Chapter IV

THEORETICAL BACKGROUND AND CONCEPTUAL FRAMEWORK OF DIVIDEND
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4.1.0 Introductory theoretical background

Finance as per dictionary means “to provide or obtain money for a project or for a business or government to operate”. In business parlance it means rising of funds by the enterprise on the terms which are most favorable to accomplish its desired objectives. Similarly financial management can be constructed as the art and science of managing money. This subject of finance is of immense interest to both academicians and participating managers and as a result several definitions of financial management exist. Prof. Ezra Solomon remarks, “How should the scope of financial management be defined for the purposes of academic study? There is no clear cut answer to this question but rather a whole range of possible approaches”.

4.1.1. Approaches –

As pointed out by Prof. Solomon a whole range of approaches to define financial management exists. These approaches can be broadly categorized as under:

(A) Traditional approach
(B) Too wide Approach
(C) Modern Approach

(A) Traditional approach

According to this approach, financial management is concerned with raising and administrating funds used in enterprise. Prof. Guttmann and Doug all state thus “business
finance can be broadly defined as the activity concerned with planning, raising, controlling and administrating the funds used in the business”.

Prof. William R. Lasher states “finance means raising money to acquire something” like dictionary meaning of finance., this approach mainly concentrates on procurements of funds and in the wider sense, the term ‘procurement’ also encompasses the discussion of

(a) The financial instruments through which funds raised from the capital markets and the related aspects of practices and procedures pertaining to capital market.
(b) The institutional infrastructure in the form of various institutions providing finance, their practices and procedures.
(c) The legal and accounting relationships between a company and sources of funds.

This approach also assumes that the demand for funds and the expenditure decisions (mergers, expansion etc.) that gave rise to the demand are determined elsewhere within an organization and the financial management is called upon only to determine how best the required funds are?

This approach to financial management though finds merit in its evolutionary background, suffers from serious limitations as under:

(i) If gives too much emphasis on raising and administrating the funds. In the process, it treats the entire subject of finance from viewpoint of supplier of funds such as institutions, investment bankers and investors. No considerations were given to internal
financial decision making. In other words, it was outside looking in approach and the inside looking out was completely ignored.

(ii) The focus was on the financing problems of corporate enterprise and too little attention to the non-corporate enterprise.

(iii) It was built too closely around the episodic but so frequent phases, such as incorporation, mergers and consolidations during the life cycles of corporations. As a natural corollary the day to day financial problems of a normal company did not receive attention.

(iv) Heavy emphasis was placed as long term financing and issues associated with it. The natural implications were corresponding lack of emphasis on the problems of core financial management.

(B) Too wide approach:

According to this approach, finance is concerned with cash and that since nearly every business transaction involves cash delivery or indirectly, finance is concerned with everything that takes place in the conduct of business enterprises. In the business enterprise all most all the decisions are financial either because they directly affect expenditure of money, or because they indirectly affect the expenditure by consuming the efforts, facilities, or materials, all of which cost money. A decision related to expenditure should result in some fruitful returns.

Since the most of the funds need awareness and coordination of other activities. Similar view has been stated by Prof. Donaldson “ because most business activities involve the
utilization and or the generation of funds, important management decisions in all areas inevitably have financial implications. Not only must these implications be increased and taken in to account in reaching a balanced decision, but varying interests must be coordinated if the company is to achieve financial success”.

(C) Modern Approach:

According to this approach, financial management means acquisition of funds in order to achieve the goals of enterprise in term of maximizing its value. Thus, apart from the issues involved in efficient acquisition of required funds, financial management is equally concerned with wise allocation of funds to various uses in the manner the corporate goal of maximizing the value of firm is achieved. This approach clearly treats financial management as an integral part of overall management. Prof. Solomon stated “financial management is properly viewed an integral part of overall management rather than as a staff specialty concerned with fund raising operations. In this broader view, the wise use of funds, and the central process involved is a rational matching of alternatives of potential sources so as to achieve the broad financial goals which an enterprise sets for itself.

The present and prospective conditions of technology and market for goods, services and capital keep the finance moving. So the basic function of financial management is to review and control funds and decisions related to them. In addition to raise funds, financial management is directly concerned with production, marketing, and other research and
development activities. As the decisions are made about the acquisition or destruction of assets.

So the financial management does not end with acquisition but with uses of funds. It results in answering the following:

(1) Which assets should be acquired so that the needs of organization can be satisfied efficiently?
(2) In which way they are being utilized?
(3) How do they are contributing towards operating income?
(4) In what manner the final after tax operating income would be distributed?
(5) What will be the effect over the total wealth of the firm?

4.1.2 The Dividend:

Dividend decision by any company is an important issue to be determined by the financial management. The dividend policy of firm determines what proportion of earnings is paid to shareholders by way of dividends and what proportion is ploughed back in the firm for reinvestment purpose that is retained earnings. Payment of dividend is desirable because the shareholders invest in the capital of the company with a view to earn higher return and to maximize their wealth. On the contrary, retained earnings are the sources of internal finance for financing future requirement and expansion programmes of the company. Thus, both growth and dividends are desirable. But they are in conflict; a higher dividend means less provision of funds for growth and higher retained earnings means low dividends which majority of shareholders dislike. As both decisions are complementary to each other and no decision can be taken independent of the other, the finance manager has to
formulate a guidable dividend policy in such a way as to strike a comparison between dividend payment and retention.

The word dividend is derived from the Latin word ‘Dividendum’ which means that which is to be dividend. This distribution is made out of the profits remained after deducting all expenses, providing for taxation, and transferring reasonable amount to reserve from the total income of the company.

The term dividend refers to that part of the profits of a company, which is to be distributed amongst its shareholders. It may, therefore, be defined as the return that shareholders get from the company, out of its profits, on his shareholdings. According to the Institute of Chartered Accountants of India, dividend is, a distribution to shareholders out of profits or reserves available for this purpose. A company cannot declare dividend unless there is

- Sufficient profits
- Board of Directors recommendation
- An acceptance of the shareholders in the annual general meeting

Thus, the Board of Directors keeping in view the financial requirements of the company and the quantum of reasonable return to shareholders decides how much dividend should be distributed. It is declared in annual general meeting of the company and after approval it is known as declared dividend.

4.1.3 Dividends Types:

Dividends can be classified into different categories depending upon the form in which they are paid. The various forms of dividend are as under: -
1) **Cash Dividend**: The usual practice is to pay dividends in cash. Payment of dividend in cash results in outflow of funds from the firm. The firm should, therefore, have adequate cash resources at its disposal or provide for such resources so that its liquidity position is not adversely affected on account of distribution of dividends in cash. Generally, shareholders are interested in cash dividend and according to sec. 205(3) of the Companies Act also dividend is payable in cash only.

2) **Stock Dividend**: Stock dividend is next to cash dividend in respect of its popularity. Payment stock dividend is popularly termed as issue of bonus shares in India. Issue of bonus shares results in conversion of company's profit into share capital. Bonus shares are therefore, shares allotted by capitalization of reserves or surplus of a corporate enterprise.

Such shares are issued to the equity shareholders in proportion to their holdings of the equity share capital of the company. When the company pays stock dividend, there is no change in the company's assets or liabilities or in total market value of the company's shares. A shareholder does not gain or lose as a result of the new shares, because he retains the same old proportion of total share capital.
However, in India issue of stock dividend is not permitted. Dividend has to be paid in cash. According to SEBI’s guidelines on issue of bonus shares, bonus shares cannot be issued in lieu of cash issue bonus shares frequently in addition to cash dividend. (Infosys, Wipro, RIL, etc.).

3) **Scrip Dividend**: It is the dividend given in the form of promissory notes to pay the amount at a specific future date. The promissory note is known as scrip s or dividend certificates. When a company is a regular dividend paying company but temporarily its cash position is affected due to locking up of funds, which is likely to be released shortly, this opinion is preferred. Scrip may or may not be interest bearing.

4) **Bond Dividend**: In case the company does not have sufficient funds to pay dividend in cash it may issue bonds for the amount due to the shareholders by way of dividends. It has longer maturity date than Scrip dividend. It always carries interest. Thus, bondholders get regular interest on their bonds besides payment of bond money on the due date. But this practice is not seen in India nor legally allowed.

5) **Property Dividend**: In case of such dividend the company pays dividend in the form of assets other than cash. This may be in form of company’s products. This type of dividend is not popular in India.

### 4.2 Dividend Policy - Meaning:

The term dividend policy refers to the policy concerning quantum of profits to be distributed as dividend. The concept of
dividend policy implies that companies through their Board of Directors evolve a pattern of dividend payments, which has a bearing on future action.

As per Weston and Brigham, Dividend policy determines the division of earnings between payments to shareholders and retained earnings.

Gitman, The firm's dividend policy represents a plan of action to be followed whenever the dividend decision must be made.

Dividend policy decision has a significant effect on the credit standings of the firm, its shares prices and its future growth. Dividend policy refers to determining how much earnings are to be distributed and how much earnings is to be retained in the firm. There is a reciprocal relationship between dividend and retained earnings. On the one hand, dividend results cash outflow and consequently reduction in current assets. Larger dividends result in less retained earnings, which are necessary for financing growth and modernization of firm, which may in turn hamper growth rate in earnings and share price. On the other hand retention of larger earnings and fewer amounts of funds for dividend payments, which shareholders may re-act strongly causing reduction in share prices.

While formulating dividend policy, the management will obviously take into account the effect of the decision on the maximization of shareholders wealth. In case payment of dividend helps the management in achieving this objective, it would be advisable to pay dividend. In case payment of dividend does not help in achieving this objective, the management would be advised to retain
the profits and use them for financing investment programmes. Thus, the dividend decision is largely based on its impact on the value of the firm. However, there are certain schools of thought who give conflicting opinions to this effect. According to MM hypothesis (Miller-Modigliani) that supports that dividends are of irrelevance and has no effect on the valuation of the firm. Contrary to this hypothesis, Walter and Gordon support and suggest that investment policy and dividend policy are interlinked and affects the price of the shares of a firm. Hence, dividend is relevant.

