

A Comparison of Paying Dividends versus Share Buy Backs

The following analysis is intended as a “straw man” theory to test the hypothesis that Dividends and Share Buy Backs are really the same thing. I have read several articles expressing an opposite view!

Suppose that a company has:

$$\begin{aligned} \text{Share Price} &= P \\ \text{Dividend per share} &= D \\ \text{No. shares in issue} &= S \end{aligned}$$

Dividend

When the dividend is paid, the share price will have already fallen to the ex-dividend price:

$$P - D$$

Assume that one investor sells N shares in the market and all other investors re-invest their dividends by buying shares in the market. If there is to be no price change then these should balance out:

$$\begin{aligned} N * (P - D) &= (S - N) * D \\ \Rightarrow NP - ND &= SD - ND \\ \Rightarrow NP &= SD \quad (1) \end{aligned}$$

The company is worth $(P - D) * S$ and the remaining investors hold S shares each worth:

$$P - D.$$

The investor who sold in the market received:

$$\begin{aligned} &\text{dividend + proceeds} \\ &= ND + N * (P - D) \\ &= NP = SD \end{aligned}$$

Share Buy Back

The company will locate an investor who is willing to sell M shares at price P that are equal to the value of the dividend that the company wishes to pay. Then:

$$MP = SD$$

Comparing with (1), $M = N$.

The company is now worth $PS - DS$

Suppose that a share split is performed to restore the number of shares in issue.

The bought back shares are cancelled, so the number of shares in issue is now:

$$S - M = S - SD / P$$

These shares are each worth P. After the split there will be S shares, worth $P2$. Assuming that the price is set rationally:

$$\begin{aligned} S * P2 &= (S - SD / P) * P \\ \Rightarrow P2 &= P - D \end{aligned}$$

Thus the remaining investors hold S shares worth $P - D$, and the investor who sold to the company has received SD.

So I conclude that a share buy back followed by a stock split is identical to paying the dividend, and that if markets are rational then there is no change to shareholder returns.

Questions Arising:

If in practice, the price is affected differently does this prove that markets are not rational?

How is “Dividend Yield” affected by share buy-backs? Is there a need for a new metric of “Cash Yield” which will encompass both dividends and share buy backs?

If dividends were replaced by share buy-backs would this make technical analysis more reliable? Are price charts available which are corrected for ex-dividend effects?