

Dividends versus Share Repurchase: *The Stock Price Effect*

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Does a firm's stock price react more favorably to a dividend increase or to an increase in the dollar amount of a share repurchase? If the price of the common stock of a firm that pays dividends sells at a higher price than the stock of a firm that does not pay dividends, should CEOs of nondividend-paying firms advocate the start of dividend payments?

Paul B. Brown wrote in *The New York Times* on December 9, 2006, that "through September the top 100 dividend payers in the Standard & Poor's 500 had returned 14 percent to investors, handily outperforming stocks with no yields." And on December 10, 2006, also in *The New York Times*, Paul J. Lim wrote that "since 1980, dividend payers have beaten the nonpayers by an average of 2.2 percentage points a year."

In this article, I consider the extent to which a company's board of directors and its top management should consider the immediate effect on stock price of the company's distribution policy. But, first, we will analyze the basic decision rules for a distribution policy without considering the market's perception of the resulting effect on stock price.

The conclusions of this article are consistent with those of Black and Scholes [1974]. For example, they concluded that "[t]he price may change temporarily in response to a change in the dividend, because the market may believe that the change indicates something about the

probable future course of earnings. If it becomes clear that the change was not made because of any changes in estimated future earnings, this temporary effect should disappear" (p. 21). Thus, the firm's underlying profitability affects the long-term stock price and not the firm's dividend policy decisions.

There seems to be little question that a dividend change supplies information for some investors. For example, Koch and Sun [2004] described results that are consistent with their hypothesis that investors use changes in dividends to help assess the persistence of past earnings. And Michael, Thaler, and Womack [1995] investigated market reactions to the initiation and omission of cash dividend payments. They found "significant long-term drifts following announcement of initiations and especially omissions" (p. 605). Their conclusions are not necessarily contradictory to those of Black and Scholes [1974] and do not agree with, nor are contrary to, the conclusions of this article.

RETENTION VERSUS DISTRIBUTION

When is a firm justified in retaining cash flow rather than distributing it to shareholders?

Let

r = rate (after corporate income tax) a firm can earn on an incremental dollar invested in the firm,

r_p = after-tax return investors can earn in the market,

t_d = tax rate on dividends and long-term capital gains,

D = amount of cash the firm can reinvest or distribute.

If a firm retains D , earns r , and the incremental gain is taxed, the investor nets at Time 1,

$$D[1+r][1-t_d]$$

And if a firm pays an immediate dividend of D , an investor earning r_p has the following amount after one year:

$$[1-t_d]D[1+r_p]$$

If r is larger than r_p , it is better for the investor if the firm retains rather than pays a dividend; if, however, r is smaller than r_p , it is better for the investor if the corporation pays a dividend.

A PARADOX

Assume a typical common stock earns r and an average investor will earn r_p after his earnings on the stock are taxed. Since the investor earns r before taxes and earns r_p after paying taxes, r is larger than r_p . Any corporation which does not have internal investments that earn more than r_p can invest in the market's best common stock and expect to earn more than r_p . A corporation with poor internal investment opportunities can invest in other corporations and do better for its investors than if it distributed cash to them. The prime example of this strategy in practice is Warren Buffett's company, Berkshire Hathaway. We will assume that many corporations reject this investment strategy and thus distribute some cash to their investors.

DIVIDENDS VERSUS SHARE REPURCHASE

Using the set of symbols defined in the previous section assume that a firm pays a dividend of D . The investor who can earn r_p in the market will net after one year,

$$[1-t_d]D[1+r_p]$$

If instead of paying a dividend the firm repurchases stock in an amount equal to D and the investor has a tax basis in that stock equal to $Basis$, the investor will net the following amount after one year:

$$\begin{aligned} & [D - (D - Basis)t_d](1+r_p) \text{ or } [1-t_d]D[1+r_p] \\ & + t_dBasis[1+r_p] \end{aligned}$$

Share repurchase compared to an immediate dividend will increase the Time 1 value by

$$t_dBasis[1+r_p]$$

if the tax rate on both dividends and capital gains is t_d . Share repurchase beats the cash dividend by the amount of the tax savings related to the amount of the tax basis which protects some of the cash distribution from taxes, as well as by an amount equal to the subsequent earnings on the tax savings.

Another advantage of share repurchase is that a shareholder who does not desire immediate cash flow will not sell and thus will save both the taxes and transaction costs related to reinvesting. All of these calculations assume a single-period time horizon. Instead of one year, the calculations could have used N years; the magnitudes would change, but not the conclusions.

To this point, we have described the situation in which retaining earnings may be desirable but when cash distributions are appropriate, and when shareholders are taxed, share repurchase beats cash dividends. We have ignored, however, the stock price effect that occurs (or might occur) because the market likes dividends and likes increasing dividends through time.

Graham and Kumar [2006] found evidence consistent with dividend clienteles. As expected, the preference for dividend yield increases as investor age increases and decreases as investor income increases. Allen, Bernardo, and Welch [2000] offered reasons why firms pay dividends even though the government taxes dividends more heavily than capital gains (via share repurchase). A primary explanation they offered for this phenomenon is that a firm paying dividends attracts more institutional investors.

Grinstein and Michaely [2005] also studied the effect of institutional holdings on payout policy and the

effect of payout policy on institutional holdings. They found that a high dividend payout does not attract an institutional clientele and that institutional investors do not cause a firm to increase its payout, but that paying a dividend does attract institutional investors. Grullon and Ikenberry [2000] described how firms implement the different methods of share repurchase, such as a fixed-price tender offer, Dutch-auction tender offer, and open-market repurchase.