**4.3 Factors affecting Dividend Policy:**

It is a generally accepted principle that the directors of a company have sole right to declare dividend and determine its amount out of company’s earnings. But, in addition to legal restrictions, they have to consider following factors while deciding the dividend policy:

1) **Preference of Shareholders**: The preference of shareholders may influence the dividend policy of the firm. Dividend income provides investors a regular income and builds confidence amongst the investors of the company. However, there are certain shareholders, especially from high tax brackets, like to get the benefit of capital gains in the form of appreciation in the value of share. In such a case, the policy should try to satisfy the dominating group of shareholders.

2) **Current Year’s Earnings**: Earnings of a company fix the upper limit of dividends. A company has to determine the amount of dividend keeping in view the actual earnings of the current year only. Of course, the whole of earnings is not to be distributed by the company, but it is the base of dividend policy.
3) **Past Dividends:** Shareholders do expect that the company would pay not less than dividend pain in the past. Of course, if conditions change, departure has to be made from the past trend of dividends. Generally directors are hesitant to reduce the previous year's dividend rate, and if needed, they would maintain the rate by withdrawing from accumulated profits.

4) **Management Control Motive:** The existing shareholders or management's control motive also influences the dividend policy of a company. If the management wants that the existing shareholders should continue to retain control over the company it would not be wise to raise finance through issues of new shares, for that control is diluted into the hands of new shareholders. Therefore, the firm may rely more on retained earnings. It is likely to have a lesser dividend payout policy.

5) **Liquidity Position:** Dividends entail cash payments. Hence, the liquidity position of the firm has a bearing on its dividend decisions. A firm may have earned handsome profits, but may not have enough cash to pay dividend. This is typically the case of new establishments or highly profitable but rapidly expanding firms, which, thanks to their substantial investment and other commitments do not have adequate liquidity.

6) **Future Financial Requirements:** A company should consider its financial requirements for expansion programmes or increased needs of working capital before taking a dividend decision. Generally, firms, which have substantial investment proposals and consequently considerable funding needs, should retain maximum of its earnings and minimum dividend payout ratio.
7) **Access to Capital Market**: If a firm has an easy access to capital market (it can raise fund, whenever it is required, at minimum cost), it can afford to adopt liberal dividend policy. If the firm does not have easy access to capital market, it cannot raise funds externally easily and so it will have to depend more on retained earnings for funds required for its expansion programmes. This consideration also affects the dividend policy of the companies.

8) **Contractual Restrictions**: Sometimes a firm's dividend policy is restricted by certain specific conditions in loan agreements. When the finance is raised from external sources, creditors may impose various restrictions to exempt themselves from possible insolvency of the firm. The creditors may withdraw their money from the firm if these requirements are violated.

9) **Taxation Policy**: The corporate taxes affect the rate of dividend of the company. High rate of taxation reduces the residual profits available for distribution to shareholders and consequently the rate of dividend is lowered down. Further, in some circumstances, government levies additional dividend tax on distribution of profits beyond a certain limit.

10) **Inflation**: Inflation may also affect the dividend policy of a company. With rising pricing, funds generated by depreciation may fall short in order to replace obsolete equipments. The firms have therefore to rely on retained earnings for this purpose and have to retain greater part of earnings for replacement. As such, the dividend payment ratio tends to be low during the inflation period.

11) **Stability of Earnings**: The stability of earnings has a significant impact on formation of dividend policy. A firm having a stable
income over a long period of time will be more liberal in its dividend policy, usually; firms dealing in necessities suffer less from fluctuating income and can adopt stable dividend policy. A firm having fluctuating earnings for example firms dealing in luxurious product would have to be very careful in determining its dividend policy, as it would not be able to adopt a stable dividend policy.

12) **Legal Restrictions**: The Company may have to legally pay all arrear and current interest on loans/debentures, all arrear and current dividend to preference shareholders and charge depreciation on depreciable assets before payment of dividend.

### Table no. 4.1 legal framework of dividend in India

<table>
<thead>
<tr>
<th>Section</th>
<th>Legal Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>205(1) &amp; (2) Depreciation should be charged before payment of Dividend</td>
<td>A company can pay dividend out of current profit and profit earned in any earlier financial years after charging depreciation as per the requirement of the Companies Act. Depreciation is provided as the rates given in Schedule XIV to the Companies Act. This Schedule Gives minimum depreciation rate. But a company can charge higher depreciation. For this purpose it has to charge at least 95% of the original cost of the asset over its useful life.</td>
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</table>
| 205(2A) Compulsory transfer to Reserve Before payment of dividend | As per the Companies (Transfer of Profits to Reserves) Rules, 1975 a company has to transfer the following % of current profits.  
(a) Dividend proposed exceeds 10% but not 12.5% of the paid up capital 2.5%  
(b) Dividend proposed exceeds 12.5% but not 15% of the paid up capital 5.0%  
(c) Dividend proposed exceeds 15% but not 20% of the paid up capital 7.5%  
(d) Dividend proposed exceeds 20% of the paid up Capital 10.0%  
Can a company transfer higher % to reserves? Voluntary transfer of higher % of profit to reserves is |
allowed, when the company declared dividend:

(i) It has to maintain average rate of dividend declared by it over the last three years.

(ii) In case bonus shares are issued and its paid up capital has been increased, a company has to maintain average amount of dividend declared over the last three years.

However, in case the net profit after tax of the company is lower by 20% or more in a year as compared to the average net profits after tax of the two preceding financial years, it is not required to maintain average rate or amount of dividend as stated above. If the company does not declare dividend, then amount proposed to be transferred from reserves should be lower than the average amount of dividend declared by it over last three immediately preceding financial years.

| 205(2B) | Compliance with the requirements of Section 80A | Dividend on equity shares cannot be paid unless the company redeems irredeemable preference shares. Presently, it is not permissible to issue irredeemable preference shares. |
| 205(3) |  | Dividends should be paid in cash only. However, a company can capitalize profit by way of issue of bonus shares. |
| 205A(1) |  | Dividend is declared by the shareholders in the annual general meeting on the basis of the dividend proposed by the Board of Directors. Dividend should be paid within 30* days from the date of declaration. In case a company cannot pay such dividend, it is to be transferred to a special account called Unpaid Dividend Account of Company Ltd/ (Pvt.) Ltd. |

follow the Companies (Declaration of Dividend out of Reserves) Rules, 1975. The guidelines are
(i) The rate of dividend cannot exceed the average rate of dividend declared in the immediately preceding five years, or 10% of the paid up capital, whichever is less.

(ii) Total amount to be drawn from accumulated profit earned in the previous years. The profits so drawn should be utilized first to set off any loss incurred during the financial year before payment of dividend.

(iii) The balance of reserves after such transfer shall not fall below 15% of its paid share capital. Free reserves do not mean capital reserve & revaluation reserves.

205(5) Any money transferred to the Unpaid Dividend Account and remains unpaid or unclaimed for a period of seven years should be transferred to Investor Education and Protection Fund established under section 205C of the Companies Act.

206 Dividend is to be paid to the registered shareholders or to their order or to their bankers.

207 Penalty for failure to distribute dividends within forty-two days where a dividend has been declared by a company but has not been paid, or the warrant in respect thereof, has not been posted, within forty-two days from the date of the declaration, to any shareholders entitled to the payment of the dividend, every director of the company shall, if he is knowingly a party to the default, be punishable with simple imprisonment for a term which may extend to seven days and shall also be liable to fine. Provided that no offence shall be deemed to have been committed within the meaning of the foregoing provision in the act.

*Substituted for 42 days by the Companies (Amendment) Act, 2000*
Different Types of Dividend Policies:

The dividend policy should be determined by taking into consideration the above stated factors. A financial manager can recommend any one of the following dividend policies:

1) Stable Dividend Policy: Stability of dividend means similarity or no change in dividend payments over the years. In other words, when a company pays dividend at a fixed rate and follows it for future years to come regardless of fluctuations in the level of earnings, it is said to be a stable dividend policy. Thus, stability of dividends refers to regular payment of dividend at a fixed rate. Stable dividend policy increases credibility of the management in the market and shareholders also prefer such stock giving minimum return at regular interval leads to increase in market price of shares. Those companies whose earnings are stable follow this policy. The stability of dividend is described in two different ways viz. (a) constant/fixed dividend per share (b) constant payout ratio.

   a) *Constant amount per share*: In this policy, company pays fixed amount of dividend per share regularly every year irrespective about the earnings of the company. But it does not mean that management has static nature and will adopt the policy for years to come. If the company’s levels of earnings are increased gradually and same level is to be maintained in the future then the dividend per share is been increased respectively. This policy puts equity shares at par with preference shares which yields fixed dividend per share
every year. The fact that equity shareholders bear the total risk of the business is forgotten here. Generally, this policy is preferred by those persons and institutions that depend upon the dividend income to meet their living and operating expenses.

(b) **Constant payout ratio**: In this policy, a fixed percentage of net earnings are paid as dividend every year, that is, constant payout ratio. For example, a company adopts a 60 per cent payout, that is, 60 per cent of net earnings of the company will be paid as dividend and 40 per cent of net earnings will be transferred to reserves. No dividend is paid in the year of loss. Companies generally, prefer this policy because it reflects the ability of the company to pay dividends. But it is not preferred by shareholders as the return fluctuates with the amount of earnings.

2) **Policy of No Immediate Dividend**: Generally, management follows a policy of paying no immediate dividend in the beginning of its life, as it requires funds for growth and expansion or they may be experiencing serious financial difficulties and may be unable to pay dividend. In this case, the firm can minimize adverse effects on the stock price by carefully explaining the reason for the elimination of the dividend. After the, no dividend policy, it is advisable that the company should either issue bonus shares from its reserves or company's shares should be split into shares of small amount so that later on rate of dividend is maintained at a reasonable rate.

