



SESSION 15: PE RATIOS

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Price Earnings Ratio: Definition

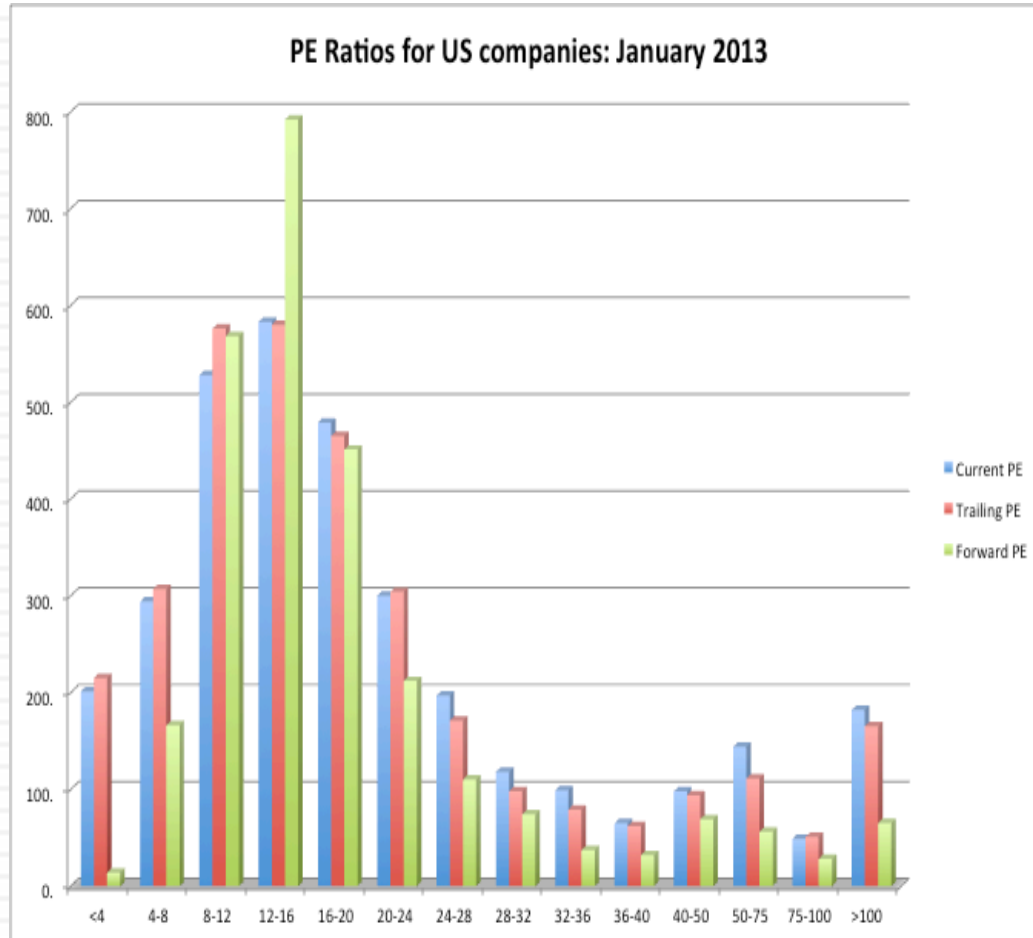
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$$\text{PE} = \text{Market Price per Share} / \text{Earnings per Share}$$

- There are a number of variants on the basic PE ratio in use. They are based upon how the price and the earnings are defined.
- Price:
 - is usually the current price (though some like to use average price over last 6 months or year)
- EPS:
 - Time variants: EPS in most recent financial year (current), EPS in most recent four quarters (trailing), EPS expected in next fiscal year or next four quarters (both called forward) or EPS in some future year
 - Primary, diluted or partially diluted
 - Before or after extraordinary items
 - Measured using different accounting rules (options expensed or not, pension fund income counted or not...)

Characteristic 1: Skewed Distributions PE ratios for US companies in January 2013

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Characteristic 2: Biased Samples

