

Formulating a Dividend Policy for a Firm

Prakash Deo
University of Houston-Downtown

This study seeks to identify key factors in formulating a dividend policy for a firm. We revisit the theory of stock valuation and identify and explore the impact of critical factors on a firm's dividend policy. Next, we develop a framework and investigate financial data requirements to formulate such a policy and illustrate a methodology with an example of a case study for a firm which had never paid dividends but plans to change its policy. We recommend further research into issues in development and implementation of a firm's stock repurchase plan in lieu of or to complement a dividend policy.

Keywords: dividend policy, return on equity, debt ratio, retained earnings, cost of equity, growth rate, stock price, dividend payout, cash payout

INTRODUCTION

To increase returns to its shareholders, firms face many competing strategic and operating choices and on-going challenges regarding optimal utilization of its cash reserves and investments in its property, plant, and equipment to increase its operating revenues and/or lower costs to maintain or expand its competitive position, payoff its debt, maintain an adequate cash position and finally pay dividends to its shareholders. Shareholders earn a return on their investment from dividends and capital gain. It is a common observation that a high retention ratio is associated with firms which generate consistently high growth in operating earnings and a high dividend payout ratio is associated with firms which generate low to moderate growth in operating earnings. The data from the New York Stock Exchange, where trading of most large and mature firms occurs, reveals that overtime about 95% of the firms' pay dividends.

This study seeks to 1) identify key factors in formulating a dividend policy for a firm, 2) develop a framework and investigate financial data requirements to develop such a policy, and 3) illustrate the methodology with an example of a case study.

LITERATURE REVIEW

Under a set of assumptions including absence of taxes and transaction costs, Miller, and Modigliani (M&M) (1961) argue that the dividend policy does not affect the stock price and the cost of capital, specifically the cost of equity. This is known as the dividend irrelevance theory. They contend that the value of a firm is derived from the earnings capacity of its assets and the business risk associated with these earnings.

Gordon (1963) and Lintner (1962) argue that the return on equity declines with the increase in dividend payout ratio. While the increase in dividend payout ratio increases the risk of receiving capital gains, the

increase in retained earnings lowers the risk of future potential capital gains. But there is a higher risk associated with receiving capital gains in the future from reinvestment in retained earnings compared to the dividends in hand. This is commonly known as the bird-in-the-hand argument. M&M argue that the risks of a firm's cash flows originate from risk associated with operating cash flows and not from dividend policy. While the transaction costs of buying and selling may not be significant due to available dividend reinvest plans for some companies and recent lowering of the brokerage commission to almost none, there are differences in tax rates on capital gains and dividends depending on the holding period and income. In addition, there is the time value of money difference between the dividends received each year versus capital gains which are realized only after holding the stocks for a period prior to selling the stocks.

Pettit (1977) proposes that a firm's stockholders may be classified into different groups based on their preference for dividend payout requirements. Therefore, a firm may follow a steady reliable dividend payout policy to meet its stockholders' expectations to avoid any detrimental impact on its stock price. This is known as the clientele effect. Baker and Wurgler (2004) argue that shareholder preferences may change over time and therefore managers may adjust the firm's dividend policy to cater to the shareholders' expectations. This is known as the catering theory.

Ross (1977) argues that managers make their decisions about policy changes based on both short- and long-term prospects of earnings, and therefore, can use the announcements about changes in dividend and capital structure to convey information about future earnings of the firm. This is known as information or signaling theory. Fama and French (2001) study data shows that percentage of firms paying dividends has been declining over time.

We will discuss the theory of stock valuation and the resulting financial model and then identify and explore the impact of critical issues on a firm's dividend policy.