3) **Policy of Irregular Dividend**: When the firm does not payout
fixed dividend regularly, it is irregular dividend policy. It changes from year to year according to change in earnings level. This policy is based on the management belief that dividends should be paid only when the earnings and liquid position of the firm warrant it. Firms having unstable earnings, particularly engaged in luxury goods, follow this policy.

4) **Policy of Regular Dividend plus Extra Dividend**: This policy would be appropriate for a firm with cyclical earnings and limited opportunities for growth. In a good earnings year, the firm would declare an extra dividend. The designation extra is used in connection with the payment to tell the shareholders that this is extra and which might not be continued in future. When the earnings of the company have permanently increased, the extra dividend should be merged with regular normal dividend and thus, rate of normal dividend should be raised.

5) **Policy of Regular Dividend plus Stock Dividend**: In this policy company pays stock dividend in addition to the regular dividend. Thus, the dividend is spitted into two parts. This policy is adopted when the company has earned handsome profit and wants to give shareholders a share in the additional profit but wants to retain cash for expansion. It is not advisable to follow this policy for a long time, as the number of shares increases and the earning per share reduces, which led to decrease in share price.

**4.5 Dividend Policy and Share pricing school of thought:**

Dividend decision is one of the three major decisions of financial management. The financial management has to choose between distribution of earnings and retention of earnings. The choice would
depend on the effect of the decision on the shareholders wealth. That is, the payment of dividend should be preferred, if it leads to the maximization of shareholders wealth. If it is not so, the firm should retain the profit and should not distribute dividend. Financial experts have not been unanimous on this issue.

Since the principle objective of the firm is to maximize the share price, question arises, what is the relationship between dividend policy and market share price? This is one of the most controversial and unresolved questions, where the empirical evidence is often mixed. However, there are opinions regarding the impact of dividends on the price of share or valuation of firm. One school of thought believes that dividend is irrelevant and does not affect the price of shares. The other school of thought believes that dividend is relevant and affects the prices of shares.

The following dividends models of both these schools of thoughts on the relationship between dividend policy and the price of shares have been discussed below:

1) **Traditional Position:**

   According to the traditional position expounded expressively by Graham Benjamin and David L. Dodd, the stock market places considerably more weight on dividends then on retained earnings. According to them:

   The stock market is overwhelmingly in favour of liberal dividends as against niggardly dividends.

   Their view is expressed quantitatively in the following valuation model advanced by them:

   $P = m(D + E/3)$

   Where, $P$ = market price of share
D = dividend per share
E = earnings per share
m = a multiplier

According to this model, in the valuation of shares the weight attached to dividends is equal to four times the weight attached to retained earnings. This is clear from the following version of above equation in which E is replaced by (D + R).

\[ P = m \left[ D + \frac{D+R}{3} \right] \]

The weights provided by Graham and Dodd are based on their subjective judgments not derived from objective, empirical analysis. Notwithstanding the subjectivity of these weights, the major contention of the traditional position is that a liberal payout policy has a favourable impact on stock price.

2) **Walter's Model of Dividend Relevance:**

James E. Walter has presented a model in 1963, which explains the relevance of dividend for valuation of shares or maximization of wealth. The investment policy of a firm cannot be separated from its dividend policy and both are, according to Walter, interlinked. The choice of an appropriate dividend policy affects the value of an enterprise. The key argument in support of the relevance proposition of Walter's model is the relationship between the return on firm's investment or its internal risk of return (r) and its cost of capital or required rate (k). The firm would have an optimum dividend policy, which will be determined by the relationship of r and k.

If the return on investments exceeds the cost of capital, the firm should retain the earnings. On the contrary, it should
distribute the earnings to the shareholders if the required rate of return exceeds the expected return on the firm's investment. If a firm has adequate profitable investment opportunities, it will be able to earn more than what the investors expect so that \( r > k \). Such firms are called growth firms, which should plough back the entire earnings within the firm. If a firm does not have profitable investment opportunities (where \( r < k \)) the entire earnings should be distributed as dividend. Finally, when \( r = k \) (normal firms), it is a matter of indifference whether earnings are retained or distributed.

Walter's model is based on the following assumptions.

1) The firm finances all investment through retained earnings; that is debt or new equity is not issued.

2) The firm's rate of return (\( r \)) and cost of capital (\( k \)) are constant.

3) All earnings are either distributed as dividend or retained internally immediately.

4) There is no change in the earnings per share (EPS) and dividend per share (DPS). They may be changed in the models to determine the results.

5) The firm has a very long or infinite life.

### 4.5.2.1 Share Valuation Formula:

Walter put forward the following share valuation formula:

\[
P = \frac{D}{k} + \frac{r \left( E - D \right)/k}{k}
\]

Here, \( P \) = Price per share

\( D \) = Dividend per share

\( E \) = Earnings per share

\( (E-D) \) = Retained earnings per share

\( r \) = Rate of return on investments
\( k = \text{Cost of capital} \)

The above formula suggests that the market value of share is the sum of

(i) the present value of all dividends \((D/k)\) and

(ii) The present value of all capital gains, which occur when earnings are retained in the firm. \([ r \frac{(E-D)}{k} ] / k \).

The above equation can also be written as:

\[ P = \frac{[D + (E - D) \frac{r}{k}]}{k}. \]

**Limitations:**

Though Walter's Model of share valuation is quite useful in explaining the effects of dividend policy on value of shares under different circumstances and assumptions, it has the following limitations:

1. It assumes that the firm’s investments are financed exclusively by retained earnings and no external financing is used. It is an unrealistic assumption.
2. It assumes that \( r \) is constant. This is not a realistic assumption because when increased investments are made by the firm, \( r \) also changes. Thus, this model becomes incorporative.
3. It assumes that \( k \) is constant. By assuming \( k \) to be constant, it ignores the effect of risk on the value of firm.

3) **Gordon’s Model of Dividend Relevance:**

Gordon’s Model is based on relevance of dividend concept. According to Myron J. Gordon dividends are relevant and dividend policy affects the value of firm. It is based on the relationship of dividend policy and market value of shares.

The assumptions that he has made are almost the same
as those by Walters. They are as follows:

1) The firm is an all equity firm. It means its capital consists of only equity shares. There is no debt capital.
2) The firm uses only retained earnings for financing its investment programmes. No external financing is used.
3) The internal rate of return of the firm (r) is constant.
4) The cost of capital or the appropriate discount rate (k) of the firm is constant.
5) The firm has perpetual life and its earnings are also perpetual.
6) There are no corporate taxes.
7) The retention ratio (b), once decided upon is constant.
   (Retention ratio is the proportion of earnings retained in the business.) Thus, the growth rate g = br is constant.
8) k > br. If this condition is not fulfilled we cannot get a meaningful value for the shares.

The crux of Gordon’s arguments is investors are risk averse and they put a premium on a certain return and discount/penalize uncertain returns. As investors are rational, they want to avoid risk. The term risk refers to possibility of not getting a return on investment. The payment of current dividends ipso facto completely removes any chance of risk. If, however, the firm retains the earnings (that is current dividends are withheld), the investors can expect to get a dividend in future. The future dividend is uncertain, both with respect to the amount as well as the timing. The rational investors can reasonably be expected to prefer current dividend and discount future dividend, that is, they would place less importance on it
as compared to current dividend. The investors evaluate the retained earnings as a risky promise. In case the earnings are retained, therefore, the market price of the shares would be adversely affected.

When the rate of return is greater than cost of capital \((r > k)\) the share prices increases of such growth firm, if dividend payout ratio decreases to zero. In normal firms, where the rate of return is equal to cost of capital \((r = k)\), the price per share remains unchanged with dividend payout ratio. Even in this situation, the model prefers more dividends and less retention for having higher value of firm and market price of share, whereas in declining firm the rate of return is lesser than the cost of capital \((r < k)\), the price per share increases as the dividend payout ratio increases. Thus, the conclusions of this model are same as drawn by Walter. Hence, it suffers the same limitations.

4.5.3.1 Share Valuation Formula:

\[
P = \frac{E(1-b)}{k - br}
\]

Where, \(b\) = Retention ratio
\(r\) = Rate of return on investment of an all equity firm.
\(br\) = \(g\) = Growth rate of earnings and dividends
\(k\) = Cost of capital / Rate of return expected by the shareholders
\(P\) = Price of share
\(E\) = Earnings per share
\(1-b\) = Dividend payout ratio

**Gordon s Model versus Walter s Model:**
Gordon’s model contends that dividend policy of the firm is relevant and the investors put a positive premium on current incomes/dividends. He argues that dividend policy affects the value of shares even in a situation in which the return on investment of a firm is equal to the required/capitalization rate (i.e. $r = k_e$). Walter’s model is of the view that the investors are indifferent between dividends and retention.

**Dividends and Uncertainty: The Bird in the Hand Argument.**

According to Gordon’s model, dividend policy is irrelevant where $r = k$, when all other assumptions are held valid, but when the simplifying assumptions are modified to conform more closely to reality. Gordon concludes that dividend policy does affect the value of a share even when $r = k$. This view is based on the assumption that under conditions of uncertainty, investors tend to discount distant dividends (capital gains) at a higher rate than they discount near dividends. Investors, behaving rationally, are risk-averse and, therefore, have a preference for near dividends to future dividends. The logic underlying the dividend effect on the share value can be described as the bird-in-the-hand argument. The bird-in-the-hand argument was put forward, first of all, by Krishman in the following words:

Of two stocks with identical earnings record, and prospects but the one paying a larger dividend that the other, the former will undoubtedly command a higher price merely because stockholders prefer present to future values. Myopic vision plays a part in the price-making process. Stockholders often act upon the principle that a bird in the hand is worth two in the bush and for this reason are willing to pay a premium for the stock with the higher dividend rate, just as they
discount the one with the lower rate.

