**Chapter Two**

**Theory of the Firm**

**2.1 Introduction**

Any firm’s objective is to maximize its profit through equating MR and MC. Here usually most firms expand their firm size in order to achieve their profit maximization objective. At this moment you may ask what are theories of the firm, what are the impediments of profit maximization by equating MR and MC and how impediments impend profit maximization through MR= MC ,and further you ask about modern theories of the firm – managerial theory, principal-agent theory and transaction cost theory. All your questions above will be addressed by this unit.

**2.3 A Review of the Neo-classical theory of the firm**

**2.3.1Profit maximization as objective of the firm**

The competitive equilibrium paradigm has been the dominant representation of the economic system since the writings Adam Smith. According to this paradigm:

* On all markets supply and demand are equated
* This equilibrium is achieved by price adjustments
* Individuals reacts primarily to price signals

Central to neo –classical view of the firm is that the objective determining the behavior of the firm is maximization of profits. Here we will briefly discuss the meaning, limits and alternatives to the profit maximization objective.

According to neo classical vision, the firm is abstraction, an idealized form of business, whose existence is solely explained by the purely economic motive of generating a profit. Generally profit is generated through satisfying wants by producing a good or a service on given market and at a given price. The firm’s legal or organizational characteristics are insignificant. The only objective guiding its operation is the desire to maximize profit /minimize costs).

The neo-classical firm is thus a profit maximizing (or cost minimizing) entity operating in an exogenously given environment which lies beyond its control. It is described by a production function which shows the relationship between inputs and outputs. Costs can be derived from production function as long as the prices of inputs are known. Revenue can be derived from demand schedule the demand schedule shows the number of units of the good that the consumers are willing to pay at different price levels; the price actually paid multiplied by the number of units bought is the firm’s revenue. The quantity the firm will produce is the profit maximizing level of output. Profit is the difference between costs and revenue. If the revenue obtained from selling the last unit produced (marginal revenue) is greater than cost of producing the last unit (marginal costs), then output will continue to be increased. When MR=MC, then profit is maximized.

This formulaic approach to the behavior of the firms does not provide for such clear way in the decision making process within the firms. As long as the assumption hold- in terms, in particular, of the information that the firm is assumed to have – then, as profit maximizer, it will behave in such a way as to set MR=MC.

**2.3.2 Impediments to profit maximization**

In this section we will discuss objection to the profit maximization principle under three main headings: that MR =MC is not a conscious goal of decision makers in the firm, that information, particularly about the future, is imperfect and that the organizational complexity of the firm may impede the application of the profit maximization principle.

**a) Decision makers do not aim for MR=MC**

One of the first challenges to the neoclassical theory of the firm as profit maximizer was presented by the Hall and Hitch (1939).The authors criticize the ‘obscurity’ surrounding the precise content of the terms marginal and average revenue, and raise questions about the nature of the demand curve assumed to be facing the firm.

 Hall and Hitch’s objections to this principle stems from the results of a questionnaire submitted to a small sample of manufacturing firms on how they decide the price and level of output. The most striking finding of their research is that the firm interviewed appeared not to aim at profit maximization by equating MR and MC instead on full cost principle- price ought to be charged or determined based on full average cost (including conventional allowance for profit ).

There are a number of defenses against this objection to the MR= MC principle **First**, the conventional allowance for profit may itself be variable. Thus, as demand shifts downward, lower profit will be accepted and price will be reduced.

**Second,** profit maximization may be accidental in absence of perfect knowledge and data, but these decision makers with the best institutive understanding, or who make the best guesses- that is the managers of the successful firm in an industry-will get closest to MR =MC. Those that do not get near this level of profit will probably leave the industry.

**b) Imperfect information**

 In the neoclassical paradigm, profit is maximized in the light of perfectly known cost and demand conditions. Imperfect information, and thus uncertainly, are irrelevant in this theory since markets are characterized by transparency and since the equilibrium reached by the firm is the result of the interactions between various things defined in the present period of time the firm operates in a timeless environment; the future is ignored. When time is incorporated into the analysis of the firm, uncertainty as to the outcome of a given strategy arises. Decision makers cannot know precisely how interest rates and exchange rates will evolve in the next period, whether or to what extent demand will change, or how stable price of raw materials will be. However, firms can improve on the static notion of profit maximization (and can reduce uncertainty) by systematically looking at determinants of future streams of profits.

