

# PREDICTABLE INVESTING

HISTORY LESSON – May 2007.

## USING PE RATIOS TO DETERMINE MARKET VALUATION.

**1.0 INTRODUCTION:** Articles in the financial media will sometimes say that the market is “fairly valued” or “under or over valued”. What exactly does this mean, and how is valuation measured?

Analysts who believe that the market (the S&P 500) is undervalued are expecting stock prices to rise, while those who claim that it is overvalued are expecting a drop in the market. Those claiming the market is fairly valued expect stock prices to go sideways.

This history lesson explains one of the various methods used for determining market value, which is the Price to Earnings Ratio (PE Ratio). We also use the PE ratio as one of our 5 indicators which as a group tell us about the health of the markets.

**2.0 TERMINOLOGY:** Before discussing the details of this process, we need to understand and become familiar with a few terms.

**Earnings** (or Annual Earnings) are the amount of profit generated by a company or an index such as the S&P500 over a 12 month period. There are two categories of profits, Operating Earnings and Reported Earnings. Operating Earnings is the profit made by the company as the result of its normal everyday operations. Reported Earnings is the operating earnings that have been adjusted for one time events that are non-recurring. Examples of such one time events are restructuring costs, expenses for closing a plant or facility, and gain from the sale of a subsidiary or asset.

*PI uses Operating earnings only*, since it gives us a clear picture of the profit that the company is generating from its core business without charges from extraneous one-time events. Whenever we refer to Earnings or Annual Earnings, we are referring to Operating Earnings.

**Earnings per share (EPS)**, is the annual earnings divided by the number of shares outstanding.

**Price per share (P)** is the amount investors are willing to pay for one share of the stock or index. This is what is commonly referred to as “the stock price”.

**Price to Earnings Ratio** (or PE ratio) is obtained by dividing the Price per share by the Earnings per share, i.e., **P/EPS**. For instance, a company with a stock price of \$80 and an annual earnings of \$4/- has a PE Ratio of 20.

**Earnings Multiple** is a synonym for PE ratio. We sometimes hear statements such as the “stock has an earnings multiple of 20”, the “stock has a multiple of 20X”, or “the stock trades at 20 times earnings”. All these various statements are alternative ways of saying that the PE ratio is 20.

**Trailing Twelve Months (TTM)** refers to any financial result from over the last 4 quarters of operation. For instance, Earnings(TTM) is the actual earnings generated over the last 12 months.

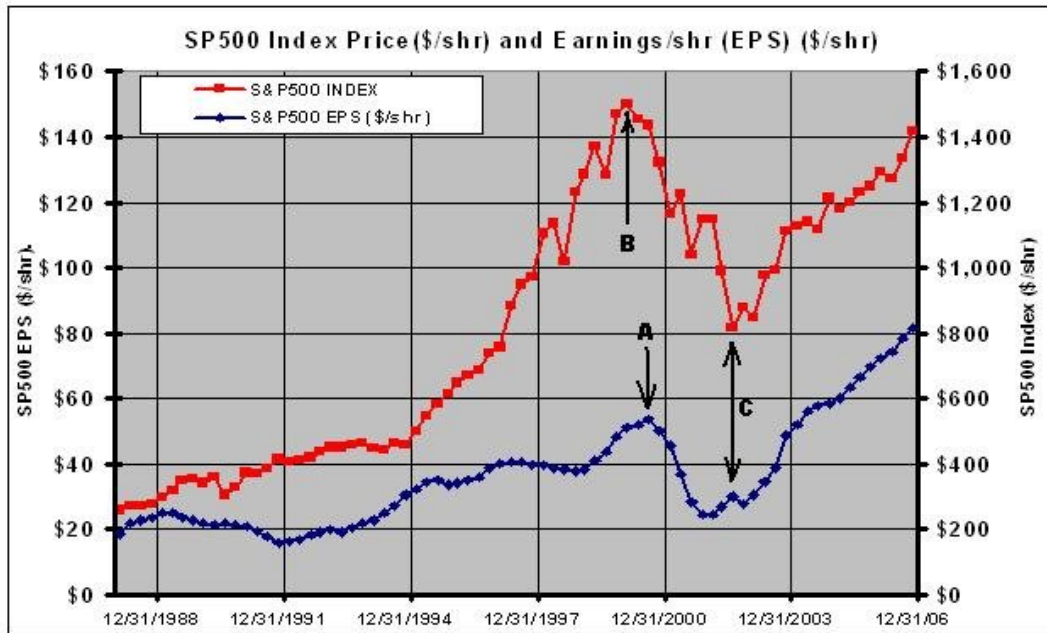
**Forward Twelve Months (FWD)** refers to any financial result that is estimated to occur over the next 4 quarters of operation. These estimates are provided by analysts at the various financial services companies. For instance, Earnings(FWD) is the earnings that the company is expected to generate over the next 12 months.