**Graham and Dodd also hold a similar view when they state:**

The typical investor would most certainly prefer to have his dividend today and let tomorrow take care of it. No instances are on record in which the withholding of dividends for the sake of future profits has been hailed with such enthusiasm as to advance the price of the stock. The direct opposite has invariably been true. Given two companies in the same general position and with the same earning power, the one paying the larger dividend will always sell at a higher price.

Myron Gordon has expressed the bird-in-the-hand argument more convincingly and in formal terms. According to him uncertainty increases with futurity; that is, the further one looks into future, the more uncertain dividends become. Accordingly, when dividend policy is considered in the context of uncertainty, the appropriate discount rate, \( k \), cannot be assumed to be constant. In fact, it increases with uncertainty and would be willing to pay higher price for the share that pays the greater current dividend, all other things held constant. In other words, the appropriate discount rate would increase with the retention rate. Thus, distant dividends would be discounted at a higher rate than near dividends.

Incorporating uncertainty into his model, Gordon concludes that dividend policy affects the value of the share. His reformulation of the model justifies the behavior of investors who value a rupee of dividend income more than a rupee of capital gains income. These investors prefer dividend above capital gains because dividends are easier to predict, are less uncertain and less risky, and are therefore, discounted.
with a lower discount rate.

4) **John Williams on Dividend Relevance:**
   John B. Williams expressed relevance of dividend in the form of some sage advice of an old farmer to his son:
   
   A cow for her milk,
   A hen for her eggs,
   And a stock by heck, For her dividends.
   An orchard for fruit,
   Bees for their honey,
   And stocks, besides For their dividends.

5) **Modigliani and Miller Hypothesis of Dividend Irrelevance:**
   Franco Modigliani and Merton H. Miller advocate that, the dividend policy of a firm is irrelevant, as it does not affect the wealth of the shareholders. Thus, dividends are irrelevant i.e. the value of firm is independent of its dividend policy. It depends on the firm’s earnings, which result from its investment policy. When investment decision of a firm is given, the dividend decision is of no significance in determining the value of firm.

   The MM hypothesis is based on the following assumptions:
   1. There exist perfect capital market and investors are rational. Information is available to all free of cost. There is no investor large enough to influence the market price of securities.
   2. There is no transactional cost.
   3. There is no floatation cost of raising new capital.
   4. There exists no taxes or there is no difference in tax rates applicable to dividends and capital gains.
5. The investment policy of the firm is fixed and does not change. So the financing of investment programmes through retained earnings does not change the business risk and there is no change in required rate of return.

The matter of MM hypothesis may be stated as follows: If a company retains earnings instead of giving it out as dividends, shareholders enjoy capital appreciation equal to the amount of earnings retained. If it distributes earnings by way of dividends instead of retaining it, the shareholders enjoy dividends equal in value to the amount by which his capital would have appreciated had the company chosen to retain its earnings. Lastly, because of operation of arbitrage, the dividend decision would be irrelevant even under conditions of uncertainty. The market prices of the shares of two firms, with similar business risk prospective future earnings and investment policies would be the same, irrespective of their payout ratios. This is because of rational behavior of shareholders. Hence, the division of earnings is irrelevant from the viewpoint of the shareholders.

However, certain thinker affects the validity of this hypothesis. According to them, the MM hypothesis is based on unrealistic assumptions. The approach is criticized on following grounds.

1. MM assumes that capital markets are perfect. This implies that there are no taxes, floatation costs do not exist and there is absence of transaction costs. These assumptions are not valid in actual conditions.
2. Apart from the market imperfection, the validity of the MM
hypothesis, insofar as it argues that dividends are irrelevant, is questionable under conditions of uncertainty. MM hold, it would be recalled, that dividend policy is as irrelevant under conditions of uncertainty as it is when perfect certainty is assumed. The MM hypothesis is, however, not valid as investors cannot be indifferent between dividend and retained earnings under conditions of uncertainty. This can be seen in the fact that the investors prefer near and certain dividend more rather than distant and uncertain dividend or bonus stocks in future. Hence, they discount more the stock with distant dividend than the stock with near dividend. Moreover, majority of shareholders being small investors they prefer current income to meet their consumption requirements. Lastly, the payment of dividend conveys to the shareholders information relating to the profitability of the firm. The significance of this aspect of current dividend payments is expressed by Ezra Solomon in these words:

In an uncertain world in which verbal statements can be ignored or misinterpreted, dividend action does provide a clear-cut means of making a statement that speaks louder than a thousand words.

Modigliani and Miller ignores this facts but powerfully expressed by Gordon. Investors prefer dividend to capital gains. So shares with higher current dividends, other things being equal, command higher price in the market.
4.6 Dividend theories

4.6.1 The transaction cost theory

Firms may incur costs in distributing dividends while investors may incur costs in collecting and reinvesting these payments. Moreover, both firms and investors may incur costs when, due to paying dividends, the firm has to raise external finance in order to meet investment needs. Indeed, the transaction costs incurred in having to resort to external financing is the cost of dividend in Bhattacharya’s (1979) model. In contrast, however, it may be argued that dividend are beneficial as they save the transaction costs associated with selling stocks for consumption purposes. Either way, if there are additional transaction costs that are associated with paying or not paying dividends, then dividend policy should impact earnings expectations and hence share price and firm value.

Alternatively dividends may influence value if dividend policy has an impact on management’s investment decisions. For example, managers may decide to forgo positive net present value investments because dividend payments exhausted internal finance and raising external funds involves transaction or other costs. Indeed in Miller and Rock's (1985) model the cost of dividends arise from cutting or distorting the investment decision. However, more typically, the transaction cost theory of dividend retains the assumption of a given level of investment, and focuses on the costs of raising external funds when the firm increases its dividend payment. Transaction costs include flotation costs to the firm of raising additional external finance such as underwriter fees, administration costs, management time, and legal expenses. Further, when the firm pays dividend and then has to raise
additional external finance, existing shareholders suffer dilution of control. Thus to maintain control or for other reasons, existing shareholders may subscribe to the new issue, incurring trading costs such as stamp duty and stockbrokers’ commissions. Ultimately all these transaction costs are reflected in the share price and firm value.

In addition to explicit transaction costs there are also less obvious costs that are associated with paying dividend and resorting to external finance, and which are due to information asymmetries and pecking order considerations. Particularly, raising new equity can be costly if it comes at a time when the shares are temporarily under-valued or due to the signals this action share price and value sends to the market regarding the value of the firm. Similarly, debt issues are also problematic because the announcement of the issue may be associated with increased probability of default and with managers trying to issue debt before such bad news are revealed. Like explicit transaction costs, these less obvious costs should also impact earnings expectations and be reflected in the firm’s subsequently, due to the costs associated with raising external finance, the transaction cost theory of dividend suggests that firms should utilize retained earnings to the extent possible. Dividend should only be paid when this does not result in shortage of internal funds that are required for investment. Thus Rozeff (1982) suggests that firms that have greater dependency on external finance would maximize shareholder wealth by adopting lower payout policies. Leverage, growth potential and volatility are all factors that can increase dependency on costly external funds. High levels of leverage imply high fixed costs that the firm has to ensure it can meet. Growth potential means the firm is faced with good
investment opportunities for which it requires funds. Similarly, earnings volatility suggests that dependency on external finance is higher because there is less certainty regarding earnings to be generated. This implies that highly leveraged, risky or growth firms should be associated with conservative payout policies.

Another important factor that has implications for control consideration and for the transaction costs of raising external finance and thus for firms’ dividend policies, is size. Particularly, the ownership structure of small companies is likely to be less dispersed than that of larger firms. The more dispersed is ownership the less control is exercised by each shareholder and hence the problem of losing control is more critical for smaller firms. Further, the cost of external finance is likely to be higher for smaller firms compared with larger, well-established firms with easier access to the capital markets. Add to this the observation that growth firms are usually smaller and the conclusion is that small firms are likely to find the payment of dividends more costly compared with larger firms. This conclusion may explain the positive correlation often observed between firm size and the likelihood that the firm is a dividend payer. (Redding, 1997, and Fama and French, 2001).

4.6.2 Tax theories of dividend

Another cost associated with dividend payments is taxes. The tax hypothesis proposes that corporate tax on distributions and taxes on dividends in the hand of investors are important costs to be considered when deciding on a dividend policy. More specifically, the difference between tax on dividends and on capital gains should be considered as well as the difference between corporate tax on distributed and on retained earnings. For example, if corporate tax
on distributions is higher than those on retained earnings, this may reduce expected earnings of a firm that pays dividends relative to a firm that does not. Similarly, if dividends in the hands of shareholders are taxed higher than capital gains, investors should evaluate expected returns on an after tax basis and share prices will vary inversely with the firm’s payout level. Indeed, the basic tax hypothesis proposes that additional taxes on dividends make capital gains a less costly way of returning wealth to shareholders. Thus, the basic tax hypothesis supports a conservative dividend policy, and proposes that if the firm wants to return cash to shareholders then this should be done through share repurchases. It is thus puzzling to find that although repurchases have increased since the 1980s (Allen and Michaely, 1995, Jagannathan, Stephens and Weisbach, 2000, and Fama and French, 2001), they have not substituted for dividends (Fama and French, 2001, DeAngelo, DeAngelo and Skinner, 2000).

However Miller and Scholes (1978) show that under two provisions of the US Internal Revenue Code, taxable investors may still be indifferent to dividends even when the tax regime favours capital gains. Furthermore, Miller and Modigliani (1961) argue that despite the presence of taxes, tax-induced clientele effect greatly reduces the tax costs of dividends. The idea is that there may be clienteles for both high and low dividend yields depending on tax positions. Institutions, which are often tax-exempt and individuals at low tax brackets may prefer companies with high payout policies. Other investors at high tax brackets for whom the relative tax cost of dividends is substantial will prefer firms with low payout policies. Shareholders select firms whose policies suit their preferences. As there are enough firms to satisfy all, no firm can increase its value
by changing its dividend policy. Moreover, by changing its dividend policy, a firm may trigger a change in clientele and this could be costly due to trading costs. Thus the clientele effect hypothesis supports the dividend irrelevancy conclusions.