FACTORS IN SETTING A FIRM'S DIVIDEND POLICY

The earnings or the cash flow belong to the shareholders. Managers have two options, (1) pay cash dividends to the shareholder who may then reinvest in other opportunities and earn a return commensurate with associated risk, or (2) reinvests the cash on behalf of the shareholders in operating, investment, and financing opportunities to earn a return higher than the shareholders could on their own. Since a firm does incur any floatation costs such as investment banker fees, legal and administrative cost, it is advantageous for a firm to utilize its retaining earnings than external common stock financing. In other words, the cost of capital associated with the retained earnings is lower than financing via external common equity. While stock prices fluctuate frequently, the investors desire a steady return from the dividend component of the total return and therefore an enduring dividend policy. To ensure an unwavering dividend policy, which is sheltered from annual fluctuations in a firm's earnings and investment opportunities, a firm may analyze the operating earnings and the financing and investment opportunities over a long-term, i.e., five years or more and derive predictable or average earnings or cash flow rather than using yearly data. Then, using a firm's target capital structure, i.e., mix of optimal debt and equity financing, it can derive the amount of earnings or cash flow to retain, i.e., the internal source of equity for financing future capital projects while oblivious of the higher cost of external capital. The difference is the cash available to pay dividends to derive a sustainable dividend payout ratio, i.e., cash dividends as percentage of earnings for the firm. In summary, the dividend policy is a function of cash generating capacity of a firm, availability of investment opportunities, its current and potential shareholder expectations about its dividend policy so called clienteles, and availability and cost of external capital based on prevailing capital market conditions, all, or some of which of which may change over time.

This residual dividend policy may be summarized as:

$$\text{Dividends} = \text{Net Earnings or Income less Internal equity or retained earnings needed to finance new investments.}$$

The internal equity or retained earnings needed to finance new Investments is calculated as target equity ratio times total new Investments, then the dividends equal net earnings or income net of the target equity ratio times total new investment. Therefore, prioritizing the use of retained earnings first, which is derived from the use of optimal combination of debt and equity ensures minimization of the marginal cost to acquire each dollar of new capital. This approach also ensures that a firm maintains its target capital structure.

Dividend Valuation Model

The value of an asset may be derived as the sum of the present value of future cash flows, and for valuation of common stock, these cash flows are dividends, which over time generally grow commensurate with the increase in operating earnings. A firm can grow its operating earnings from external financing such as debt and equity or acquisition of another firm, but it may require sharing the earnings with the new debtholders/shareholders and will not benefit 100% its current shareholders. A firm can grow by ploughing back part or all the earning into the business and generate internal growth from within or internally, which will benefit the existing shareholders and usually is main source of growth for a firm and therefore used in valuation of firm's common stock. Each year the stockholders' investment grows by the return on its equity. However, if a firm retains only a certain percentage of profit, then the stockholder's investment grows by the return on equity times the percentage of profit retained by the firm. This growth rate in earnings and therefore shareholder value is calculated as:

$$g = r_e \times b. \tag{1}$$

The "g" is the growth rate in earnings and shareholder investment, r_e is the return on book equity or net income divided by book value of common equity, and b is the percentage of profit retained by the firm (annual retained earnings divided by net income). Of course, retention ratio equals (1- dividend payout ratio), where the dividend payout ratio is percentage of earnings paid as dividends.

The value of the common stock can be expressed as

$$V_e = D_1 / (1 + k_e)^1 + D_2 / (1 + k_e)^2 + \dots + D_\infty / (1 + k_e)^\infty. \tag{2}$$

V_e is the value of common stock, D_1 is the expected dividends at the end of the year, and k_e is the required return on stocks with consideration to risk and returns available on other investments, and alternatively, it may be viewed as market-determined required rate of return on common stock.

Assuming dividends grow at a constant rate g , and g is less than r_e , then the equation simplifies to

$$V_e = D_1 / (k_e - g). \tag{3}$$

Most finance textbooks provide the derivation of equation (3) from equation (2) using the assumptions of constant growth and the growth rate less than the return on equity. For instance, see Keown, Martin, and Petty (2020). Note that the assumption of constant growth rate g growth rate implies, $D_1 = D_0 \times (1+g)^1$ and $D_2 = D_0 \times (1+g)^2$ or $D_2 = D_1 \times (1+g)^1$ etc., as well as $P_1 = P_0 \times (1+g)^1$ and $P_2 = P_0 \times (1+g)^2$ or $P_2 = P_1 \times (1+g)^1$. Note that the subscripts and the superscripts refer to the time periods.