STARTING WITH PRICE EQUILIBRIUM

Assume a corporation is earning \$2 per share and is paying a dividend of \$1 per share. The firm expects to grow at 7% per year and has a 9% cost of equity. The stock price determination is consistent with the following dividend growth model:

$$P = \frac{1}{0.09 - 0.07} = \frac{1}{0.02} = \$50$$

If the dividend increases, the growth rate will decrease. Assume the dividend increases to \$1.50 and the stock price increases to \$75 because the market likes the rate of growth in the dividend. Using the dividend stock valuation model, the retention rate decreases to 0.25 [\$0.50 divided by \$2.00] and the new growth rate is 4% per year. The assumed return on new investments is 16%, whereas it was 14%. The new theoretical stock value, given this information and no market psychology effect, is

$$P = \frac{1.50}{0.09 - 0.04} = \$30$$

Rather than rising to \$75, based on the economics, the stock price should fall to \$30. The stock price decrease should take place because the corporation will be rejecting desirable investments (i.e., investments that earn more than the 9% cost of equity). Even though the average return on new investment increases to 16%, the smaller amount of investment will result in a lower stock value, using the dividend valuation model.

Given the new stock price of \$75, what happens next? If the price stays at \$75, the owners of the stock (both old and new investors) will earn 6% on the investment,

$$75 = \frac{1.50}{r - 0.04}$$

$$r = 0.06$$

But given the 9% required return for the stock, the investors will be dissatisfied. In fact, with the facts as stated, we can expect the stock price to fall to \$30.

The conclusion is that if the stock market inflates the stock price above its value, the consequences will not be desirable for future investors in the stock. If the stock is correctly priced at the beginning, and if the market reacts favorably to a dividend increase, then the value must decrease unless the firm's fortunes change or the market's requirements change.

If the firm was making undesirable investments and the dividend increase eliminated such an undertaking, then the dividend increase could rationally benefit the stock price as a reflection of the market's relief that the firm would no longer be making bad investments. But even in this situation, when investors are taxed, it is better for the distribution to take the form of a share repurchase than of a cash dividend.

The argument that the market looks favorably on a dividend-paying stock or an increase in dividends is not valid. A company's board of directors should not include the stock price effect in making its dividend decision. Even if a dividend increase resulted in a large stock price change, pushing it above intrinsic value, there is no way for all investors to escape from the stock or hold the stock without suffering a loss.

Some stocks should cater to the needs of zero stock investors. These stocks should pay dividends so that their investors receive cash flows with a minimum of transaction costs. A normal stock, however, will have a significant percentage of investors who are taxed, and for taxed investors, the share repurchase strategy dominates a cash dividend strategy.

COMPARING DIVIDENDS AND SHARE REPURCHASE

Assume a company is able to pay a \$1,000 dividend or to buy \$1,000 of its outstanding shares. Assuming a 15% tax rate on dividends, if the firm pays a \$1,000 dividend, the investor will net \$850. If, however, the firm makes a \$1,000 share repurchase with a \$1,000 tax basis,

the investor nets \$1,000 and the share repurchase is more beneficial, on a cash basis, than a dividend.

But in the case of the share repurchase an investor has to sell a certain number of shares to receive the \$1,000. Assume N shares are outstanding initially and the company is buying n , or $\frac{n}{N}$ of its shares. For simplicity, we will assume that the investor initially owned Q shares and sells $Q\frac{n}{N}$ to receive the \$1,000.

Before the repurchase, the investor owned $\frac{Q}{N}$ of the outstanding shares. After the repurchase, the investor will own

$$\frac{Q - Q\frac{n}{N}}{N - n} = \frac{QN - nQ}{(N - n)N} = \frac{Q}{N}$$

The investor still owns $\frac{Q}{N}$ of the shares; thus, the investor's ownership of the firm has not changed. But if the investor sells fewer than $Q\frac{n}{N}$, his ownership of the firm will rise, and if more than $Q\frac{n}{N}$ shares are sold, his ownership of the firm will fall.

An Example

Let

$N = 100,000$ shares,

$n = 5,000$ shares,

$Q = 1,000$ shares (i.e., the investor's initial ownership is 1% of the outstanding shares).

The investor sells 5% of 1,000 shares, or 50 shares, at a price of \$20 per share, and receives \$1,000. After the firm repurchases 5,000 shares, the firm has 95,000 shares outstanding. The investor has 950 shares, or 1%,

$$\frac{950}{95,000} = 0.01$$

of the outstanding shares.

CONCLUSION

How does the stock price effect affect the cash distribution decision? Beyond the short-run effect on investors who are selling the firm's shares, the stock price effect should not be considered by the firm. If the stock

price is initially a fair price, then the firm cannot sustain any increase in stock price because of market psychology. If the stock retains its inflated price, then the shareholders will earn below-market required returns. Much more likely is a future stock price decline—if the firm rejects good investments because of the dividend increase—so that the investors earn a normal risk-adjusted return.

There are two situations for which the analysis described in the article may be misleading. First, assume that a firm's stock price before a dividend increase is too low; a stock price increase will merely cause the market to properly value the stock. Second, assume that a firm's economic prospects suddenly change for the better. In this case, a stock price increase is merely consistent with the increased value. Neither of these two explanations, however, can justify the decision to increase the dividend. They are justifications for a stock price increase.

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