4.6.3 The bird in the hand argument

The traditional argument in favour of dividend is the idea that dividends reduce risk because they bring shareholders’ cash inflows forward. Although shareholders can create their own dividends by selling part of their holdings, this entails trading costs, which are saved when the firm pays dividends. The risk reduction or bird in the hand argument is associated with Graham and Dodd (1951) and with Gordon (1959) and it is often defended as follows. By paying dividends the firm brings forward cash inflows to shareholders, thereby reducing the uncertainty associated with future cash flows. In terms of the discounted dividend equation of firm value, the idea is that the required rate of return demanded by investors (the discount rate) increases with the plough-back ratio. Although the increased earnings retention brings about higher expected future dividend, this additional dividend stream is more than offset by the increase in the discount rate.

This argument overlooks the fact that the risk of the firm is determined by its investment decisions and not by how these are financed. The required rate of return is influenced by the risk of the investments and should not change if these are financed from retained earnings rather than from the proceeds of new equity issues. As noted by Easterbrook (1984), in spite of paying dividends the firm does not withdraw from risky investments, thus the risk is merely transferred to new investors.
4.6.4 The signaling theory

A more convincing argument in favour of dividends is the signaling hypothesis, which is associated with propositions put forward in Bhattacharya (1979), Miller and Rock (1985), John and Williams (1985), and others. It is based on the idea of information asymmetries between the different participants in the market and in particular between managers and investors. Under such conditions, the costly payment of dividend is used by managers, to signal information about the firm’s prospects to the market. For example, in John and Williams’ (1985) model the firm may be temporarily undervalued when investors have to meet their liquidity needs. If investors sell their holdings when the firm is undervalued, then there is a wealth transfer from old to new shareholders. However, the firm can save losses to existing shareholders by paying dividends. Although investors pay taxes on the dividends, the benefits from holding on to the undervalued firm more than offset these extra tax costs. A poor quality firm would not mimic the dividend behaviour of an undervalued firm because holding-on to over-valued shares does not increase wealth.

The signaling hypothesis can explain the preference for dividends over stock repurchases in spite of the tax advantage of the latter. Particularly, as suggested in Jagannathan, Stephens and Weisbach (2000), Guay and Harford (2000) and DeAngelo, DeAngelo and Skinner (2000) among others, the regular dividend signal an ongoing commitment to pay out cash. This signal is consistent with Lintner (1956) observation that managers are typically reluctant to decrease dividend levels. However, unlike regular dividends, repurchases and special dividends can be used to signal prospects without long-term commitment to higher payouts.
Therefore announcements of increases in regular dividends signal permanent improvements in performance, and should be interpreted as confidence in the firm on behalf of managers thus triggering a price rise. Conversely, announcements of dividend decreases should be interpreted as signaling poor performance and lack of managerial confidence and should therefore trigger drops in prices.

If changes in the levels of dividend release information to the market, then firms can reduce price volatility and influence share prices by paying dividends. However, it is only unexpected changes which have an informative value and which can thus impact prices. Therefore, the value of the signal depends on the level of information asymmetries in the market. For example, in developing countries where capital markets are typically less efficient and where information is not as reliable as in more sophisticated markets, the signaling function of dividend may be more important. Moreover, it can be argued that information will eventually be revealed whether or not the dividend signal is sent; hence the dividend impact on prices is only temporary.

4.6.5 The agency theory of dividend

Another argument in favour of generous reinvestment decision back to the owners. Dividend payments are that this shifts. The underlying assumption is that managers may not necessarily always act as to maximize shareholders’ wealth. The problem here is the separation of ownership and control which gives rise to agency conflicts as defined in Jensen and Meckling (1976). Accordingly when the levels of retained earnings are high managers are expected to channel funds into bad projects either in order to advance their own interests or due to incompetency. Hence
generous dividend policy enhances the firm’s value because it can be used to reduce the amount of free cash flows in the discretion of management and thus controls the over investment problem (Jensen, 1986).

Another agency theory based explanation of how dividends increase value is described in Easterbrook (1984). While the transaction cost theory of dividend proposes that dividend payments reduce value because they lead to the raising of costly external finance, Easterbrook (1984) argues that it is this process which reduces agency problems. The idea is that the payment of dividends is one possible solution to the problem of collective action that tends to lead to under-monitoring of the firm and its management. Thus the payment of dividends and the subsequent raising of external finance induce investigation of the firm by financial intermediaries such as investment banks, regulators of the securities exchange where the firm’s stock is traded and potential investors. This capital market monitoring reduces agency costs and lead to appreciation in the market value of the firm. Moreover, total agency cost, as defined by Jensen and Meckling (1976), is the sum of the agency cost of equity and the agency cost of debt. The latter is partly due to potential wealth transfer from bond to equity holders through assets substitutions. Thus Easterbrook (1984) note that by paying out dividends and then raising debt, new debt contracts can be negotiated to reduce the potential for wealth transfer.

4.7 Review of selected empirical studies

The dividend theories mentioned in this section relate the impact of dividend on value to transaction costs, taxes, and risk, signaling and agency conflicts. However, the main empirical studies of
the dividend policy puzzle focus in particular on the tax hypothesis, the signaling hypothesis and agency studies. Thus, following the spirit in Prasad, Green and Murinde (2001), it is around these three theories that the following discussion is organized. Transaction costs that are incurred due to changes in dividend policies are normally incorporated into each of these main hypotheses. These costs are commonly assumed to be a function of dependency on external finance and are controlled for by variables such as growth, size or profit. Relatively little empirical work has been conducted on the bird in the hand argument therefore this branch of empirical work is discussed no further.

Testing approaches depend to a large extent on the hypothesis under investigation. The clientele effect is often assessed by an event study around the dividend payment days. Other tax studies look at the trading activity rather than the stock price behaviour around ex-dividend days. Some tax hypothesis studies take a different approach, and review the impact of tax reforms on relative prices while other regress the dividend policy on tax proxies to assess the importance of the latter in influencing the former.

Studies that investigate the signaling hypothesis often follow an event study around the dividend announcement period. Other signaling studies assess revisions in earnings forecasts following unexpected changes in dividends. Another approach to testing the validity of the signaling hypothesis is by looking at changes in firm characteristics, following changes in its dividend policy. A particular attention has often been paid to changes in earnings. Cross sectional comparisons between firms of different characteristics are also used to assess how such differences may affect the value of the dividend signal.
Agency theory studies generally use regression analysis to assess the degree of substitutability among alternative mechanisms for controlling agency problems. Another approach, which is typically classified under the agency theory umbrella, is testing the suitability of Rozeff’s (1982) cost minimization model. The cost minimization model actually combines transaction costs theory with agency theory, and proposes that the optimal payout ratio is that which minimizes the sum of costs of paying dividends. Thus Rozeff (1982) and subsequent studies regress a proxy of the optimal payout ratio on proxies for agency costs that may be controlled by paying dividends and on proxies for transaction costs that are associated with dividend payment.

The literature review of this section will proceed by examining a limited number of studies dealing with each of the above mentioned theories in turn. However, some researchers have attempted to model the management’s decision-making process that determines dividend changes. Some of these behavioural models, notably Lintner’s (1956), have important implications in particular for the signaling theory and are hence described first.

4.7.1 Behavioural models – The partial adjustment model

4.7.1.1 The main studies
One approach to addressing the dividend puzzle is to understand the management’s decision-making process that determines dividend changes. Indeed, this is the approach in Lintner (1956), who carry out a series of interviews with the managers of 28 US industrial firms about their firms’ dividend policies in the 7 years from 1947 to 1953. From the survey it emerges that firms tend to
establish dividend policies with target payout ratios that are applied to current earnings. It is also found that firms have adjustment rates that determine the percentage of the target change by which dividend levels are actually changed. Lintner (1956) also reports that although the target payout ratios and speed of adjustments vary across firms, in most cases they stay reasonably stable over time.

Based on his findings, Lintner (1956) develops the partial adjustment model of the change in the dividend level from the previous to the current period. The model reflects management’s belief that investors dislike erratic patterns in dividend levels and hence the emphasis is on the change from the previous actual level:

\[ D_{i,t} = \alpha_i + C_i \left[ D^{*}_{i,t} - D_i (t-1) \right] + U_{i,t} \quad (4.2) \]
\[ D_{i,t} = D_{i,t-1} - D_i (t-1) \quad (4.3) \]
\[ D^{*}_{i,t} = R_i (P_{i,t}) \quad (4.4) \]

Thus \( D_{i,t} \) is the change in the dividend payment; \( D_{i,t} \) and \( D_{i(t-1)} \) are the Amounts of dividends paid in years \( t \) and \( t-1 \) respectively. \( D^{*}_{i,t} \) Target dividend amount where \( R_i \) is the target payout ratio and \( P_{i,t} \) is current profits after tax; \( C_i \) is the speed of adjustment; \( \alpha_i \) is a constant which in general will be positive to reflect management’s reluctance to reduce dividends; \( U_{i,t} \) is an error term. Equation (2.2) can alternatively be expressed as follows:

\[ D_{i,t} = \alpha_i + \beta P_{i,t} + \gamma D_i (t-1) + U_{i,t} \quad (4.5) \]

Tables of this chapter are collected together in Appendix.

(The target payout ratios in the Lintner (1956) survey vary from 20% to 80% with 50% being the most common. The speed with which the firms in the study move toward the target payout ratio ranges from 20%
to around 50% Where

\[ \beta = C_i (R_i) \quad \text{and} \quad \gamma = 1 - C_i \]

According to Lintner (1956), current net earnings, \( P_t \), play the most important role in determining dividend changes. This is because current earnings are widely available and hence managers’ view is that investors expect dividends to reflect changes in this variable. Expanding (4.5), noting that \( D_{i(t-1)} \) can be expressed as a function of that period’s profits and the previous period’s dividends, the dividend level in each period is a weighted average of current and past profits. Hence the dividend pattern is a smoothed pattern of earnings and is indicative of the time path of permanent earnings. The degree of smoothing depends on the speed of adjustment coefficient, \( C_i \).

