RETURN ON INVESTMENT AND \textit{EX ANTE} SURPLUS RETURN
IN THE FIRM'S INVESTMENT DECISION-MAKING
UNDER CONDITIONS OF Oligopoly

Dissertation
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CHAPTER I

INTRODUCTION

The concept of the rate of return on investment seems to underlie a general philosophy of investment decision-making, and as such, various aspects of the concept have received critical examination by writers in finance. For example, a favorite topic of authors has been a comparison of the rate of return on investment as a criterion for evaluating investment alternatives with other criteria such as the payback period. Another popular pursuit has been the discussion of the intricacies involved in calculating the return on investment.

The large amount of attention given to the calculation methods for determining the rate of return on investment and the other technical problems associated with the concept has led Warren Haynes and Martin Solomon, Jr. to say that there has been a misplaced emphasis in capital budgeting.¹ They suggest that there are at least five managerial functions involved in capital budgeting: (1) searching for investment opportunities, (2) forecasting the supply and

cost of funds, (3) estimating each project's cash flows and other benefits, (4) ranking and choosing among alternative investments, and (5) post-auditing already committed investments. While the main emphasis in the literature has been on the fourth and to some degree the second functions, Haynes and Solomon suggest that a balance is necessary among the several managerial functions.

The criticism of Warren Haynes and Martin Solomon can be substantiated to some degree by citing comments made by Ezra Solomon in the introduction of his book, The Management of Corporate Capital.

All of the essays in this volume assume that the goal of capital management is the maximization of long-run earnings to present stockholders. . . . The all encompassing end is service to the economic community as a whole. There is general agreement, dating from Adam Smith, that this end can best be served if individual companies act, within the law, to maximize future long-run earnings to owners.

[Most attention in the literature since 1950 has been given to the problem of] given the goal of long-run profit maximization, given specific and agreed upon estimates of benefits and costs for various uses of company funds, and given certain conditions in the capital markets, how should these be translated into optimal investment and financing decisions?

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2 Ibid., p. 46.
3 Ibid.
The assumptions which Ezra Solomon attributes to the essayist contributing to his book preclude discussion of many factors involved in the development of a theory of capital budgeting. The problems involved in searching for investment opportunities, estimating the cash flows and other benefits from investment alternatives, and to some extent forecasting the supply and cost of funds available to the firm have been left untreated because of these limiting assumptions. This is not to suggest that the approach taken by Ezra Solomon and others is not justifiable for the development of theory, since valuable insights can be gained from theorizing about assumed conditions. It may be true (and probably is), that estimates must be made of conditions of the capital market, the supply and cost of funds, and the cash and noncash benefits of projects. However, there must be a theoretical basis for making these estimates. It is the development of this theory concerning the goal(s) of the firm, the estimates of benefits and costs for various uses of company funds, and the conditions in the capital markets which the essayists in Ezra Solomon's book avoid or sidestep. In developing a theory of how managers should make investment decisions, none of the "givens" which Ezra Solomon and many others take as facts for their theoretical arguments can be taken as though they descended by divine right.

One of the tools suggested for use in capital budgeting has been the rate of return on investment, but because
of the approach taken by Ezra Solomon and others, discussion of the assumptions behind this concept has been avoided. In order to understand the concept of return on investment, the philosophical assumptions underlying it must be examined and exposed to the realities of the business world. These assumptions are that: (1) the investment decision will be made under conditions of conscious thought, (2) productivity and/or efficiency are the "correct" criteria to use in evaluating alternatives, (3) men should be "reasonable" in evaluating alternatives in the sense of preferring more over less, and (4) when evaluating return to capital, the prices of the other factors of production can be taken as given from a market. The first three assumptions are generally recognized as part of classical economic theory and while students of decision-making theory may question these assumptions underlying the use of return on investment, most attention in this paper is directed to the examination of the fourth assumption, assuming that the other three are in a rough sense justifiable or valid.

