On an Equity's Dividend Yield and Price-Earnings Ratio

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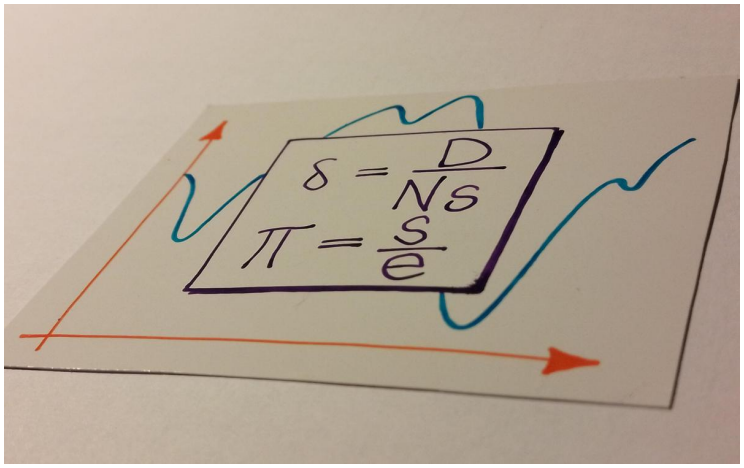

An equity investor purchases [1] shares in a publicly listed company. In return, the investor usually receives dividend payments from the company. And, the share price of the company hopefully rises over time as a result of the company's increase in earnings. The simple analysis here captures the investor's change in relative monetary net worth as a function of the company's *dividend yield*, its *earnings per share*, and its *price-per-unit-earnings ratio*.

We begin by assuming the investor has an amount S available for an equity investment, and that the investor's objective is to seek an equity investment which maximises his/her monetary net worth after some specified time interval. If an investment transaction is concluded at the current time, say, then the investor's current net worth is, simply

$$W = S = Ns$$

where N is the number of company shares purchased, and s is the price per share.

At a future time, the company will (hopefully) distribute a dividend D' to all shareholders. So at that future time, the investor's pre-tax net worth will be

$$W' = Ns' + D'$$

where s' is the price per share at that time. Since the *dividend yield*, δ', is defined as the value of the dividend distributed for a single share relative to the market price of that single share, we have

$$D' = N\delta' s'$$

So

$$W' = (1+\delta')Ns' = \frac{(1+\delta')s'}{s}S$$

The expensiveness of a company share is conventionally encapsulated in the share's so-called *price-per-unit-earnings* ratio

$$\pi = \frac{s}{e}$$

where e is the company's current value of net earning per share. The ratio captures the price investor's must pay to share in the company's earnings. At the future time, in terms of this ratio, the investor's net worth will be

$$W' = (1+\delta')\left(\frac{\pi' e'}{\pi e}\right)S$$

The relative change in the investor's monetary net worth from now until just after the next dividend is received is therefore

$$\boxed{\Delta w \equiv \frac{W'-W}{W} = (1+\delta')\left(\frac{\pi' e'}{\pi e}\right) - 1}$$

This expression for Δw clearly shows the importance, firstly, of seeking equities whose future price-per-unit-earning ratio, π', is expected to be higher than its current value, π. And secondly, of seeking equities whose future dividend yield, δ', is expected to be high.

[1] I declare this to be my own work, entirely. In particular, no AI was used in any research, analysis, synthesis, writing, nor typesetting of this work. In short, AI was not recruited at any time in this work. Errors and inaccuracies are therefore proudly my own.