Thus the three key factors in the partial adjustment model are the speed of adjustment coefficient, \( C_i \), the target payout ratio, \( R_i \), and current earnings, \( P_t \). Indeed, the three questions that are commonly raised about the Lintner model concern these factors. First, some researchers have investigated what determines the speed of adjustment and hence the degree to which smoothing takes place. Second, some researches try to establish whether firms have long-term target payout ratios towards which they move. Third, the question of whether current earnings are the key determinant of dividends has been investigated. In general, however, empirical tests of the Lintner model have confirmed its validity. One of the earliest and widely quoted such study is by Fama and Babiak (1968). Another, which is going to be reviewed here for the reason explained below, is by Mookerjee (1992).
Mookerjee (1992) is unique in that it applies the Lintner model, which has been developed on the basis of a US survey, to a developing rather than a developed country. Particularly, annual data for the aggregate Indian corporate sector for the period 1949 to 1981, before significant reforms were introduced, is utilized to show that the basic Lintner model performs well in explaining dividend behaviour in India. Modification of the basic model, by adding the availability of external finance as an explanatory variable, improves the fit of the model. Indeed, the lagged external finance enters with a significant and positive estimated coefficient reflecting access to subsidized borrowing and hence tendency to use borrowing to finance higher dividends. Mookerjee (1992) also notes that the constant in the Lintner model is hypothesized to be significant and positive, reflecting the fact that firms are more willing to raise rather than lower dividends. Although the study finds the constant to be significant under all specifications, it enters with a negative sign in all regressions. It is suggested that this could be a reflection of the impact of taxes.

Although the study by Mookerjee (1992) is supportive of the Lintner’s model, it also addresses the third of the three questions mentioned above, that are often raised with reference to this model. Namely this is the question of whether management set the desired dividend level as a fraction of current earnings or as a fraction of permanent earnings. If the latter is the case and it is assumed that earnings follow a random walk with a drift, than the lagged profit after tax, should enter with a negative and significant coefficient. Mookerjee (1992) finds that although the lagged earnings enter with a negative coefficient, in all cases it is also insignificant. In contrast, Lee (1996) finds stronger support for the view that it is permanent earnings as oppose to current earnings that determine dividend.
The study by Lee (1996) assesses whether there is long-term relationship between various definitions of earnings and dividends. The study utilizes a bivariate time-series model of earnings and dividend obtained from annual observations on the Standard & Poor's Index for the period 1871 to 1992. The model is sufficiently general to allow various specification of target dividend to be nested within it. These restrictions are then tested, taking into account the non-stationarity of the dividend and earnings series and the co-integration between them. The results indicate that dividend behaviour is determined primarily by changes in permanent earnings and that the Lintner model performs better when the target payout ratio is a function of permanent rather than current earnings. This is supportive of the signaling hypothesis in the sense that current earnings are not a good indicator of the long-term financial position, hence managers utilize dividends to signal this position.

Shirvani and Wilbratte (1997) also use co integration (albeit multivariate rather than bivariate) techniques to test the validity of the Lintner model. However, their main aim is to address the second of the three questions mentioned above, namely whether firms have long-term payout ratios. Using quarterly observations on the Standard & Poor's 500 index for the period 1948 to 1994, the first stage is to confirm the non-stationary of the dividends, earnings and price index series. Further, as these three series are found to co integrate tests of the coefficients in the co integrated equation point to a long-run relationship between earnings and dividends. In particular the hypothesis that the coefficients on the logs of the dividend and earnings variables, are equal and of the opposite signs is not rejected.

The Shirvani and Wilbratte's (1997) study further estimates the
error correction model to capture short-run deviations from the long-run target payout ratio and the speed of adjustment. Thus the study also touches on the first of the three questions about the Lintner model, namely the question of what determines the speed of adjustment. It is found that firms apply different adjustment rates in raising and lowering dividends. When the payout ratio is below its long-run target, the firm will increase dividends. However, when the payout ratio is above its target, the firm will hold the dividend level constant and wait for earnings to grow so that the target payout ratio is achieved. This ratchet effect is interpreted in terms of the signaling theory, and in particular as a way of avoiding the bad signals associated with dividend reductions.

The idea that the speed of adjustment is determined by the signaling role of dividends is also supported in Dewenter and Warther (1998). The study reports the results from running the partial adjustment model for each of 180 Japanese firms and 313 US firms with at least five years of nonzero dividend during the period 1982 to 1993. It is found that the median speed of adjustment is higher for Japanese firms compared with US firms, and higher still for Keiretsu members. This pattern is explained by the observation that the Japanese business environment is characterized by less information problems, thus there is less need for the dividend-smoothing device in the case of these firms.

Returning to the question about the existence of long-term payout ratios, Hines (1996) looks at possible reasons for the Lintner (1956) observation that payout ratios vary across firms. In particular, the payout rates of 505 US firms for the period 1984 to 1989 as well as the dividend patterns for the aggregate US corporate sector during the
period 1950 to 1986 are investigated. Hines (1996) finds that the payout rates applied to profits from foreign sources are about three times higher than the payout rates applied to domestic profits. These findings support the signaling hypothesis since information asymmetries surrounding overseas operations are likely to be more acute than for Dewenter and Warther (1998) note that corporate governance in Japanese firms and in Keiretsu-member firms in particular, differs from that in the US. Specifically it is noted that close links between managers and investors reduce information asymmetries problems in Japanese firms relative to US. Furthermore, it is argued that investors in Keiretsu-member firms have longer-term investment horizon and hence can wait until the information signaled through dividend changes is eventually revealed through other mediums. Thus the higher speed of adjustment for Japanese firms is explained by the smaller role that dividends in these firms play in conveying information. Consequently, firms are less concerned with smoothing their dividend pattern and can adjust their dividend quicker towards the target payout rates. These conclusions are further supported by the findings that Japanese firms experience smaller stock price reactions to dividend omissions and initiations, and the findings that Japanese managers are less reluctant to cut dividends compared with US managers’ domestic activities. Managers, therefore, may feel a stronger need to send signals regarding the prospects of foreign operations.

4.7.2 Conclusions on the empirical studies of the Partial Adjustment Model

Table 4.1 summarizes the relevant key issues of each of the empirical studies reviewed in this section. Empirical findings appear to support the validity of the partial adjustment model, not only in respect
to the behaviour of US firms, as shown in Fama and Babiak (1968), but also with respect to the behaviour in less developed countries as in Mookerjee (1992). The other studies reviewed above address the three questions that are associated with the Lintner model regarding the existence of a target payout ratio, the determinants of the speed of adjustment coefficient, and the degree to which current earnings explain dividend levels.

The Lintner's idea of a long–term payout ratio is supported in Shirvani and Wilbratte (1997), while Hines (1996) provides evidence supporting the notion that variation in the payout target is due to the signaling role of dividends and the degree of information asymmetries faced by the firm. The signaling role of dividends is likewise supported by Shirvani and Wilbratte (1997), who show that firms apply different. There are, however, some inconsistencies, for example, with regards to the constant, which Lintner (1956) proposes should be positive to reflect management desire to establish a gradual upward trend in dividend. However, while Fama and Babiak (1968) find the model improves when the constant is dropped, Mookerjee (1992) records significant but negatively signed constants in all of the regressions adjustment rates to dividend increases and decreases. Further evidence on what determines the speed of adjustment towards target dividend is given in Dewenter and Warther (1998). Finally, Lee (1996) shows that the partial adjustment model works better when the target dividend is modeled as a function of permanent as opposed to transitory earnings.

Before proceeding to the next section, it is important to note that other behavioural model to that of Lintner (1956) have been suggested and tested. For example, Cyert, Kang and Kumar (1996) develop a
behavioural model where firms do not have a target long-term payout ratio because managers do not like predicting long term future events. Instead, the model is based on the notion that managers seek to avoid uncertainty and to optimize self welfare.

However, whether managers have long-term target payout ratios or whether they follow shorter-term goals, the behavioural models imply that managers’ intentions and information on the firm and its future can be inferred from the dividend decision. This is the notion underlying the signaling hypothesis, the empirical evidence on which is reviewed immediately after the following review of selected empirical studies of the tax hypothesis of dividends.

4.7.3 Empirical studies of the tax hypothesis

4.7.3.1 Tax effect

The basic tax hypothesis suggests that because personal taxes on dividends tend to exceed those on capital gains, firms have an incentive to adopt a conservative payout policy and such policy should be value enhancing. A possible method to assess the validity of this hypothesis is to study stock price and dividend policy changes in respond to tax reforms. Hubbard and Michaely (1997) and Papaioannou and Savarese (1994) adopt this methodology. Alternatively the importance of taxes to the dividend decision may be assessed by regressing dividend policy on proxies for the tax cost of dividends. Gentry (1994) and Lasfer (1996) adopt this methodology. Corporations in the oil and gas industry are of similar size and this makes them comparable. The main distinction between PTPs and corporations is that during the period studied PTPs were not taxed at the corporate level and hence escaped the US double taxation system.
Accordingly, if the tax hypothesis is valid, as PTPs have lower tax cost associated with the payment of dividends, their payout rates should be larger. Using cross sectional instrumental variable technique, the dividend payout is regressed on an organizational form dummy as well as on a number of other control variables. Results of the study indicate that firms consider taxes when formulating their dividend policies and that, coherent with the tax hypothesis, PTP pay more dividends than corporations.