The fourth assumption that factor prices, other than the price of capital, can be assumed to be given by a market is implicit in the "normal" or common ways of calculating the rate of return on investment. The two basic methods of computing the rate of return on investment are the accounting method, where standard accounting statements are used, and some variation of discounting a stream of future cash
benefits to its present value. In the accounting method, revenue is estimated and various expenses are subtracted from this revenue in order to arrive at earnings which are compared to investment. In the present value techniques, cash expenses are deducted from the cash income generated by the proposed investment and the result discounted to the present. In either of these two broad methods, the conventional way of calculating the rate of return is to take the market prices for inputs other than capital and deduct them from the projected revenue. Depending on the degree of sophistication, price increases for labor and increased taxes, for example, could be accounted for since both may be subject to change over time. Even if these changes in prices (or costs) are taken into account, it is common practice to deduct them from the projected revenue when calculating the amount of return to be used in the rate of return comparison.

This assumption that factor prices, other than the price of capital, should be taken from the market in evaluating the return on investment seems to imply that the distribution of the income from the productive activities of the firm is taken care of by a market. The share of the income which goes to the factors of production other than capital is determined by the costs of these factors as taken from the market. The remainder is assumed to be the reward to capital for supplying capital to the firm.
In a world of oligopolistic markets and interrelationships between firms and special interest groups, the automatic distribution of the income generated by the activities of the firm being dictated by markets is perhaps not a realistic assumption. There probably is some minimal amount which a firm must pay for the use of a factor of production (input) such as labor. To the extent that there are perfect markets, it seems reasonable to take the price of the factor from the market, and even where less than perfect markets exist, the decision maker is faced with some minimal amount expected by all the inputs which he uses. But, the activities of the oligopolistic firm might generate more output from the use of the various factors or inputs than the sum of the expected demands of the inputs.

The possibility of the oligopolistic firm generating expected returns greater than the sum of the minimal demands of the inputs and the implications of this for investment decision-making are the subject of this paper. Of special interest is the implication for the rate of return on investment concept and the investment criterion of accepting investments when the rate of return on investment is greater than or equal to the cost of capital.
Methodology

This paper draws on previous literature and deductive reasoning. There is a vast literature relating to the concept of return on investment and the objective in examining it is to outline the existing theory of how return on investment and the related concept of the cost of capital are to be used in the management decision-making process of choosing alternative investment projects. This literature search was directed toward the subject areas of the cost of capital, its definition and implications; the goals of the firm such as profit versus profitability from a managerial as well as a stockholder point of view; and the definitions and ways of looking at return on investment itself.

No empirical data were used to evaluate the adequacy of either the theories now found in the literature or the implications of the conclusions of this paper. Before meaningful empirical testing can be carried out, a reasonable theoretical framework has to be developed. Such a theoretical framework has not been developed sufficiently and hence this paper is directed toward its development. In subsequent studies some of the ideas which are presented here could be subjected to rough empirical testing but that is beyond the scope of this study. Only deductive reasoning from hypotheses is used.
Organization of Study

Examination of Theory

Chapter II explores some of the existing theory concerning the concept of return on investment as found in the literature. The almost classical assumption of the "reasonableness" of man, where it is assumed that when man is faced with a choice he will choose that course of action which results in the most pleasure or gain and/or the least loss or pain, is examined to show how and why it is vital to the use of the idea of return on investment. This examination of the calculating of benefits so that a "reasonable" choice can be made leads one to question the productivity context in which the return on investment concept is placed. Return on investment, in its simplest sense, is a comparison of the output caused by capital compared to the input or investment of capital used to produce this output or return.

The common uses of return on investment are also examined in Chapter II. These include comparing the performance of different companies, comparing performance of past periods within the same company, and comparing the desirability of future investment alternatives. These uses of the return on investment concept are "relativity" uses in that they compare the returns from one project with another in an ordinal sense. There is nothing implicit in these uses to suggest cardinal ranking or desirability in an absolute sense.
Some absolute standard of comparison is needed for the decision maker to decide whether to take any of the alternative courses of action which face him. If these alternatives are not mutually exclusive so that more than one can be taken, the decision maker needs some criterion to decide how many projects should be taken or what should be the minimum rate of return which should be accepted from a project. The literature which has grown up around the development of such an absolute standard to be used with the rate of return concept has been concerned with the cost of capital. There are various definitions and ways of looking at the concept of the cost of capital which are examined in Chapter II. Regardless of the definition which a particular author may favor, the general decision rule is that projects should be taken when the return on investment is greater than or equal to the cost of capital.

