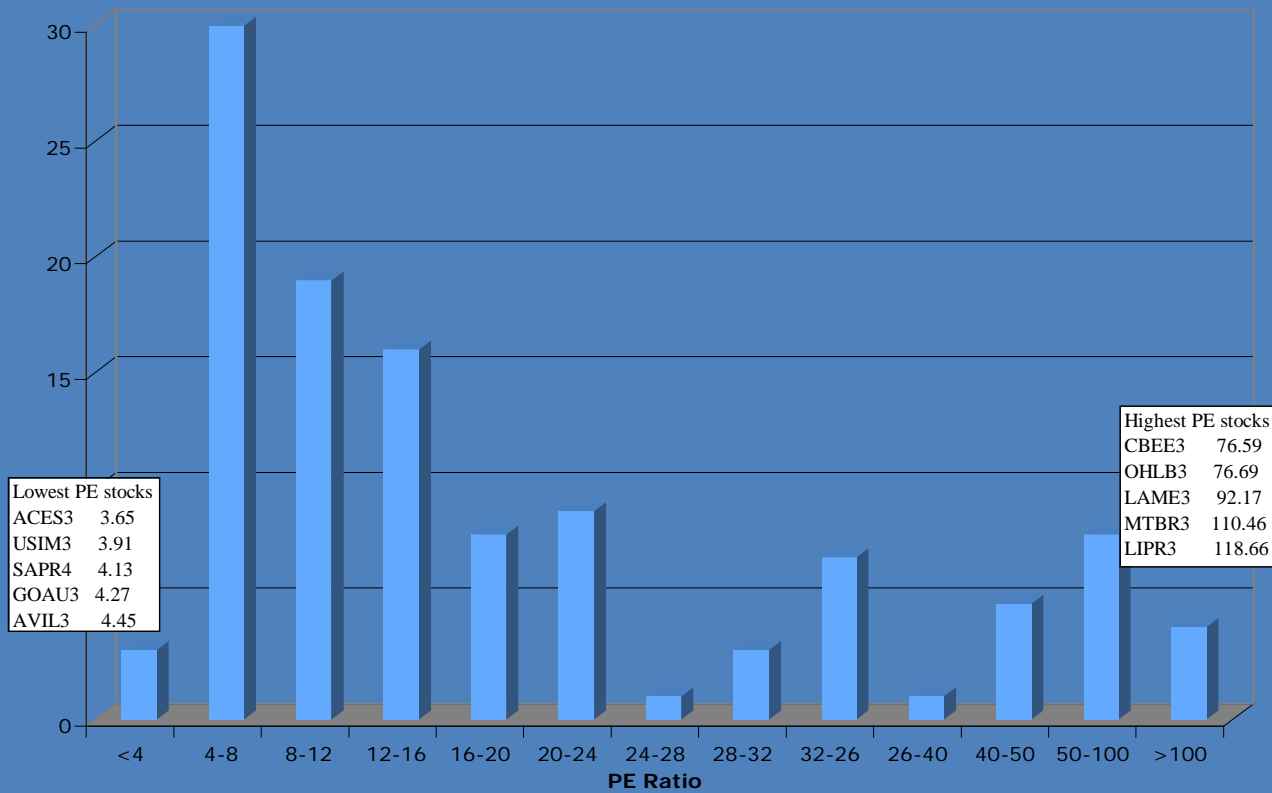
- **Earnings** of the asset
 - Price/Earnings Ratio (PE) and variants (PEG and Relative PE)
 - Value/EBIT
 - Value/EBITDA
 - Value/Cash Flow
- **Book value** of the asset
 - Price/Book Value(of Equity) (PBV)
 - Value/ Book Value of Assets
 - Value/Replacement Cost (Tobin's Q)
- **Revenues** generated by the asset
 - Price/Sales per Share (PS)
 - Value/Sales
- Asset or **Industry Specific Variable** (Price/kwh, Price per ton of steel)

PE ratio

PE Ratios for US Stocks - January 2006



Brazilian companies: PE ratios in January 2006



- To understand the fundamentals, start with a basic equity discounted cash flow model.
- With the dividend discount model,

$$P_0 = \frac{DPS_1}{r - g_n}$$

- Dividing both sides by the earnings per share,

$$\frac{P_0}{EPS_0} = PE = \frac{\text{Payout Ratio} * (1 + g_n)}{r - g_n}$$

- If this had been a FCFE Model,

$$P_0 = \frac{FCFE_1}{r - g_n}$$

Step back..

- What is Payout ratio?
 - Dividend/net income
- What are 'r' and 'g'?
- What is FCFF?
 - $\text{ebit} \cdot (1-t) - \text{net capex} - \text{change in working cap}$

- higher growth firms will have higher PE ratios than lower growth firms.
- higher risk firms will have lower PE ratios than lower risk firms

Value/EBITDA

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

Value/EBIDTA

1. The multiple can be computed even for firms that are reporting net losses, since earnings before interest, taxes and depreciation are usually positive.
2. For firms in certain industries, such as cellular, which require a substantial investment in infrastructure and long gestation periods, this multiple seems to be more appropriate than the price/earnings ratio.
3. In leveraged buyouts, where the key factor is cash generated by the firm prior to all discretionary expenditures, the EBITDA is the measure of cash flows from operations that can be used to support debt payment at least in the short term.
4. By looking at the value of the firm and cashflows to the firm it allows for comparisons across firms with different financial leverage.

Value/FCFF

- While Price earnings ratios look at the market value of equity relative to earnings, Value earnings ratios look at the market value of the firm relative to operating earnings. Value to cash flow ratios modify the earnings number to make it a cash flow number.
- The form of value to cash flow ratios that has the closest parallels in DCF valuation is the value to Free Cash Flow to the Firm, which is defined as:

$$\text{Value/FCFF} = \frac{\text{Market Value of Equity} + \text{Market Value of Debt-Cash}}{\text{EBIT} (1-t) - (\text{Cap Ex} - \text{Depr}) - \text{Chg in WC}}$$

Price/ Book Value

- The price/book value ratio is the ratio of the market value of equity to the book value of equity, i.e., the measure of shareholders' equity in the balance sheet.
- Price/Book Value = $\frac{\text{Market Value of Equity}}{\text{Book Value of Equity}}$

Price/Sales

- The price/sales ratio is the ratio of the market value of equity to the sales.
- $\text{Price/Sales} = \frac{\text{Market Value of Equity}}{\text{Total Revenues}}$

