

Dividend Yield and Price-Earnings Ratio: A Further Look

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Abstract

The dividend Yield and Price Earnings Ratio are two widely used measures of share valuation. This paper presents the value relevance controversy of these two measures. It reveals that both D/Y and P/E provide useful information to rational investors but D/Y can vary independently of the value of the company and P/E ratio is also uninformative.

Keywords: Earnings, Information, Dividend, Valuation, Growth, Uncertainty.

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Introduction

Miller and Modigliani (1961) (hereafter MM) in their seminal paper demonstrated theoretically that all valuation models, regardless of whether they discount expected earnings, dividends, cash flows are essentially equivalent and independent of the value of the firm. However, later studies found that valuation models have information content as well as value relevance (Govindarajan, 1980; Fama and French, 1988; Hordick, 1992; Barker, 1999a). On the other

hand, some argue that these models are useful for short horizon (Bernard, 1995) and under some given assumptions.

This short paper discusses whether Dividend Yield (hereafter D/Y) and Price Earnings Ratio (hereafter P/E) convey information to investors about value and expected future earnings of the firms respectively.

The paper proceeds as follows: section 2 discusses the value relevance controversy of D/Y. Section 3 presents a similar discussion for P/E. In section 4, an attempt is made to reconcile the two extreme views regarding the models and section 5 contains a brief conclusion.

Controversy with D/Y

'Dividend puzzle', first coined by Black (1976), refers to the inability to reconcile satisfactorily the following two statements: First, the value of a company in a perfect capital market is independent of its dividend policy and second, in real world dividend seems to be extremely important to investors. The main aim of this section is to discuss these two extreme statements.

D/Y is a measure of the annual percentage of returns a shareholder receives from dividends, based on the current share price. Constant Dividend Growth model ($P_0 = D_1 / (k - g)$) can be expressed alternatively to dividend yield model, which is as follows:

$$D_1 / P_0 = k - g \quad \dots\dots\dots(1)$$

An instant appeal of this model is that it provides a straightforward basis to value shares, using only current dividends, the cost of capital and an estimated dividend growth rate. It is also a relative measure and by using this investors can assess the premium or discount that differentiates one share from another. D/Y can also be used to compare equities with fixed interest investments. Moreover, it is a useful measure for those investors who are motivated by short-term out performance.

Now the question arises whether the assumption of current dividend relevance underlying the use of this model is really justified. With a given set of assumptions, MM conclude that a firm's dividend policy is a matter of indifference to investors, i.e. the value of the firm is independent of the dividend policy adopted by the management. The reason is that if earnings are retained by the firm, the investors can sell their shares and leave themselves in the same position as if the firm had paid dividends. Alternatively, if management decides

to pay dividends, new shares must be issued to undertake new projects. The investors who prefer to reinvest can do so by buying shares with the dividend paid. In this instance, they would have also been in the same position. For this reason, investors are indifferent to dividends and as a consequence, the value of the firm is independent to its dividend policy. In fact, conditions of certainty make the current dividend independent of the value of the firm in MM valuation model¹.

However, MM irrelevance view can be criticised at least from two angles. *First*, investors are not indifferent to dividend as opposed to capital gains. *Second*, dividends paid by companies are not independent of key activities going on within the firm.

Firstly, for individual investors capital gains are taxed at a lower rate than cash dividends². Under these circumstances, dividends may no longer be a matter of indifference to investors. Moreover, the existence of investors with different tax rates on dividend income gives rise to the possibility that individuals in high (low) tax brackets concentrate their portfolios in low (high) yield securities, which is known as 'clientele effect'. Black and Scholes (1974) have argued that in this case there would be differential D/Y and yet still no observable relationship between these yields and risk-adjusted returns unless there are substantial costs associated with changes in dividend policy.

Secondly, if managers have better information about firms' cash flows than outside investors, changes in dividend will convey (signal) information to them. Linter (1956) provides empirical evidence that managers consider past as well as future earnings in setting current dividends. Thus an increase (decrease) in dividend often leads to a rise (drop) in the company's stock price. In this situation D/Y may provide useful information to rational investors.

However, there are two theoretical problems of this model: First, it is unable to deal with a company that pays no dividend at the end of the first year and second is growth rate of dividend cannot exceed the cost of capital. Many companies do not pay dividends and this does not mean that those companies are valueless. Even it does not explain the relationship between current dividend and future dividend.

Last but not the least, there is a twist. It is not essentially important how much a stock pays. What really matters are how fast the company is raising those payouts and whether or not the anticipated growth in the current dividend is likely to be sustainable. For instance, a stock with a 1% yield but a 20%

annual dividend growth rate is far better than one with a 5% yield but only a 5% growth rate.

This section concludes with the observation that D/Y can be very informative, but the controversy still remains whether it can be used as a guide to value of the company. One of the great advantages of D/Y is that both its components (price and dividend per share) are measured very precisely. On the other hand, D/Y does not tell the investors precisely by how much the share is undervalued or overvalued³ and in isolation it gives very little information. Again, when D/Y is used for relative pricing differences, the actual understanding of these differences must be at the level of company specific dividend policy, dividend growth prospect and risk.