**Implications of Current Theory**

Chapter III collates the current theories using return on investment with the reality of an oligopolistic economy and examines the suitability of these theories for investment decision-making. The implications for a firm operating under conditions of oligopoly are examined as they apply to the type of investment opportunities that are available to such a firm and as they affect the role of management in the investment decision-making process.
It is argued in Chapter III that while the current theories using return on investment may not lead a firm into financial trouble, they do not evaluate alternatives correctly because of the so-called market and institutional imperfections in the real world. Following the currently accepted rule for investing in a project, that is, where the rate of return on investment is greater than or equal to the cost of capital, the firm generates what the author calls a "surplus return." If the firm is operating under conditions of perpetual oligopoly, it is continually generating this surplus on new projects. This surplus return arises because the firm's competitive position enables it to invest in alternatives which will yield a higher rate of return (even on average) than the cost of capital.

Some of the definitions of the cost of capital are examined in Chapter III to show how the generation of the surplus return depends on the definition of the cost of capital. Also, simplifying assumptions of perfect markets and certainty models which some authors use to ease the task of defining and dealing with the cost of capital are briefly examined in the oligopolistic context.

**Distribution of Surplus Return**

The central hypothesis around which Chapter IV is built is that under oligopolistic conditions, a firm must plan (ex ante) for the distribution of the income generated
by the use of the various factors of production at the same
time it plans for undertaking the activities which will gen-
erate the income. The distribution of the surplus return
which was discussed in Chapter III is examined. Alternative
ways of distributing the surplus return such as giving it to
suppliers of capital, paying it out in wages, paying higher
management salaries, and spending it on such things as adver-
tising and research and development, are considered. Some
of the possible effects of the distribution on the various
factor markets are considered. Also, the effects on the
apparent cost of capital to the firm of systematically stop-
ning investment at a rate of return higher than the cost of
capital are examined.

The possibility of keeping the surplus return in the
firm without giving it or assigning it to the owners is exam-
ined. The legal and institutional constraints which have
made it seem unrealistic to assume that the firm itself
could benefit from certain investments without the factors
of production such as labor and capital benefiting are
briefly examined. Possible ways of avoiding these con-
straints are suggested, such as the firm incurring large
advertising or research and development expenditures on a
continuing basis.

Finally, the implications of management's having
to plan ex ante for the distribution of planned outputs
(planned to be realized) from the potential investments are
explored. If there is a surplus return, management has to allocate it explicitly or implicitly. This allocation may change the estimates of the "costs" of a project and hence the rate of return on capital it will yield. This _ex ante_ variability of the factor outputs seems to indicate that management has to plan for the distribution of the output of various investment alternatives as well as consider their income producing capabilities. Moreover, this line of reasoning indicates that while the concept of return on investment is useful, a more complete criterion is needed for making investment decisions. Chapter IV examines this implication and offers suggestions for developing a more complete criterion.

A final chapter contains the summary and conclusions of this study along with possible directions for further study.

**Limitations of the Study**

The concept of the rate of return on investment is one of many in the theory of investment. To separate one part from the whole does justice to neither in the sense of developing a more complete or "better" theory of investment. However, the investment problem is very complex and to explore its many facets simultaneously would obscure understanding. Therefore, only part of the general theory of investment is considered in this paper.
Environmental Limitation

The purpose of this paper is to explore the use of the concept of return on investment in oligopolistic situations. The conclusions drawn will therefore be open to question regarding their applicability to situations where there is a greater or lesser degree of competition than under conditions which are generally classified under oligopoly.