Rewriting the equation (3)

$$V_e = D_0 (1+g) / (k_e - g). \tag{4}$$

or,

$$D_0 (1+g) = P_0 (k_e - g). \tag{5}$$

We now relate D_0 with the firm's net income. By definition,

$r_e = NI/B$, where the NI represents the net income and B represents the book value of equity.

Solving for NI,

$$NI = B \times r_e. \quad (6)$$

Since dividends are net income less retained earnings,

$$D_0 = NI (1 - b). \quad (7)$$

Substituting value of NI from equation (6) into equation (7), we get

$$D_0 = B \text{ times } r_e \text{ times } (1 - b). \quad (8)$$

Substituting the equation (8) in equation (5),

$$B \text{ times } r_e \text{ times } (1 - b) \text{ times } (1 + g) = P_0 (k_e - g). \quad (9)$$

From equation (1), $b = g / r_e$, substituting for b in equation (9),

$$B \text{ times } r_e \text{ times } (1 - g / r_e) \text{ times } (1 + g) = P_0 (k_e - g). \quad (10)$$

We rearrange the equation (10) to solve for r_e ,

$$\begin{aligned} B \text{ times } (r_e - g) \text{ times } (1 + g) &= P_0 (k_e - g). \\ (r_e - g) &= P_0 (k_e - g) / B(1 + g). \\ r_e &= [P_0 (k_e - g) / B(1 + g)] + g. \end{aligned} \quad (11)$$

Assuming (1) b and r_e are constant, (2) new equity is issued at a price equal to the firm's book value of equity, i.e., $P_0 = B$, and (3) the firm's asset risk remained unchanged, then the equation (11) becomes

$$r_e = [(k_e - g) / (1 + g)] + g. \quad (12)$$

Since $b = g / r_e$ and substituting the value of r_e from equation (12),

$$b = g / \{ [(k_e - g) / (1 + g)] + g \}.$$

Simplifying the denominator,

$$\begin{aligned} b &= g / [(k_e - g) + g (1 + g)] / (1 + g). \\ b &= g \times (1 + g) / [(k_e - g) + g (1 + g)]. \\ b &= g \times (1 + g) / (k_e + g^2). \end{aligned} \quad (13)$$

The retention rate b is affected by expected growth rate in dividends or earnings per share and its market determined cost of equity. If the growth rate g goes up and k_e is constant, then the retention rate will go up. Alternatively, if k_e goes up and g is held constant, the retention rate will go down. In other words, the relationship between b and g is direct while it is an inverse relationship between b and k_e . Similarly, an increase in g in the absence of external debt financing will have to come from an increase in b. The equation (13) can be rearranged to show that an increase in b will result in a decrease in k_e supporting the tax differential theory. The same relationships hold between stock price (P_0) on one hand and g and k_e on the other.

$$\begin{aligned}
 P_0 &= D_0 X (1+g) / (k_e - g). \\
 &= EPS_0 (1 - b) (1+g) / (k_e - g).
 \end{aligned}
 \tag{14}$$

EPS₀ is earnings per share at time-period 0. As b goes up, the term EPS₀(1 – b) in the numerator of the equation decreases, and the increase in b leads to an increase in g but a decrease in k_e. As a result, P₀ will increase assuming r_e is held constant. In theory, a firm then should follow a zero-dividend policy. However, most mature firms pay dividends. The stock market appears to provide overwhelming evidence that dividend policy matters. Although the information signaling theory does not address the issue of why a firm would pay any dividends at all, it does provide a rationale for stock price changes in response to dividend policy changes. Noting that the dividend policy changes convey information about the firm’s prospects, and assuming a firm’s return on equity is in line with the industry average, a firm in a competitive industry is expected to follow a dividend payout policy like that of the industry.

