On the Price-to-Book Effect in Ex-Dividend Anomaly: Evidence from Taiwan Stock Market

Jyh-Dean Hwang,
Department of International Business,
National Taiwan University, Taiwan.
E-mail: jdhwang@ntu.edu.tw

Abstract
This paper examines whether the ex-dividend price behaviors of common stocks are related to their price-to-book ratios. Since Campbell and Beranek (1955) reported that stocks have positive abnormal returns on ex-dividend days, the behaviors of stock prices around ex-dividend days have motivated a large body of theoretical and empirical studies. The existing literature provides two main explanations for the ex-dividend stock price anomaly, namely the tax-effect hypothesis (Elton and Gruber, 1970; Whitworth and Rao, 2010; Chen, et al., 2013) and the short-term trading hypothesis (Kalay, 1982; Karpoff and Walkling, 1988; Bali and Francis, 2012). This paper departs from extant literature by postulating that cash dividend events will change the price-to-book ratios of stocks, prompting investors to adjust their portfolio and causing stock prices to change after cash dividend events.

The price-to-book ratios of stocks will be affected by cash dividend events. Unless the cum-dividend price-to-book ratio is equal to 1, the ex-dividend price-to-book ratio will be lower or higher than the former. For stocks with a PB ratio smaller than 1 (hereafter referred to as discounted shares), the ex-dividend PB ratio will be less than the cum-dividend PB ratio. For example, if the closing price, book value and cash dividend per share of a discounted share on the ex-dividend day are $8, $10 and $2 respectively, the cum-dividend PB ratio of the stock is 8/10, and the ex-dividend PB ratio will be 6/8 (= (8-2)/(10-2)), the latter is lower than the former. On the contrary, for stocks with a PB ratio greater than 1 (hereafter referred to as premium shares), the ex-dividend PB ratio will be higher than the cum-dividend PB ratio. For example, if the closing price, book value and cash dividend per share of a premium share on the ex-dividend day are $12, $10 and $2 respectively, the cum-dividend PB ratio of the stock is 12/10, and the ex-dividend PB ratio will be 10/8 (= (12-2)/(10-2)), the latter is higher than the former.

It can be shown that the magnitude of premium (discount) on a stock will increase after the distribution of cash dividend, and the magnitude of that increase is positively associated with the magnitude of premium (discount) on the cum-dividend day and dividend yield. Stocks trading at discounts appear cheaper after cash dividend events and investors are more willing

1. The premium Prem on a stock is defined as Prem = (P-B)/B, where P and B are the market price and book value of a stock, respectively. A negative premium is a discount.
to invest in their shares. Therefore, they may have higher returns post event and their returns are positively associated with the magnitude of discounts on the cum-dividend day and dividend yield. In contrast, stocks trading at premiums appear more expensive after the events and investors are more reluctant to buy their shares. Consequently, they may have lower returns post event and their returns are negatively associated with the magnitude of premiums on the cum-dividend day and dividend yield. We use 3,386 cash dividend events in Taiwan stock market from 1999 to 2014 for empirical test and preliminary test results are consistent with these predictions. These phenomena are coined as “price-to-book effect” because they are caused by the changes in the price-to-book ratios of stocks.

This paper contributes to the literature by: (1) identifying the determinants of the change in PB ratios of stocks after cash dividend events; (2) empirically demonstrating that ex-dividend day returns anomaly is related to these determinants; and (3) providing a more flexible explanation for the ex-dividend stock price anomaly.

It is notable that the PB effect is more flexible than tax effect hypothesis and short-term transaction hypothesis in explaining the ex-dividend stock price behaviors. Taxation and short-term transaction may lead to abnormal changes in stock prices after cash dividend events, but the distribution of cash dividends will also cause PB ratios to change. In other words, given that the abnormal changes in prices after cash dividend events are caused by taxation and short-term transaction, change in PB ratios may also affect the magnitude of abnormal changes in stock prices. On the other hand, unless the PB ratio of a stock is equal to 1, cash dividend event will inevitably change its PB ratio, prompting investors to adjust their portfolio and causing stock prices to change. In other words, change in PB ratios resulting from cash dividend events can explain the ex-dividend stock price behaviors without recourse to other hypotheses.