In the future revenue and cost may depend on, among other things, on the following:

- The action of competitors

- Change in technology

- Change in consumer tasks

- Change in market price of inputs

- Government policies

**c) Firms are organizationally complex**

The complex structure and size of organizations form the basis of another objection to the focus on modern corporations as profit maximizing entities. The production of most goods and services take place in business organizations that are multiplant operations structured in to multiple divisions, such as R & D, production, advertising, sales and accounting finance departments. As firms become larger, activities become ‘increasingly’ separated, and so it becomes more difficult to ensure that information is communicated rapidly and accurately between them. Decisions that might be consistent with profit maximization are more difficult to enforce. Bureaucracy may set in. In addition, the separation of activities may breed diverse and conflicting objectives.

There are at least two broad reasons for these conflicts of interest:-

***The technological reasons:*** arise from differences in the number of products that the various parts of the firm produce efficiently.

***The cultural /psychological reason:*** arises from the established customs and practices of different disciplines training, education and experience.

**2.4 Modern theories of the firm**

Till this time we devoted the discussion to neoclassical theory of firm from this onwards, we will devote the discussion to modern theories of firm. Among teachers of management theory the dissatisfaction in the 1930’s with the simple conception of a firm as a mechanism which transforms inputs into output resulted in alternative perspective. A legal– economic view of the firm emerged, which aimed at revealing key aspects of the internal structure of the corporate firm. One development of this view formed the basis of the managerial theory of the firm. Other developments, based on works of different scholars are discussed in this section

**2.4.1 Managerial Theory**

 The managerial theory of the firm emphasized the complex nature of the modern corporate firm. In their pioneering work Berle and Means (1932) described the diminishing influence of shareholders in the decision making process of large corporations in the USA from the turn of the 20th century. This left much of the decision making to the manger, whose objectives, it was suggested could be different from those of the owner of the firm. If, for example, in terms of its influence on managers’ salary size of the firm was more important than a firm’s profitability. Then the growth could be a more important objective of firms than profit.

Other reasons why hired manages may be more preoccupied by profit maximization include, according to Baumol (1967), the following

1. If sales fail to rise, this is often equated with reduced market share and market power, and consequently, with increased vulnerability to the actions of competitors.
2. When asked about company performance, an executive would typically reply in terms of what the firm’s level of sales are
3. The financial market and retail distributors are more responsive to a firm with rising sales.

 TC

  TR

  

 **TR1**

 **TC1**



 

 

 

 qp qc qr **output**

**Figure 2.1** **qp profit maximization output; qr, revenue maximizing output; qc, revenue maximizing output subject to a minimum profit constraint Πc.**

According to Baumol model, the firm maximizes sales revenue subject to a minimum profit constraint. Figure 2.1depicts firm’s total revenue (TR), total cost (TC) and total profit . The quantity qp represents the output produced by a profit maximizing firm, and qr output produced by revenue maximizing firm.

The revenue maximizing level of output is the level at which the marginal revenue is zero (and the elasticity of demand is unity). The output qc is produced by the revenue maximizing firm when constrained by a minimum profit  The difference between the maximum possible level of profit and minimum constrained profit (i.e. betweenp andc) is called ‘ sacrificeable’ by Baumol. In this view, these profits will be voluntarily given up by the firm in order to increase sales revenues. If the scarified profits are too apparent, they would tend to attract other firms acting in the same market, and would tend to create the ultimate threat of takeovers.

The profit constrained revenue maximizing output may be greater than or less than the revenue maximizing output. If qc<qr, then the firm will produce qc. If qc>qr, then the firm will produce qr. Baumol argues that the unconstrained equilibrium position never occurs in practice.

**Profit**

 0

 SG2

 SG1

A

E2

E1

 DG1

 **Growth**

Figure 2.2 Growth maximization Growth

**Figure 2.2** **Growth maximization**

The managerial theory of the firm was further developed by a number of writers, in particular by Marris (1963, 1966), whose 1966 formulation has become the standard one for analysis of [the growth of] the managerially controlled firm. In this model, Marris formalized the hypothesis that managerially control would lead to Growth as an objective, showing that the shareholders were a less important constraint on such firms than financial markets. The model like Marris model, it assumes that managers will act to maximize their utilities rather than profits, but in contrast to Baumol, it assumes that this will be achieved through growth rather than sales

As depicted above Marris model has two curves supply growth (SG) and demand growth (DG1).The axes are profit rate and growth rate, with growth arising through diversification in to new products, rather than expansion of output. The supply growth is the maximum growth of supply that can be generated from each profit rate, given management’s attitude to growth and job security. Supply growth is directly or constantly related to profit because a higher profit facilitates both more investment from retained earnings, and more funds to be raised in the capital market. Unlike in relation to demand growth, the positive relationship between supply growth and profit is possible at both low and high level of profits (and growth).