If a firm needs to retain all its earnings to finance its expected growth, it will have to resort to external financing to support its dividend payments. Myers and Marcus (2008) explain the pecking order theory, which suggests that the debt financing would be preferred to new stock issue at this stage. The debt issue will also increase the value of the firm through the leverage shield effect as pointed out by M&M (1961). A firm will continue to issue debt until the debt-to-equity or debt to assets ratio approximate that of the industry average because after that point the firm may be perceived as over-leveraged, and its weighted average cost of capital may be higher than the industry average. In summary,

1. There is an inverse relationship between return on equity and the dividend payout ratio.
2. A firm with a higher growth prospect will have a higher retention rate.
3. An increase in the retention rate will lower the required rate of return on the stock.
4. A firm having the same expected growth rate as the industry to which it belongs will have a similar capital structure and dividend policy as of the industry. If the firm’s expected growth rate is high or lower than the industry average, the firm will adjust either the capital structure or the dividend policy (or both) depending on the flexibility available to the firm at the given point.

The equation (11) states $r_e = [P_0 (k_e - g) / B(1+g)] + g$

Rewriting equation (11) in terms of P₀, we get,

$$P_0 = (r_e - g) [B (1 + g) / (k_e - g)].
 \tag{15}$$

This dividend valuation model identifies the key drivers of the dividend policy, which include the expected rate of return in the capital market for a specific common stock and its associated risk and book measures such as return on equity, debt and retention ratio, net income, the level of expected dividends per share, growth rates in earnings per share and dividends per share. In addition, the cash flow measures such as current cash position, free cash flow, and finally the capital investment opportunity set available to a firm play a key role. We now proceed to discuss a case study which illustrates how a firm set its dividend policy based on financial analysis of a firm’s financial plan, financial competitive analysis, and finally the interaction of critical financial performance measures underlying the dividend policy discussed above.

FINANCIAL DATA REQUIREMENTS

Procuring the necessary data for using the financial models to devise a dividend policy is an immense task and requires understanding footnotes in financial statements, scrubbing accounting and financial data for accuracy, adjusting the data for restatements and one-time impairment charges, and any other issues. The data requirements include firm’s recent financial statements, the narratives in the stockholders’ reports, the current year budget and 5 years of forecasted financial statements including the income statement, the balance sheet, and cash flow statements, which are generally developed during the firm’s 5-year strategic planning process. In addition, an estimate of a firm’s cost of equity or the risk-adjusted required rate of return, capital market’s expectations about a firm’s return on equity and growth rate in earnings per share.

Finally, financial analysts need to procure competitors' recent 5 years of financial statements and other relevant financial data to conduct competitive analysis. These tasks provide the necessary foundation to make data driven policy decisions by the management team and therefore undergo detailed management scrutiny. In this study, to focus on developing a framework for dividend policy and to minimize details, we have assumed that a firm has completed such an enormous task of financial data gathering and the basic financial analysis discussed in this study to implement a sound dividend policy.

A CASE STUDY

ECOMTEC Inc., a fictitious technology company, has been in the business for about two decades and in the past has experienced stock price appreciation, high growth rates in sales and operating earnings, and free cash flow but has not paid any dividends. During that period, many of the competitors were paying its shareholders dividends, but ECOMTEC's largest shareholder who was also the founder and CEO of the company was concerned about the firm's debt burden and strongly believed in conservative financial practices to maintain more than adequate cash reserves. The dividend payout was not an issue as the firm ploughed back all its earnings in many expansion projects in high growth markets and its success was reflected in ECOMTEC's past stellar stock price performance. It is no surprise that the stockholders had applauded its conservative business practices. However, the recent strategic plan identified many issues including lack of investment and growth opportunities, and stagnation in its share price during recent years. Recently some of the shareholders raised questions about potential change in the company's conservative practices, specifically its dividend policy. Some of the well-known corporate raiders also shared their thoughts in the financial media on the company's stock price performance compared to other stock prices of other companies in the same and in the related industries.