**PE(TTM)** is the price per share P divided by **actual** earnings per share (EPS) over the last 4 quarters.

**PE(FWD)** is the price per share P divided by the **estimated** EPS over the next 4 quarters.

**Fair Market PE Ratio** is the historical average PE ratio of the S&P500 over a period of many decades (more details in section 4.0).

**2.0 EARNINGS HISTORY:** The price per share of the S&P500 index (red curve) and its actual annual operating earnings record (blue curve) for the last 20 years is shown in the Figure 1 below.



**Figure 1. S&P500 Index Price and EPS.**  
**(A = EPS peak, B = S&P500 peak, C = S&P500 market bottom.)**

We can see clearly that the price of a stock or index fluctuates in sync with its earnings. When earnings are increasing the market price also goes up and vice-versa.

The SP500 earnings peaked in mid 2000 (vertical black arrow marked B) and price of the index peaked shortly before it (black arrow A). Subsequently the earnings dropped drastically, causing the bear market of early 2000 to mid-2003, during which the SP500 index price fell by almost 50%. Earnings started growing again in late 2002 (black arrow C), setting the stage for the market recovery that started in mid-2003 and which continues to the present day.

Over the last 20 years, the SP500 earnings have been growing at an annualized growth rate of 7.4%, while the corresponding annual growth in the price of the index is 9.5%. This means that earnings growth accounts for a whopping 77.9% of the change in price of the index. We thus state the obvious fact that by far *the most important factor driving the growth in the price of a stock or stock index is the growth of its earnings.*

**3.0 PE RATIO HISTORY:** The relationship between the S&P500 annual earnings per share (EPS - blue curve), and the forward PE ratio of the SP500, (PE (FWD) - red curve), over the last 20 years, is shown in Figure 2 below.



**Figure 2. S&P500 EPS and its Forward PE Ratio.**  
(A=Earnings peak, B=PE Ratio(Fwd) peak, C=PE Ratio stabilization point)

Since the PE ratio is the price P divided by EPS, this ratio can go up if either the index price P increases or if the EPS goes down, and vice-versa.

Earnings peaked in mid-2000 (vertical black arrow A) and then fell dramatically over the next two years. The forward PE ratio rose higher and higher from the low-20's to the 30's. It then climbed to an unprecedented peak of 50 (vertical black arrow B) at the height of the high-tech bubble. As earnings fell, the S&P500 started its long downward slide and this decrease in price P caused the forward PE ratio to fall and finally stabilize around 18 in early-2003 (black arrow C).

Earnings have been increasing at a steady rate since then, and the PE ratio has continued to slowly come down. In spite of the huge increase in the market price over the last 4 years, the PE ratio keeps going down, meaning the market valuation is becoming more and more favorable. This is why our indicators have been consistently bullish over the last 4 years.

**4.0 MARKET VALUATION:** Comparing the current forward PE against the “fair market PE” gives a measure of market valuation. From long-term historical data, the fair market PE lies between 16 and 17, and we currently estimate it to be 16.89 (green horizontal line in Fig 2).

If the forward PE ratio is lower than the fair market PE, then the market is undervalued, while a higher ratio indicates it is overvalued.

The current forward PE ratio as of Apr 30, 2007 is 16.15, which is lower than the fair PE ratio of 16.89. This means that we are currently undervalued by 4.38%, and that we expect to see continued gains in the price of the S&P500 index.

***Please note however that the market has increased significantly over the last few months, and a correction from these levels is quite possible before these new highs can be reached.***