PE ratios in January 2013

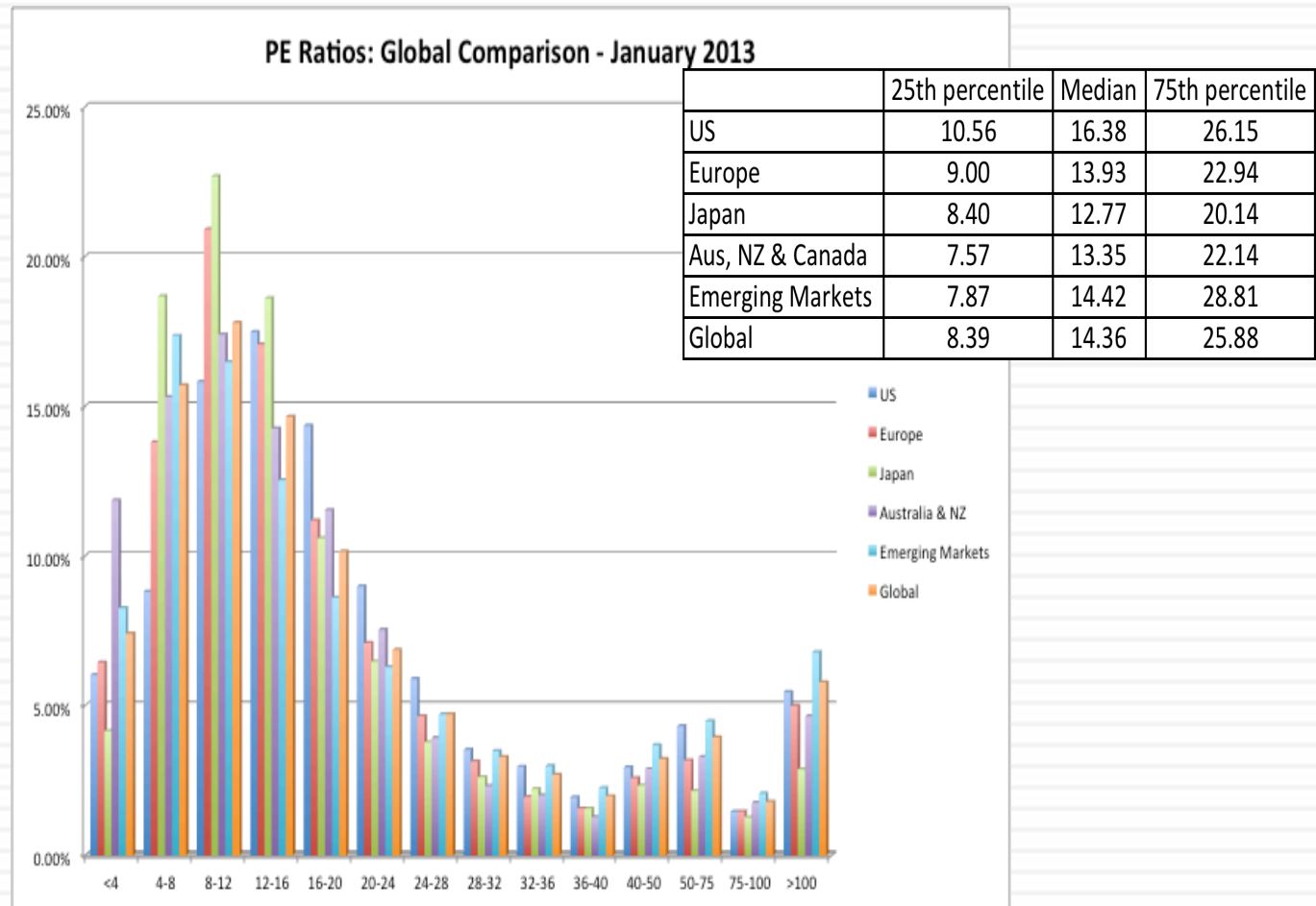
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	Current PE	Trailing PE	Forward PE
Total number of firms	7871	7871	7871
Number of firms with PE	3337	3278	2674
Average	83.86	43.88	24.45
Median	16.38	15.79	14.87
Maximum	50,463.64	8,840.31	3,192.76
Standard Deviation	1,299.9	250.87	83.5
Standard Error	22.5	4.38	1.61
Skewness	34.26	22.02	28.92
Kurtosis	1,250.28	620.81	995.61
25th Percentile	10.56	10.17	11.52
75th Percentile	26.15	24.15	20.2

Characteristic 3: Across Markets

PE Ratios: US, Europe, Japan and Emerging Markets – January 2013

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PE Ratio: Understanding the Fundamentals

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

- Dividing both sides by the current price per share or forward EPS:

$$\frac{P_0}{EPS_0} = PE = \frac{\text{Payout Ratio} * (1 + g_n)}{r - g_n} \qquad \frac{P_0}{EPS_1} = PE = \frac{\text{Payout Ratio}}{r - g_n}$$

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

$$\frac{P_0}{EPS_0} = PE = \frac{(FCFE/\text{Earnings}) * (1 + g_n)}{r - g_n}$$

PE Ratio and Fundamentals

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- Proposition 1: Other things held equal, higher growth firms will have higher PE ratios than lower growth firms.
- Proposition 2: Other things held equal, higher risk firms will have lower PE ratios than lower risk firms
- Proposition 3: Other things held equal, firms with lower reinvestment needs will have higher PE ratios than firms with higher reinvestment rates.