In response, in March 2013, the CEO instructed the CFO to investigate the issue of ECOMTEC's current dividend policy. In turn, the CFO asked his director of financial planning and analysis Mr. Jeff Anderson to pursue work on this issue. Specifically, the team was asked not to work on any stock repurchase plan which can affect the stock price at least in the short-run but requires maneuvering through a maze of regulations and may adversely affect investors' expectations about a firm's investment opportunities or a lack thereof. Jeff and his finance team conducted the financial literature review. Then applying the financial theory and analysis of other companies' practices compared the data in ECOMTEC's current financial plan to analyze the issues surrounding a dividend policy.

From his education in finance at a well-known university and his business experience, he noted that shareholders expectation of rate of return on their investment varies with financial market conditions but require a rate of return commensurate with the associated risk. In the same vein, shareholders expect to earn a rate of return on their investment in ECOMTEC, otherwise the investors will invest in other securities with comparable risk. A firm's ploughing back its earnings in its business ensures future growth in the firm's operating earnings and adequate cash reserves to maintain and grow its shareholder value in the long run. Therefore, in formulating a dividend policy, a firm needs to perform a balancing act of meeting shareholder expectations of return from price appreciation and dividends with need for reinvestment and optimal cash reserves in operating its own business.

Jeff appointed a finance manager and a financial analyst to procure five years of financial data for ECOMTEC and its competitors. The use of five-year average facilitates to nullify any effects of outlier year of events affecting a firm's ordinary course of business. In addition, Jeff formed a team of experts from marketing, strategic planning, finance, and operations to research and then develop a competitive analog of companies many of which were competitors of ECOMTEC in one or more market segments and were comparable to ECOMTEC in terms of sales, target markets, customers, and products and services, operating earnings, variation in earnings, and free cash flow. Some of the firms in the sample had financial significance presence and were in business as ECOMTEC but were not in the same industry. This team members worked daily with their respective leaders who reported to the CEO to ensure they agreed on the choice of the companies in the competitor analog. After several consultations with the senior management

team and after a review with the CEO, the CFO instructed Jeff that ECOMTEC should focus its comparison to the 50th and 75th percentile of this peer group.

The two relevant financial ratios for ECOMTEC are shown in Table 1.

TABLE 1
ECOMTEC’S SELECTED FINANCIAL RATIOS

	<u>Actual</u>	<u>Budget</u>	<u>Strategic Plan</u>				
	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>
Debt Ratio (%)	34.6	33.7	36.1	34.6	32.5	30.5	28.9
Return on equity (%)	13.7	14.0	12.9	14.1	15.2	16.8	17.6

Table 2 summarizes the relevant financial performance measures for the competitor analog.

TABLE 2
FINANCIAL RATIOS OF THE COMPETITIVE ANALOG (2008-2012)

	Low	25th percentile	50th Percentile	75th Percentile	High
Debt ratio (%)	5	11	22	37	60
Return on equity (%)	5	10	14	18	30
Dividend payout (DPS/EPS) (%)	10	17	32	47	74
Cash payout (DPS/FCF) (%)	4	7	13	24	30

First, we discuss the definitions and measurements of these performance measures for both ECOMTEC and the competitor analog, and then proceed to examine and compare each performance measure.

Measurement of Financial Ratios

For both ECOMTEC and the competitor analog, the debt ratio was calculated as end of year, total debt divided by the end of year total assets to maintain the same computational methodology as the firms in the competitive analog and are shown in Tables 1 and 2 respectively. Although many firms treat payment of dividends on preferred stock as a contractual fixed obligation, it is a discretionary obligation. Preferred stocks are hybrid nature, and depending upon the agreement, in case of non-payment of preferred dividends, the preferred stockholders would be able to elect certain number of directors and secure voice in the management, restrict dividend payments on common stock, but the dividend payment are not immediately payable. Therefore, the team did not include the preferred stock in calculation of the debt ratio, once again to maintain the same computational methodology as the competitors.

