THE EFFECT OF DIVIDEND POLICY ON SHARE PRICE IN HONG KONG

2.2. Dividend growth model (point to a relationship between dividend payment and share price)

Dividend growth model (DDM) is one of the income approaches in valuing equity securities. No matter it is a single stage or multi-stage model, it relies on the following formula in calculating the equity securities' intrinsic value (Bodie, Kane & Marcus, 2019):

$$V_0 = \frac{D_0(1+g)}{1+k} + \frac{D_0(1+g)^2}{(1+k)^2} + \frac{D_0(1+g)^3}{(1+k)^3} + \frac{D_0(1+g)^4}{(1+k)^4} + \cdots$$

Where: D_0 is the dividend payment at year 0,

$D_0(1+g)$ is the first-year dividend payment,

g is the constant growth rate of dividend,

k is the discount rate, typically the return rate predicted by the capital asset pricing model (CAPM).

Formula 1 Constant growth DDM

The above formula is also called constant-growth DDM. As an explanation of the formula, it assumes that the intrinsic value of an equity security is first-year dividend payment divided by (1+k), adding the second-year dividend payment divided by $(1+k)^2$, then adding the third-year dividend payment divided by $(1+k)^3$,etcetera. Without adding the number of years for the present value of dividend payment to perpetuity, this constant-growth DDM can be simplified as (Bodie, Kane & Marcus, 2019):

$$V_0 = \frac{D_0(1+g)}{1+k} = \frac{D_1}{k-g}$$

Where: D_1 is the first-year dividend payment.

Formula 2 Constant dividend growth model in perpetuity

2.4. Behavioral finance perspectives that point to positive relationship between dividend payment and share price

The behavioral finance perspectives of the relationship between dividend payments and share price include the signaling effect and investors' preferences for dividends.

2.4.1. Signaling effect of dividends

Signaling theory of dividend payment means that corporate managers tend to pay smooth and consistent dividend to signal a better future prospect for an equity security (Hartmann-Wendels, 1987). The signaling theory of dividend payment supports the positive relationship between dividend payments and share price (Bhattacharya, 2007).

2.4.1.1. Theoretical perspective

This theory is originated from the principal-agency problem (Spearman, 1987). In the principal-agency problem, agent means parties that make decisions and/or take actions on behalf of the principal. These decisions and/or actions affect the benefits of the principal (Eisenhardt, 1989). The problem arises when the agent does not always make decisions and/or take actions that are in the best interests of the principal (Eisenhardt, 1989). This problem is mainly explained by information asymmetry between the principal and agents, as well as, the conflict of interests between the principal and the agents (Eisenhardt, 1989).

The former often occurs among ordinary shareholders as principal and the company's management as agents. Despite the regular publications of financial and operational reports by companies of equity securities, it is impossible for ordinary

2.4.1.2. Empirical perspectives

There are many empirical evidences showing that signaling theory of dividend payments reflect the reality (Deeptee & Roshan, 2009). First, Asquith & Mullins (1983) analyzed 168 companies that either pay their first dividend in their corporate history or re-initiate dividend payments after a 10-year stop of dividend payments. They found that excess return of the underlying equity securities is positively related to the size of the initial dividend payment. Besides, subsequent increase in dividend payment may produce a greater positive impact on shareholders' wealth than initial payments (Asquith & Mullins, 1983). Second, Asquith & Mullins (1986) found that, on average, 1% increase in dividend yield of initial dividend leads to 1.45% increase in average initial return. Besides, subsequent 1% increases in dividend yield increase lead to 2.94% increase in average subsequent return to shareholders. This signifies that subsequent increase in dividend yield offers more return to shareholders than initial dividends. Therefore, dividend payment, no matter it is initial dividend or subsequent increase in dividends, offers additional return to investors in a proportion of 1.45 and 2.94 depending on situations (Asquith & Mullins, 1986). This provides support for the signaling theory of dividend payment because initial dividend payment and subsequent increase in dividend payment signals better prospects of companies.

Furthermore, Michaely, Wornack & Thaler (1994) found that short run share price reactions to omission of dividend payment are greater than initiation of dividend payments (-7.0% vs +3.4% for three-day return). Besides, within 12 months after the announcement, there is a significant positive market-adjusted return for firms initiating dividends of +7.5% and a significant negative market-adjusted return for firms omitting dividend of -11.0% (Michaely, Wornack & Thaler, 1994). This evidence

2.4.2. Investors' preference for dividend payments

Because of some cognitive bias and heuristics, investors prefer dividend payments more than stock selling to maintain daily expenses. There are three cognitive bias and heuristics contributing to this behavior. They are the need for immediate gratification (Thaler & Shefrin, 1981), prospect theory (Kahneman & Tversky, 1979), and avoidance of regret (Kahneman & Tversky, 1982). The way that these three cognitive biases and heuristics were discussed in Shefrin & Statman (1984).

In traditional investment theory, investors are assumed to be rational and make no preferences between dividends and capital. Both are treated the same as money. Therefore, in a context with no taxes and transaction costs, there is no differences between holding equity securities for dividend payments or for regular selling to maintain regular passive income for living (Shefrin & Statman, 1984). However, in the real world, the three cognitive biases and heuristics cause investors to prefer dividend payments than selling stocks regularly to maintain regular passive income. Therefore, it also explains why missing of dividend payments is detrimental to share price performance while initial dividend payments are beneficial to share price performance (Shefrin & Statman, 1984).

First, for the need for immediate gratification, it is assumed that a certain number of investors do not have the self-control enough to sell shares for their passive income regularly for their living. Interferences for such actions are mainly the psychological mood swings due to share price rising and dropping. Therefore, investors prefer something more "tangible" as dividend payments for immediate and regular gratifications (Shefrin & Statman, 1984).

2.5. Factors that do not support the relationship between dividend payment and share price

There are two factors that do not support the relationship. They are the reduction of internal resources available for reinvestment in profitable operations and dividend payments are subject to tax in countries such as China and USA.

2.5.1. Reduction of internal resources available for reinvestment in profitable operations

Although the DDM, signaling theory and behavioral finance perspectives support the positive relationship between dividend payment and share price, dividend payments reduce organization's resources for other profitable reinvestment opportunities. Over time, the share price of those firms that pay more dividends shall be disadvantageous to firms that reinvest conscientiously to improve their operations. A derivation of constant-growth DDM formula shall show that:

$$P_0 = \frac{E_0(1-b)}{k - ROE\ x\ b}$$

Where:

E_0=Profit after tax

b=plowback ratio (percentage of earnings that do not pay as dividends)

1-b=payout ratio

k=discount rate

Formula 7 A derivation of constant DDM model

In this formula, the nominator of $E_0(1-b)$ is $D_0(1+g)$ in formula 1 and formula 2. The denominator of $k - ROE\ x\ b$ is $k-g$ in formula 2. Therefore, $ROE\ x\ b$ is equal to g. To make $ROE\ x\ b$ higher to produce a result of higher P_0,