Further support for the tax hypothesis, is provided by Lasfer (1996) who uses 108 firms quoted on the LSE for the period 1973 to 1983. The study considers both personal and corporate taxes by running a regression of the partial adjustment model. The original partial adjustment model is adapted to incorporate the effects of both personal and corporate taxes on the determination of the long run target dividend level. Lasfer (1996) tests whether the target dividend (and therefore also the actual dividend) is a function of earnings, of a tax discrimination variable and of a tax exhaustion dummy. The tax discrimination variable, surrogating for the effects of personal taxes, varies inversely with the personal income tax rate. When the tax discrimination is larger than one, income tax on dividends is cheaper than tax on capital gain and the firm is expected to prefer a high payout policy. 

The tax exhaustion dummy, surrogating for the effects of the firm’s tax. Gentry (1994) notes that the organizational form may be endogenous to the dividend decision. In particular, firms that want to pay high dividends may select the PTP form to avoid double taxation. Therefore, in order to obtain consistent estimate for the organizational form, an instrument is used in place of the PTP dummy. Specifically, a Probit model for the PTP dummy is run and the predicted probabilities replace the PTP dummy in the dividend policy regression. Other
explanatory variables in the dividend regression are included to control for differences in growth, profitability and debt levels. Position, is set to one if the taxable profit is lower than gross dividends and advanced corporation tax (ACT) is irrecoverable. When ACT is irrecoverable, the firm is expected to prefer a low dividend payout, and hence the coefficient is expected to be negatively signed.

Results in Lasfer (1996) show all variables to be significant and to enter with the signs predicted by the tax hypothesis. Further, results of an event study in the second part of the paper are also supportive of the tax hypothesis, rejecting the tax induced clientele effect. Specifically, significant and positive abnormal returns are reported on the ex dividend day consistent with the notion that the price drop on the ex dividend day is systematically less than the value of the dividends. The reason for this is dividend taxation, which causes the value of the dividends to investors to be less than their nominal amount. The study concludes that taxes affect both the dividend policy and ex-dividend day returns, and that firms set their dividend policies so as to maximize the after tax returns to their shareholders as well as to minimize their own tax liabilities.

In a similar fashion to Lasfer (1996), Papaioannou and Savarese (1994) also utilize an extended dividend partial adjustment model on a sample of 236 industrial and 40 utility US firms for the period 1983 to 1991. However, they focus on firms’ reaction to the US Tax Reform Act of 1986 (TRA). Indeed the study provides evidence that firms adjust their dividend policies in response to changes in the tax system and this is interpreted as supportive of the tax hypothesis. It is reported that a total of 23.2% of the sample firms experience shifts significant at the 10 percent level in their target payout ratios in the
post-TRA period. This provides further support for the notion that firms consider taxes when setting their dividend policies.

The Tax Reform Act, 1986 is also utilized by Hubbard and Michaely (1997) to assess the implications of taxes on dividend policy. In particular, it is investigated whether shifts in tax policies have led to shifts in the relative values of two classes of common shares of a single firm, the Citizen Utilities Company (CU). It is noted that during the period studied holders of class A stock received stock-dividends while holders of class B stock received cash-dividends. The relative price of the shares should therefore reflect preference or aversion to cash dividends. Further, the TRA reduced the relative aversion of investors paying tax on dividends at the personal income tax rate to dividend. Thus if taxes are important than the relative value of class B should have increase after 1987.

Hubbard and Michaely (1997) begin by obtaining the dividend-adjusted average relative price of CU for each of the periods 1982-1984 (pre-TRA), 1985-1986 (TRA implementation period) and 1987-1989 (post-TRA). The relative price is calculated as the ratio of the average price of class A to the average price of class B divided by the respective dividend ratio. It is found that although the relative price declined significantly from 1.01 in the pre-TRA period to 0.91 in the implementation period, this relative increase in the value of class B shares did not have a lasting impact. The relative price in the post-TRA increased to its pre-TRA level. Further, over the period 1978 to 1993 the relative price is found to be around unity. This is in spite of the tax disadvantage of cash dividends during that period, and is thus inconsistent with the tax hypothesis.
Possible explanations for the inconsistency between the tax hypothesis and the observed price behaviour of the two classes of CU’s shares are explored in Hubbard and Michaely (1997). One suggested explanation is that clientele effects may be the reason that value is not affected by the tax changes. Indeed it is noted that clientele effects could also explain the temporary change in value during the TRA implementation period in terms of shifts in clientele. Although Hubbard and Michaely (1997) do not find evidence in support of clientele effect, other empirical studies do. Some of these studies are reviewed in the next sub section.

4.7.3.2 Tax clientele effect

The tax clientele effect refers to the preference of various categories of investors, on the basis of their tax position, for various types of stock. Accordingly firms adjust their dividend policies and investors move to satisfy their tax requirements, until, in equilibrium, no value can be added by changing dividend policy. One possible method of establishing whether a tax-induced clientele exists is to investigate the relationship between the dividend yield on stocks and the marginal income tax rate of investors. In particular, the finding of an inverse relation between dividend yield and marginal tax rates is supportive of the presence of a clientele effect. Elton and Gruber (1970) suggest that clienteles’ marginal tax rates can be inferred from the ex-dividend day price behaviour. This point, for the case of preferential tax treatment for capital gains, is explained in Green and Rydqvist (1999) as follows.

If stocks offer no ex-dividend-day compensations then investors will be unwilling to sell ex-dividend. Selling on ex-dividend days implies paying higher taxes on the dividends and this can be avoided by selling cum-dividend. On the cum-dividend day the price includes the
present value of the dividends to be paid but this is taxed at the (lower) capital gains rate. To ensure investors are willing to hold stock through the payment day and sell ex-dividend, the after tax receipts to the seller who trade on the cum-dividend day must, in equilibrium, be equal to the after tax receipts to the seller who trade on the ex-dividend day. This equilibrium position is shown in Elton and Gruber (1970) to be:

\[
P_c - T_g (P_c - P_o) = P_e - T_g [ P_e - P_o ] + D (1 - T_d) \tag{4.6}
\]

Where \( P_c \) is the cum-dividend day stock price; \( P_o \) is the price for which the stock was purchased; \( P_e \) is the ex-dividend day price; \( D \) is the amount of dividend; and \( T_g \) and \( T_d \) are the personal tax rates on capital gains and dividends respectively.

An expression for the ex-dividend day price drop is obtained from Equation (4.6) and is shown to reflect the marginal tax rate on dividend relative to capital gains of the clientele holding that stock:

\[
(P_c - P_e) / D = (1 - T_d)/(1 - T_g) \tag{4.7}
\]

If tax clientele exists than the ratio of the drop in price relative to the nominal dividend amount should be closer to unity for high-yield stock and less than unity for low-yield stock. This is because high-yield stock is held by investors who face lower tax rates on dividends. In contrast, investors in low-yield stock are those facing high taxes on dividends. For these high tax payers, the after tax value of the dividend is substantially less than the amount actually received (\( D \)) and the required compensation for receiving the dividends is therefore higher.
Elton and Gruber (1970) divide their sample, of 4148 stock listed on the NYSE which paid dividend in the 12 month period from 1 April 1966, into 10 groups according to the value of the dividend yield. They find that tax brackets are negatively related to firms’ dividend policies. This is supportive of the tax clientele effect and suggests that a change in dividend policy rather than the dividend policy itself could affect value.

However, the Elton and Gruber (1970) approach to inferring the existence of a tax induced clientele effect has been criticized on a number of points. First, it has been suggested that an observed ex-dividend-day-premium (i.e. a price drop, which is less than the dividend amount) could be the result of factors other than a reflection of marginal taxes. Second, it has been argued that short term trading could obscure tax clientele effect on ex-day returns even if tax clientele exists. Third, it is claimed that the volatility of equity prices invalidates inferences about tax effects from ex-dividend-day price behaviour.

Frank and Jagannathan (1998) address the first point. Namely, that ex-dividend day price behaviour may not necessarily be the result of a tax clientele effect. It is shown that prices fall on ex-dividend days by less than the value of the dividend even in markets where there are no taxes on either dividends or capital gains. The ex-day premium therefore does not reflect the tax rate faced by the stock’s clientele but is explained by the costs associated with collecting and reinvesting the dividends.

The study by Frank and Jagannathan (1998) examine 1,896 cash dividend payments by 351 firms listed on the Hong Kong Stock
Exchange between 1980 and 1993. The sample is split into a low-dividend group and a high-dividend group. The percentage price drop on the ex-dividend day is regressed on the dividend yield for the full sample as well as for the sub samples of low and high dividends. The regression is based on a model of the form

\[
\frac{(P_c-P_e)}{P_c} = \alpha + \beta \text{ (dividend yield)}
\]  
\[\alpha = -\Pi(SPREAD)\]

Where \(P_c\) and \(P_e\) are the prices on the last cum-dividend trading day and on the first day on which the stock is traded ex-dividend respectively. \(\Pi\) is the ratio of rational to total traders; \(SPREAD\) is the average bid-ask spread around the ex-dividend day expressed as a percentage of the cum-price. The slope coefficient, \(\beta\), represents the value of the dividend to market makers.

Frank and Jagannathan (1998) find support for the notion that rational traders try to avoid receiving dividends due to their lack of skill and experience in collecting and reinvesting these payments relative to market makers. Subsequently, on the last cum-day there is a selling pressure while on the ex-day there is a buying pressure. This results in a price drop that is smaller than the value of the dividend and this is reflected in the negatively signed constant. As the dividend amount increases, \(\Pi\) also increases because of the wealth implications of ignoring the dividends. As \(\Pi\) rises, the ex-day premiums increase and this is reflected in the observation that for the high-dividend sample the constant is larger in absolute value. However, even for the low-dividend group, where \(\Pi\) can be expected to be at its lowest, the price drop is still lower than the value of the dividend as the constant is significantly different from zero. Finally, the slope \(\beta\) is significantly
lower than one for the low-dividend sample but insignificantly so for the high-dividend sample. This indicates the ability of market makers to benefit from economies of scale in handling the dividends.