The return on equity was calculated as net income to common stockholders prior to subtracting any one-time impairment charges divided by beginning of the year common equity to make it comparable to the competitive analog.

Since ECOMTEC did not pay dividends, the next two dividend related financial ratios were calculated only for the competitor analog. The cash dividend payout ratio was calculated as cash dividends to common stockholder divided by the free cash flow, which in turn, was derived from the deployment of assets in the operations of the business. This is the cash flow is calculated as the operating cash flow net of the change in net operating working capital and net capital expenditures. The firm is free to distribute this free cash flow to its creditors and shareholders, and It also identifies the agency relationship between the firm’s owners and its managers.

The dividend payout ratio was calculated as cash dividends to common stockholder divided by net income to common stockholders prior to subtracting any one-time impairment charges. Jeff and his team

cautioned the senior management team that while the firms in a quartile as a group may exhibit certain behaviors of a key measure, individual firms in each quartile may exhibit different values.

Comparison of Financial Performance Measures

Return on Equity and Debt Ratio

The financial theory states that if a firm prefers more debt financing of its assets, then its interest payment will be higher, and the net income in the income statement will be lower though partially offset by the tax benefits of interest payments. However, the dollar amount of equity in the balance sheet will be lower. Therefore, the return on equity will be generally higher assuming the benefits of lower equity in the denominator outweigh the net of tax benefits of higher interest payments in the numerator. The financial literature explains that this is true up to a certain or optimal debt level after which the risk will outweigh the benefits. That is, after an optimal level of debt the potential risk of bankruptcy from higher interest expense will rise. This, in turn, will increase the interest rate and interest payments on any incremental debt. Most firms in the competitor analog maintained the debt ratio at or below the optimal debt ratio, which is also evident from the data. That is, at the aggregate level as the debt ratio increased, the return on equity also increased. Of course, it must be noted that the firms in the competitive analog collectively were a sample of less than 30 firms, which is the minimum size recommended in studies.

The 5- year plan (2014-2018) data for ECOMTEC revealed that the management desired a lower debt ratio over time as it envisioned to improve its operational efficiency and did not plan to use the financial leverage to increase its return on equity. The primary reason was the founder and largest shareholder was concerned about moving its debt ratio towards the 75th percentile as the strategic plan data forecasted the debt ratio between the 50th and 75th percentile of the competitor analog. The strategic plan assumed that ECOMTEC will continue to plough back its earnings into the business, and since ECOMTEC did not pay dividends, the following discussion pertains only to the competitor analog.

Return on Equity and Dividend Payout Ratio

The team observed from the competitor analog that the dividend payout ratio increased with the increase in return on equity.

Debt Ratio and Dividend Payout Ratio

The competitive analog exhibited that firms along with higher debt ratios also paid a higher proportion of dividends from their earnings, that is, they had higher dividend payout ratio.

Dividend Payout Ratio and Cash Payout Ratio

The cash payout ratio was in line with the dividend payout ratio, i.e., it increased with the debt ratio, however, at the 75% percentile level, the increase in the percentage cash payout accelerated and the incremental change was faster than the dividend payout ratio. Also, the team noted that the increases in higher net income from operations generated higher return on equity and free cash flow.

Application of the Financial Theory to ECOMTEC Inc.