Controversy with P/E

P/E ratio describes the relationship between company's financial performance and stock market's valuation measured in *earnings* and *share price* respectively. Two key determinants of P/E are the cost of capital and the rate of return spread. A high cost of capital implies low P/E and the rate of return spread determines whether the company is creating value or not.

The P/E model can be derived from the constant dividend growth model explained in the previous section by dividing E from the both side.

$$P/E = (D_1/E) / k-g \quad \dots\dots\dots(2)$$

The P/E indicates the investors the extent to which the earnings of a given year are anticipated in the current price. Like D/Y, it can be used as a relative indicator. In fact, it allows the investors to measure the value of a given share to be measured directly against another by means of the P/E relative. P/E can also be used to decide whether a share is undervalued or overvalued. For example, if the appropriate P/E for a company is assessed as 15:1 and the actual market ratio at the current price is 12:1, then the share is being undervalued. The share would have to rise by 25% before what is considered the appropriate P/E level would be reached.

But the apparent simplicity of P/E does not say anything about its accuracy because it involves many assumptions. It is difficult to apply to real-world investment valuation mainly for three reasons.

The first problem is to forecast earnings to value stocks because future earnings will be the product of the interaction of many factors and forces, not alone in the company itself. They will depend on rates of secular growth or decline in general industry and trade, which will in turn be determined by

changes in underlying economic conditions. Beaver and Morse (1978) argue that actual earnings will vary from year to year because of transitory factors peculiar to a particular year. The actual earnings may, therefore, differ from the expected earnings upon which market prices are based. Penman (1996) also shows that the effect of transience in current year earnings can be significant. High P/E ratio may be due to the ability of the company to generate high earnings in future years or due to low current year's earnings.

Secondly, g is not directly observable by examining the simple series of past earnings or dividends. For observed earnings growth to equal g , a company would have to be completely financed with external funds, a situation that virtually never exists. Firms typically rely on internally generated funds (retained earnings) for at least a portion of their investment needs, and the return on these funds becomes part of future earnings. Earnings growth impounds returns on both internal and external funds and is therefore not equal to g . Moreover, for supergrowth firms, P/E leads to misleading results and sometimes even to absurd results.

The third problem is that earning itself is an ambiguous term because of different accounting treatments such as different depreciation and inventory valuation methods. Beaver and Dukes (1972) found that the P/E ratios of a portfolio firms using accelerated depreciation were greater than P/E ratios of a portfolio of firms using straight-line depreciation.

This section concludes with the following remarks: P/E is used as a fundamental benchmark to relate a share's price to corporate performance. But earnings, which represent the fundamental for P/E, are highly volatile and the share price may itself be a leading indicator of the earnings, rather than vice versa. Lastly, it is important to note that share price reflects an expectation to future performance and the market will revise its expectation of returns according to the actual performance (Barker, 2001).

D/Y and P/E: A Further Look

D/Y and P/E are two important indicators for making investment decision. Primarily, the variable that differentiates these decimal and absolute ratios is the amount of retention for future extension/investment by the company. It can also be argued that the shareholders who expect immediate cash return or short run performance will consider the D/Y basis and the groups which expect long term value / growth of their shares will go on P/E ratio basis. Moreover, Barker (1999b) suggests that P/E is the dominant basis of valuation

for shares in the industrials, consumers and services sectors, whilst D/Y dominates in financial and utilities. He also reveals that earnings and dividends provide relevant information in the determination of stock prices.

But the conclusion drawn above is not the end in itself. The factors which vitiate this long-standing conclusion are as follows: perfection level of the stock market; leverage structure of the company; socio-economic and micro/macro economic condition; government policies and regulations; bubbles; alternative investment opportunities; consumer demand and so on. Some of these factors are of a physical nature, such as changes in the total population, while others pertain to the political and social domain (Molodovsky, 1953). All will be affected also by cyclical fluctuations in business, by money and credit conditions, by international trade, and by countless other major and minor considerations whose possible ramifications and complications are infinite.

Hence it can be concluded that D/Y and P/E ratio basis of share valuation are not universally correct. We have to consider these two indicators along with many other ingredients stated above and find out a trade off for investment decision. Reliance on the D/Y & P/E ratio only and ignoring the effects and counter effects of other variables may provide misleading results sometime.

Conclusion

It is reasonable to conclude, though with certain caveats (uncertainties and assumptions), that both D/Y and P/E provide useful information to rational investors. But D/Y can vary independently of the value of a company and P/E is similarly uninformative. Investors must always keep in mind that valuation is no less an art than science and the estimates of future earnings and dividends are subject to error.

Notes

1. $P_t = [X_{t+1} - I_{t+1} + P_{t+1}] / (1+r)$
2. Though for corporate investors, dividends are taxed much more favourably than capital gains.
3. Penman (1992) argues that price is based on future dividends but observed dividends do not tell us anything about price.

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