STOCKS' POTENTIAL PAYBACK PERIODS (PPPs) AND INTERNAL RATES OF RETURN (IRRs) PROVE THE RATIONALITY OF FINANCIAL MARKETS

The concept of potential payback period (PPP) associated with that of internal rate of return (IRR) complements the price-earnings ratio (PER) which is most often used to measure whether a stock is expensive.

The PER simply expresses the relationship between the stock price and earnings per share for a given year, which can be the past or current year. It does not take account of the growth rate of profits, which is an essential factor in valuing stocks, nor of the interest rate, likewise essential in comparing the valuation of stocks and bonds.

The PPP allows more significant comparisons in assessing whether a stock is expensive. Mathematically, it starts from the PER and then integrates this ratio with the forecast growth rate of a company's profits as well as the interest rate on bonds. Unlike the PER, the PPP allows comparisons in time and space, and so better investment choices.

1- Impact of growth rate of profits

Via the PPP it is easier to understand why investors are willing to pay a higher PER for a growth stock compared with another which has slower growth and a lower PER. In fact the two shares may have roughly equivalent PPPs, and one is in fact not more expensive than the other.

2- Impact of interest rates

Via the PPP, it is also easier to understand why, all other things being equal, shares are more expensive in a context of low interest rates and less expensive when interest rates rise. By discounting future profit streams using the interest rate on long-term bonds, the PPP introduces the concept of opportunity cost facing the equity investor, who could have bought bonds rather than stocks.

3- Advantage of a mathematical formula

The PPP reflects empirical evidence and draws on the intuitive reasoning of investors who expect the price of a share in PER terms to behave in accordance with the growth rate of profits, and in the opposite direction to interest rates. This price behaviour can be observed in space and in time. The advantage of the PPP is to rigorously integrate the three elements in a precise mathematical formula: the PER ratio, the growth rate of profits and the interest rate. The result allows the price of a stock to be more accurately evaluated.

4- Static Versus Dynamic

The PER ratio is a static measure of the value of a share which only takes account of earnings per share in a single year, and which disregards interest rates. The PPP is a dynamic instrument which integrates other, evolving factors, namely the growth rate of profits and interest rates on the bond market.

It's theoretically possible for the PER and the PPP of a share to be equal at a particular time. This is when the predicted growth rate of profits and interest rates are both equal to zero, corresponding to a completely frozen world.

As such a hypothesis is absurd, static measures of stock prices such as the PER must be used alongside other dynamic measures such as the PPP.

5- The internal rate of return (IRR) associated with the PPP

The PPP is expressed by a number of years. But it is possible to derive an internal rate of return which corresponds to the compound interest rate which allows the initial price of the share to be recovered over the course of the PPP through the predicted progression in earnings per share. Expressed as a percentage, this rate of operating profitability over the PPP is much more revealing and allows easier comparisons. For instance, a PPP of ten years corresponds to an internal rate of return of 7.2%.

6- Scale and rationality in financial markets

Simply using a PER to measure the price of a share leads to a limitless range of valuation possibilities. A PER can vary between 0 and infinity. It reaches astronomical levels when earnings per share approach 0, and becomes meaningless when the year in question is loss-making. The PPP varies much more narrowly, in a range of between 5 and 15 years, corresponding to a range of 5% to 15% for the internal rate of return. These are much more significant, realistic and credible numbers in terms of scale and their relative stability. The rationality of financial markets is fortunately more obvious if adequate tools of measurement are used.

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