While Frank and Jagannathan (1998) address the first criticism of Elton and Gruber (1970), namely that ex-dividend-day-premium are not necessarily a reflection of marginal taxes, Koski and Scruggs (1998) address the second criticism. Namely this is the criticism that short term trading may reduce or eliminate (depending on the level of trading costs) the tax effect on ex-dividend-day prices. Thus the Koski and Scruggs (1998) approach is based on what Allen and Michaely (1995) term a dynamic tax-clientele effect which involves investigating trading volume around ex-dividend days. The argument put forward is that short-term trading, motivated by traders exploiting ex-dividend day premiums, results in abnormal trading volume. Therefore, even if the existence of a tax clientele cannot be inferred from ex-dividend day premiums, it can still be inferred from abnormal trading volume around the dividend payment days.

If taxes impact ex-dividend returns then security dealers, who are tax neutral, will increase their trading around ex-dividend days. Also, if low dividend-yield stock is held by dividend adverse investors (as predicted by the clientele effect) then it should be associated with ex-day premiums. Under such circumstances security dealers are expected to take long positions to capture the dividends. (They will increase their cum-dividend buying and sell at the ex-dividend price, which will drop by less than the value of the dividend they collected). Similarly for high-dividend yield stock, held by investors with preference for dividends, the ex-dividend price is expected to drop by more than the nominal amount of the dividends. In that case, dealers
can be expected to take short positions. Furthermore, as US firms were exempt from taxes on 70% of their inter-corporate dividends received during the period investigated, they are also expected to engage in dividend capturing by establishing short positions.

Koski and Scruggs (1998) collect data on trading volume by dealers and by individuals/firms for 70 ex-dividend days between November 1990 and January 1991. The abnormal trading volumes on the ex-dividend day and on the previous day are based on an event window of 11 days centered on the ex-dividend date. Abnormal trading volume is obtained as actual volume less the average volume during normal trading period and is standardized by the standard deviation of the normal trading volume. The means of the standardized abnormal volumes provide strong evidence that tax-neutral securities dealers engage in short selling of high yield stock around ex-dividend.

The study further tests the hypothesis that abnormal trading volumes around ex-dividend days are positively related to the dividend yield and negatively related to transaction costs. Results of the ordinary least squares regressions of the standardized abnormal volume on the last cum-dividend day indicate that securities dealers engage in short term trading on cum-dividend days. This is supportive of a dynamic tax clientele effect according to which tax-neutral dealers engage in trading around the ex-dividend date in order to capture tax-driven differences between the ex-dividend capital loss and the amount of dividend paid. However, it is precisely this arbitrage activity by securities dealer that can eliminate tax clientele effect on ex-dividend day returns.

Thus Koski and Scruggs (1998) address the second criticism of the Elton and Gruber (1970) approach by showing that short term
trading could obscure tax clientele effect on ex-day returns. Green and Rdyqvist (1999) address the third criticism of the Elton and Gruber (1970) approach, namely the notion that equity price volatility invalidates inferences about tax effects from ex-dividend-day price behaviour. They do this by studying ex-day price behaviour of Swedish lottery bonds, which are more stable than equity shares, thus reducing noise from ex-distribution price behaviour.

However, while more stable than equity shares, lottery bonds are similar to equity shares as there are tax implications to whether the bond is sold cum-lottery or ex-lottery. Particularly, if the lottery bond is sold on the cum-lottery day, the extra payment to the seller forms part of the bond price and is treated as capital gains not as accrued coupon payment. Moreover, for the buyer the extra payment is treated as a capital loss and form part of his/her tax basis. The implication of this feature of the lottery bond is that, if tax differentials on capital gains and distributions matter, then ex-lottery returns, like in the case of equities, should reflect the marginal tax rates of their holders.

Green and Rdyqvist (1999) note that another advantage of looking at the Swedish lottery bonds is that distributions are tax-exempt. In most cases, where the tax system favours capital gains, factors such as transaction costs of handling dividends can substitute for the effects of taxes, making ex-days behaviour difficult to assess. In the lottery bonds market such factors have an opposite effect to that of taxes because the tax system favours distributions. These non-tax factors, such as transaction costs, may therefore reduce the effects of taxes on lottery-bonds ex-day price behaviour, but they do not offer potential alternative explanation for them.
The data in Green and Rdyqvist (1999) include 46 lottery bonds of two types (mixed and sequenced) with between 5-10 years to maturity, trading on the Stockholm Stock Exchange in the period 1986 to 1997. There are 455 lottery payments with 287 lottery days (due to lotteries that pay their coupons on the same days). The sample is subdivided according to the tax regime at the time when they were issued. The oldest sample, issues pre-1981, has the largest tax advantage as capital losses on these bonds can be fully used to offset tax due on any other income. Cumulative abnormal trading volumes of 10 days around the ex-distribution day are calculated for each tax regime sample. Abnormal volume is calculated as that day’s volume divided by the average daily volume over the period beginning 6 trading days after the previous distribution and ending 6 days before the current distribution. In a similar manner, 20 days cumulative abnormal trading volumes are also obtained.

Green and Rdyqvist (1999) find evidence of high abnormal trading volumes for lottery bonds issued under all tax regimes, but the highest abnormal volumes are recorded for the pre-1981 sample. This evidence is supportive of the dynamic tax clientele. There is an increase in trading activity around distribution days due to tax differentials amongst market participants, and this abnormal activity is stronger, the higher the tax benefits attached to the bonds. To further investigate how taxes influence the returns around lottery days, these returns are regressed on the coupon yield as in the following model:

\[
P_{t+k} - P_t = P_t (\gamma_0 \ k) + C (\gamma_1 - 1) \tag{4.10}
\]

\[
\gamma_0 = E(r) / (1 - T) \tag{4.11}
\]

\[
\gamma_1 = -T / (1 - T) \tag{4.12}
\]
Where $P_{(t+k)}$ is the price on day $(t+k)$ and $P_t$ is the price on day $t$. Thus the LHS of Equation (4.10) is the change in price over the period $k$.

Similarly, on the RHS, $k$ is the number of days in the trading period and the coefficient $\gamma_0$ is defined by Equation, where $E(r)$ is the expected after-tax daily return and $T$ is the tax rate faced by the marginal investor. So the first expression on the RHS of (4.10) is the pre-tax expected return over the period $k$. The second expression on the RHS of (4.10) is the pre-tax change in price that is due to the coupon payment, $C$. The coefficient $\gamma_1$ is defined in Equation, thus the implied tax rate, $T$, can be obtained from the estimates of $\gamma_1$.

When $(\gamma_1 - 1)$ is equal to $-1$ (i.e. $\gamma_1$ is equal to 0), the pre-tax price on the ex-coupon day falls by $C$, the value of the coupon, providing evidence of tax irrelevancy. When $(\gamma_1 - 1)$ is greater than $-1$ (i.e. $\gamma_1$ is greater than 0), then the pre-tax price on the ex-coupon day falls by less than $C$, the value of the coupon. This provides evidence in support of the view that taxes drive coupon payment to be worth less than their nominal amount. When $(\gamma_1 - 1)$ is less than $-1$ (i.e. $\gamma_1$ is less than 0), then the pre-tax price on the ex-coupon day falls by more than $C$, the value of the coupon. This provides evidence in support of the tax advantage of coupon payments, and is also the hypothesis put forward for empirical testing. To empirically test for the value of $\gamma_1$, $C$ is added to both sides of Equation, which is then dividend through by $P_t$:

$$R = \gamma_0 k + \gamma_1 C/P_t \quad \quad \quad \quad \quad \quad \quad (4.13)$$

$$R = [P_{(t+k)} + C - P_t]/P_t \quad \quad \quad \quad \quad \quad \quad (4.14)$$

Where $R$ is the pre-tax return over the trading period, $k$, as
defined in Equation (4.14), and \( C/P_t \) is the coupon yield. Green and Rdyqvist (1999) run the Weighted Least Squares regressions on the two types of lottery bonds. The findings of a negative \( \gamma \), imply that the price on the ex-lottery day falls by more than the value of the coupon. This is consistent with the tax clientele effect in markets where distributions have tax advantages.

Thus, to summarize the evidence on the tax clientele effect, Green and Rdyqvist (1999) find support for Elton and Gruber (1970) proposition that clientele effects can be observed from ex-days price behaviour. However, the implications from Koski and Scruggs (1998) are that short term trading may eliminate the tax clientele effects on ex-day returns even if investors consider taxes when choosing stock. In contrast Frank and Jagannathan (1998) note that price behaviour around ex-days may be driven by factors other than tax clientele effects.

4.7.3.3 Conclusions on the empirical studies on dividend and taxes

The empirical studies reviewed in this section are summarized in Tables 4.2 and 4.3. Table 4.2 summarizes the studies of the traditional tax hypothesis, while Table 4.3 presents key issues relating to tax clientele effects (see appendix). The general conclusion that emerges from the above discussion is that the presence of taxes invalidates the irrelevancy theory of dividend. Indeed using various methodologies, Gentry (1994), Lasfer (1996) and Papaioannou and Savarese (1994) provide evidence that taxes are important determinants of the firm payout decision. Further, even if taxes do not have a permanent impact on stock prices, as concluded in Hubbard and Michaely (1997), tax effects on prices may still be observed
around ex-dividend days as shown in Elton and Gruber (1970) and Green and Rdyqvist (1999).

However, if there are tax clienteles for different dividend policies such that there are no permanent premiums in the market for one dividend policy over another, is it still valid to argue that dividend policy is important? [Particularly given that even these temporary price effects are not necessarily due to taxes, as shown in Frank and Jagannathan (1998)]. Moreover, as shown in Koski and Scruggs (1998) and subject to transaction costs, if tax clientele effects have temporary impact on prices, in efficient markets such effects would be eliminated through short term trading. It is thus clear that taxes alone cannot explain the dividend puzzle.