Macro Questions Excluded

This paper excludes a discussion of various macro topics which would need to be discussed in the development of a theory of investment and which would have relevance to the use of the return on investment concept in such a theory. Macro theory is concerned with the determinants of investment in an aggregate sense. Economists writing in this area seem to be motivated by a desire for full employment of the human resource and for economic growth. Examples of topics of interest in this sector are the effects of changes in the interest rate, tax rates, and acceptable depreciation policies on aggregate investment. Also, attention has been directed to the factor markets, the output markets, and the securities markets. Regarding the latter set of topics, particular attention is paid by some authors to the so-called "market imperfections" and their influence on aggregate investment. The goal of theorizing in this sector of
investment theory seems either to predict what is going to happen or to develop guidelines for policy action to cause a desired amount of investment.

Some Micro Assumptions

While the discussion in this paper takes place within the confines of micro theory, certain simplifying assumptions are made about topics which are vital to the development of a complete micro investment theory. Micro investment theory is concerned with the determinants of investment within the individual firm. Some of the major areas considered by authors writing about this theory seem to be: the goals of the firm, the goals of management, criteria for choosing among alternative investments, risk and uncertainty, valuation of securities, cost of capital, taxation and depreciation methods, marginal and average analysis, assumptions about the behavior of man, and the pricing of the firm's output. This paper is limited in that it does not explore all of the above areas nor does it tie them together. Various assumptions are made without rigorous proof that these assumptions are useful in a practical sense. However, in most cases the author attempts to show reasons for and to offer some justification for making these assumptions.

Goals of the firm and management. The goals of management and the firm are examined briefly and the assumption is made that management in the large and oligopolistic firm
should attempt to use the resources available in the "best" way so as to optimize the benefits that accrue to the various inputs and other interested parties. It is suggested that management should not just maximize profits or the welfare of owners since they are dealing with a much more complex unit than considered in traditional theory and one in which support and dependence comes from other interests including labor, customers, society, and management itself. These various groups have goals which conflict with the goal of maximizing stockholder welfare. Although there is a large amount of literature written about the process by which these goals are reconciled and a workable balance struck, it is neither the purpose of this paper nor within its scope to examine it thoroughly.

Criteria for choosing alternatives. In a consideration of the criteria for choosing among investment alternatives, the author attempts to show briefly why the return on investment concept is valid in a productivity context. Other authors have discussed the merits of using the return on investment criterion as opposed to other means such as return on sales and years to pay back. Some get involved with the intricacies of calculating the rate of return on investment and argue the relative merits of calculating it with the average rate of return approach, with the discounted cash flow approach, and with the present value
approach. Since this paper tries to examine the usefulness of the concept of the return on investment in oligopolistic situations, the author attempts to draw a common thread among some of these criteria and deal with the general concept of the return on investment. No attempt is made to weigh the benefits of the discounted cash flow approach as opposed to the present value method; rather, assuming that some rate of return method will be used in choosing among alternatives, the author tries to show the shortcomings inherent in its use under conditions of oligopoly.

**Risk and uncertainty.** The topics of risk and uncertainty have received a great deal of attention in the literature. Authors have tried to define these terms and agree on the measure of risk such as the expected value of the outcome and the probability of the outcome being within assumed tolerances of the expected value. Also, attention has been directed toward trying to describe individual utility functions and classify people as risk lovers or risk averters. For this paper, the assumption is made that risk is undesirable, other things being equal, but that people will take additional risk if they think that they will receive additional reward. No attempt is made to deal with the utility functions of people or to describe how the demand for additional reward varies with additional risk.
Valuation of securities. The valuation of shares of stock is an important topic in the general discussion of the valuation of securities. Since debt arrangements usually are contractual, the valuation of equity or stock has attracted primary attention. Topics such as the relevance of dividends and the significance of leverage have played heavily in the literature. Discussions of valuation are often inseparable from discussions of risk and assumed goals of the firm. For purposes of this paper, it is assumed (if and where necessary) that the value of a security is the present value of the future flow of benefits whatever they may be or may be conceived to be. No attempt is made to be definitive in this matter because it is assumed that the ways people value securities are constant over the time in question. If allowed to vary, peoples' attitudes and conceptions of value would certainly change the investment framework but such variation would make the task at hand much more difficult.