Jeff and his team used the equation (15), $P_0 = (r_e - g) [B (1 + g) / (k_e - g)]$ to gain further insight into the market pricing of its stock and the key roles of the critical variables. The time-period was the month of March during the 2013 budget year. This equation helped to derive the market's expectation of the ECOMTEC's return on equity. To that end, Jeff and his team used ECOMTEC's prevailing market price for (P_0), the 2013 beginning book value of its equity per share (B) from its balance sheet, its expected growth in rate in earning per share (g) from projections provided by an external financial service firm which included stock analysts reports and forecasts of key financial measures for a firm; and finally used ECOMTEC's cost of common equity, k_e . The calculation of this risk-adjusted cost of common equity is commonly discussed within a cost of capital chapter in basic finance textbooks. For instance, see Keown, Martin and Petty (2020).

These calculations were replicated using the values of the growth rates in earning share from ECOMTEC's strategic plan in addition to the one supplied by the external financial service firm. Finally, compare these two estimates of return on equity with the forecasted return on equity in its strategic plan. The team concluded that there was a gap between the projected return on equity in the strategic plan versus the market's expectations of its return on equity. This would have potentially deteriorated the prevailing already stagnated market price. Therefore, it needed to improve its return on equity to maintain its market price and to boost its price, it needed to make significant improvements in its return on equity.

To estimate potential impact of any improvement in return on equity on its stock price, Jeff and his team reused the equation (15) and using a basic calculus derived the partial derivative of the current market price with respect to a change in return on equity as shown in the following equation.

$$dP_0/dr_e = B (1+g) / (k_e - g). \quad (16)$$

After substituting the values of B, g and k_e , the team derived the following relationship:

$dP_0/dr_e = \$2.25$, which represented an approximate impact on its stock's market price from one percent change in investor's expectation of its return on equity.

This analysis of both ECOMTEC and the competitor analog led to the following observations:

- The strategic plan indicated that ECOMTEC's debt ratio will vary from mid-thirty in the early years to 30% by the end of the fifth year. ECOMTEC has the necessary flexibility to maintain its debt ratio in the 50th to 75th percentile or in the range of 22% to 37%.
- In its strategic plan, ECOMTEC's return on equity was forecasted to be between the 50th and 75th percentile of the competitor analog, which suggested that ECOMTEC had room for further improvement to get closer to the high end of the range.
- With the backdrop of its forecasted debt ratio and return on equity and its forecasted financial position compared to its competitor analog, ECOMTEC should target its dividend payout ratio at the 50th percentile or about 32%. These targets should serve as guidelines to the management rather than specific values as there may be a few outlier years due to unusual business circumstances when the management may waiver from the recommended range of the dividend payment policy.
- Likewise, ECOMTEC should maintain its cash payout at least 13%, to be at par with the 50th percentile of its competitors provided the major source of its free cash flow is operating income and not depreciation or cutbacks in the operating working capital and capital expenditures. This will ensure the necessary balance between short-term business needs and the long-term well-being of the firm.
- We now proceed to discuss the impact of any changes in the financial strategy of ECOMTEC Inc.

Devising a Dividends Policy for ECOMTEC Inc.

From their analyses, Jeff and his team members understood the interaction among the key financial ratios and performance measures and their impact on stock prices. The team conducted research to investigate companies including the one in its competitor analog which did not pay dividends for several years but after experiencing several years of stock price stagnation yielded to shareholders' demand to pay dividends. Upon studying the dividend policy history of several companies, the team focused their investigation on Microsoft's dividend policy. Microsoft had not paid dividends for a couple of decades but after stagnation of its stock price for several years, the company successfully implemented a dividend policy. It led to an immediate increase in stock price and Microsoft continued its dividend policy even during the subsequent periods of high growth in operating earnings. Although in business for a long-time, Microsoft started paying dividends in the year 2003 with a dividend payout ratio of 29%. Over the years 2003 to 2012, the annual growth rates in dividends per share varied from 5.45% to 18% with an average

annual geometric growth rate of 11% per year. During this period the dividend payout ratio varied from 24.6% to 41.5% with an average payout ratio of 30%. These dividend payout ratios were calculated excluding the one-time impairment losses.