The demand growth curve shows the maximum profit rate consistent with growth of demand. With demand growth, growth is seen as determining profits, rather than – as in supply growth – profit determining growth. Growth which is diversification into new products, leads to increase in profit rate at low level of Growth because the first new products the firm introduces will be the most profitable. As more and more new products are introduced (i.e. as growth rate increases) so more has to be spent on R & D and on advertising for the sale of the new products. In addition, other costs will increase as a result of the need for more complex management of increasing number of products. So, at some point (A in Fig .2.2), further growth will lead to decline in the rate of profit.

In the Marris model, the intersection of the two curves would determine unique state of Growth and profit equilibrium Rather than at point A, where the profit rate would be maximized, the management chooses to situate the firm at point E1 , where under certain constraints, the growth rate is maximized.

To elaborate on the nature of these constraints, the model introduces the possibility of alternative supply growth curves. Assume, for example, that rather than the rate of retention inherent in SG1, management had chosen to retain a much lower proportion of profits for reinvestment .This would lead to a much steeper supply growth curve, SG2. Along SG2 each profit rate will result in a much lower level of growth than was the case along SG1, and the equilibrium will be at E2, at lower growth rate than E1.

**2.4.2 Principal Agent theory**

This principal – agent theory examines situations, in which there are two actors, a principal who is usually the owner of as asset, and agent who makes decisions that affect the value of that asset, on the behalf of the principal. As applied to the firm, the asset, which agent's decision could enhance or diminish is the manager’s reputation.

Principal agent theory sees the firm – as does neoclassical theory – as a legal entity with a production function, contracting with outsiders (with suppliers and customers) and insiders (including owners and managers).There is information asymmetry between principals and agents but, unlike the transaction cost theory principal- agent theory assumed unbounded rationality. Unbounded rationality refers to the ability of those designing the contract to take all possible, relevant, future events into consideration. The principal may know various things about the firm not known to the agent ( in relation, for example prospects of the firm ) and vice – versa ( agent may have lower commitment to the firm) , but if the obligation of both under the contract can be specified, taking in to consideration the possibilities arising from private information, then there is unbounded rationality.

Principal agent theory with ‘owners’ and managers’ problems of coping with asymmetric information, measurement of performance and incentives is different from neo –classical theorists.

The major difference between principal agent and transaction cost theories is the former focuses on the contract, the latter on transactions. The problem of principal agent theory is how to formulate a contract such that the share holders (the principal) will have their interest advanced by the manager (the agent), despite the fact that the manger’s interest may diverge from those of the share holders then the problem of moral hazard arises. Moral hazard refers to the possibility that, once there is a contract the agent may behave differently from how he or she would have behaved had he or she not had the contract.

There are a number of ways of controlling moral hazard.

* Managers could each be paid salary plus bonus.
* Monitoring performance of individual mangers
* Providing incentive contracts
* Bonding (where agents make promise to pay the principal a sum of money if in appropriate behavior by the agent is detected ) and
* Mandatory retirement payments.

**2.4.3 Transaction cost theory**

Transaction costs are those incurred in enforcing property rights, locating trading partners and actually carrying out the transaction. If a property right over the good cannot be existed, then transaction cost theory is inappropriate.

Let us now see contribution and other related issues from perspective of scholars to transaction cost theory. Scholar Coase in his article ‘ The nature of the firm (1937) argued that it is due to the existence of transaction cost that firms exist. If it is through the market mechanism that price are determined how factors of production are to be combined, for what market, then why are organizations necessary? Coase’s answer is that where transaction between individual would be too difficult, inefficient or expensive, such that an organization could co-ordinate at lower cost than if they were market transaction then firms emerge to do this coordination and thereby obviate these transactions by internalizing them. In general, if cost of exchange is greater than gains, that exchange would not take place. Internalization of transactions enables the exploitation of economies of scale that determine the size of a firm.

Another school as Williamson focuses on bounded rationality, opportunism and asset specificity. Bounded rationality refers to the imperfect ability to solve complex problems. There is bounded rationality when there is imperfect ability to process available information and /or when information itself is imperfect/uncertainty/ both in relation to present and future events. Opportunism relate to how people respond to conflicts; given the existence of bounded rationality. If there was unbounded rationality, the potential opportunistic behavior would be known. Asset specificity refers to assets, involving non trivial investment, that are specific to a particular transaction. Without opportunism, the transaction would take place within the market, rather than within a hierarchy. But bounded rationality is a pre condition to opportunism. So, opportunism and bounded rationality are likely to give rise to internalization.

Both of the above scholars understand the determinants of transaction costs differently, however, both Coase and Williamson agreed that minimization of transaction cost is the basis for the existence of firms