Of course, other things are difficult to hold equal since high growth firms, tend to have risk and high reinvestment rates.

The perfect under valued company...

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- If you were looking for the perfect undervalued asset, it would be one
 - ▣ With a low PE ratio (it is cheap)
 - ▣ With high expected growth in earnings
 - ▣ With low risk (and cost of equity)
 - ▣ And with high ROE
 - ▣ In other words, it would be cheap with no good reason for being cheap
- In the real world, most assets that look cheap on a multiple of earnings basis deserve to be cheap. In other words, one or more of these variables works against the company (It has low growth, high risk or a low ROE).
- When presented with a cheap stock (low PE), here are the key questions:
 - ▣ What is the expected growth in earnings?
 - ▣ What is the risk in the stock?
 - ▣ How efficiently does this company generate its growth?

Example 1: Let's try some story telling

Comparing PE ratios across firms in a sector

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<i>Company Name</i>	<i>Trailing PE</i>	<i>Expected Growth</i>	<i>Standard Deviation</i>
Coca-Cola Bottling	29.18	9.50%	20.58%
Molson Inc. Ltd. 'A'	43.65	15.50%	21.88%
Anheuser-Busch	24.31	11.00%	22.92%
Corby Distilleries Ltd.	16.24	7.50%	23.66%
Chalone Wine Group	21.76	14.00%	24.08%
Andres Wines Ltd. 'A'	8.96	3.50%	24.70%
Todhunter Int'l	8.94	3.00%	25.74%
Brown-Forman 'B'	10.07	11.50%	29.43%
Coors (Adolph) 'B'	23.02	10.00%	29.52%
PepsiCo, Inc.	33.00	10.50%	31.35%
Coca-Cola	44.33	19.00%	35.51%
Boston Beer 'A'	10.59	17.13%	39.58%
Whitman Corp.	25.19	11.50%	44.26%
Mondavi (Robert) 'A'	16.47	14.00%	45.84%
Coca-Cola Enterprises	37.14	27.00%	51.34%
Hansen Natural Corp	9.70	17.00%	62.45%

Example 2: The limits of story telling Telecom ADRs in 1999

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<i>Company Name</i>	<i>PE</i>	<i>Growth</i>
<i>PT Indosat ADR</i>	7.8	0.06
<i>Telebras ADR</i>	8.9	0.075
<i>Telecom Corporation of New Zealand ADR</i>	11.2	0.11
<i>Telecom Argentina Stet - France Telecom SA ADR B</i>	12.5	0.08
<i>Hellenic Telecommunication Organization SA ADR</i>	12.8	0.12
<i>Telecomunicaciones de Chile ADR</i>	16.6	0.08
<i>Swisscom AG ADR</i>	18.3	0.11
<i>Asia Satellite Telecom Holdings ADR</i>	19.6	0.16
<i>Portugal Telecom SA ADR</i>	20.8	0.13
<i>Telefonos de Mexico ADR L</i>	21.1	0.14
<i>Matav RT ADR</i>	21.5	0.22
<i>Telstra ADR</i>	21.7	0.12
<i>Gilat Communications</i>	22.7	0.31
<i>Deutsche Telekom AG ADR</i>	24.6	0.11
<i>British Telecommunications PLC ADR</i>	25.7	0.07
<i>Tele Danmark AS ADR</i>	27	0.09
<i>Telekomunikasi Indonesia ADR</i>	28.4	0.32
<i>Cable & Wireless PLC ADR</i>	29.8	0.14
<i>APT Satellite Holdings ADR</i>	31	0.33
<i>Telefonica SA ADR</i>	32.5	0.18
<i>Royal KPN NV ADR</i>	35.7	0.13
<i>Telecom Italia SPA ADR</i>	42.2	0.14
<i>Nippon Telegraph & Telephone ADR</i>	44.3	0.2
<i>France Telecom SA ADR</i>	45.2	0.19
<i>Korea Telecom ADR</i>	71.3	0.44

PE, Growth and Risk

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- Dependent variable is: PE
- R squared = 66.2% R squared (adjusted) = 63.1%

<i>Variable</i>	<i>Coefficient</i>	<i>SE</i>	<i>t-ratio</i>	<i>Probability</i>
Constant	13.1151	3.471	3.78	0.0010
Growth rate	1.21223	19.27	6.29	≤ 0.0001
Emerging Market	-13.8531	3.606	-3.84	0.0009
Emerging Market is a dummy:			1 if emerging market 0 if not	

- Predicted PE for Telebras= $13.12 + 1.2122 (7.5) - 13.85 (1) = 8.35$
- At an actual price to earnings ratio of 8.9, Telebras is slightly overvalued.