The financials in ECOMTEC's strategic plan were recalculated under a set of assumptions: (1) set dividend payout and cash payout ratios at the competitor analog's 25th, 50th and 75th percentiles and (2) the debt ratios in the 50th to 75th percentile range, i.e., in the range of 22% to 37% of the competitor analog, and (3) the return on equity close to the 75th percentile of the competitor analog or at about 18%. These assumptions led to the creation of numerous scenarios, which were reviewed by the CFO and then presented to the senior management team. After two days of meetings, the senior management team decided that ECOMTEC should start paying dividends in 2014 and the initial dividend payout ratio was set at 25% with a long-term range of 25% to 30%. Similarly, the cash payout ratio was set at 10% for 2014 with a long-term plan to maintain it in the range of 10% to 20%. In addition, in the years following 2014, the growth rate in dividends per share for the initial plan years was planned at 5% per year and any further increases in the growth rate were contingent upon realization of improvements in the return on equity, the free cash flow, the debt ratio and its cash reserves, and the market price. The senior management team decided to revisit the dividend policy each year. To enhance shareholder value through growth in its operating earnings, the team planned acquisitions of companies with similar core competencies, decided to implement a plan which included an implementation of immediate 10% cost reduction plan, introduction of new products and expansion into new markets. The following month, the firm's public announcement regarding its planned payment of dividends was well received by Wall Street. Its supporting details on planned aggressive cost cutting measures and acquisition and expansion program convinced the investors that the firm planned to grow its operating earnings and maintain its dividend policy in the long term. On the day of the announcement, at the close, the stock price was higher by more than 10% in the market. This uptick on the stock price from its prevailing stagnated price created excitement among its shareholders. Thereafter the year-over-year stock price performance of ECOMTEC continued commensurate with its progress in execution of its plan.

CONCLUSION

In this study, we have proposed a framework to develop a dividend policy. First, we articulated the various schools of thought among academicians related to a firm's dividend policy. Then using the existing financial valuation model, we further modified it to help identify critical variables in formulation of a dividend policy. We have tried to assess and quantify the impact on a firm's stock price due to a change in investors' expectations about a firm's rate of return on equity. We have then identified the data requirements, and finally we have illustrated our methodology with a case study for a firm which had never paid dividends in the past but plans to do reverse its policy and pay dividends to its shareholders.

We recommend further research into issues in development and implementation of a firm's stock repurchase plan in lieu of or to complement a dividend policy. Another area of future research may focus on identifying key factors that may help to quantify any impact of the dividend policy among its various classes of shareholders.

REFERENCES

- Brealey, R., Myers, S., & Marcus, A. (2008). *Fundamentals of Corporate Finance*. New York, McGraw-Hill Irwin.
- Fama, E.F., & French, K.R. (2001, Spring). Disappearing Dividends: Changing Firm Characteristics or Lower Propensity to Pay? *Journal of Applied Finance*, 14, 76–89.
- Gordon, M.J. (n.d.). Optimal Investment and Financing Policy. *Journal of Finance*, 18, 413–314.
- Keown, A.J., Martin, J.D., & Petty, J.W. (2020). *Foundations of Finance*. New York: Pearson.
- Lintner, J. (1962, August). Dividends, Earnings, Leverage, Stock Prices, and the Supply of Capital to Corporations. *Review of Economics and Statistics*, 44, 243–269.
- Malcom, B., & Wurgler, J. (2004, June). A Catering Theory of Dividends. *Journal of Finance*, 59, 1135–1165.
- Miller, M.H., & Modigliani, F. (1961, October). Dividend Policy, Growth, and the Valuation of Shares. *Journal of Business*, 20, 411–433.
- Pettit, R.R. (1977, December). Taxes, Transactions Costs and the Clientele Effect of Dividends. *Journal of Financial Economics*, 5, 419–436.
- Ross, S.A. (1977, Spring). The Determination of Financial Structure: The Incentive-Signaling Approach. *The Bell Journal of Economics*, 8, 23–40.