Cost of capital. The discussion of the cost of capital has revolved around an integration of the concepts of risk, return, valuation, and the goals of the firm to a large degree. Also, there has been debate about whether it is an historical or futuristic concept. The author tries to show why the cost of capital is a futuristic or expectational concept and how it is used with and related to the
concept of return on investment in the case under consideration of an oligopolistic firm. However, a rigorous development of the concept of the cost of capital is not treated because that would necessitate exploring the areas of risk, valuation, and goals of the firm to a greater degree than is within the scope of this paper.

**Taxation and depreciation.** Taxation, while demanding attention from the theorist, is assumed to be constant in this paper. Also, depreciation policies are assumed to be constant. These might have a significant effect on the investment decisions of the firm if allowed to vary. From a practical point of view, these are assumed to influence investment as evidenced by changes in these rates by the Federal Government in an attempt to influence investment.

**Marginal and average analysis.** The debate about the use of marginal versus average analysis is sidestepped. It is assumed that the marginal approach is the "correct" one. That is, it is assumed that when a firm is confronted with investment choices it will not choose an alternative that will yield benefits less than the cost of taking this alternative. While the problem of an alternative yielding benefits less than the cost of taking the alternative when certain accounting practices are followed is recognized, it is assumed for purposes of this paper that the benefits accruing from the alternative are total benefits including those increases in benefits that it causes for other parts of the
firm. This can be conceptualized but it obviously presents practical accounting problems.

**Behavior of man.** Assumptions about the behavior of man and studies trying to "verify" these assumptions occupy a large segment of the literature. This author tries to show why the assumption of a "rational" man is necessary if decisions are to be made in a productivity context. Determination of whether man is "actually" rational is beyond the scope of this paper. An appeal is made to some of the literature to support the "rationality" assumption of man but a rigorous examination of the literature is not developed. Justification for not doing so is that the writings about the behavior of man, individually and in groups, that have bearing on the investment problem are voluminous and are a subject for a separate study.

**Pricing output.** The topic of pricing of output of an oligopolistic firm could justifiably be a part of a discussion of micro investment. The firm in this situation can vary the price and so affect the cash inflows to the firm. This in turn will certainly affect the rate of return on investment, regardless of how it is calculated. However, this paper assumes that at any particular point in time the prices of the output of the firm are constant unless the firm specifically changes them to change the rate of return on investment. The area of how these prices are determined and the interdependencies of the firms in an oligopolistic
industry are beyond the scope of this paper. The assumption is made, supported by reference to some recognized authorities, that these oligopolistic conditions do exist.

Conclusion

The areas discussed above have a bearing on the micro investment decisions. In order to develop a complete theory of the micro investment problem, an exploration of these areas would be necessary. Without such an exploration, conclusions drawn in one area are subject to question regarding their relevance in a total theory. This paper is written to focus attention on one part of the investment decision-making process and necessarily excludes a good deal of the theory from consideration. Moreover, since no empirical testing is carried out, no assurance can be given that the conclusions have relevance in the sense of describing current behavior or of being able to produce satisfactory results. The only defense for these limitations is that useful insights can be gained by reasoning from simplified assumptions.
CHAPTER II

THE PHILOSOPHY UNDERLYING RETURN ON INVESTMENT DECISION-MAKING

This chapter is devoted to an exploration of the philosophy of return on investment. Its purpose is to lay open the current usage of the concept. The literature is replete with writings about the return on investment. As Pearson Hunt of Harvard University said:

A study of the literature related to the allocation of a firm's resources to its new and ongoing activities reveals that it is voluminous, full of complexity, and characterized by much divergent opinion. Doubtless this condition is to be expected, for there is a maze of inter-related forces to deal with, and one must deal with them as they appear prospectively—that is, many of the quantities involved are meaningful only if they are predictions of future events. Analysis of the future, as we all know, is a dangerous business, subject to risk, uncertainty, probability and other qualifying words which infuse one's work with doubt.¹

In order to place the concept of return on investment in perspective, investment theory is considered briefly from both a macro and a micro point of view, although the latter is the segment of investment theory within which this paper

¹Pearson Hunt, Financial Analysis in Capital Budgeting (Boston, Massachusetts: The Graduate School of Business Administration, Harvard University, 1964), p. 3.
is written. The assumption of the reasonableness of man is explored since it seems to be an integral or basic assumption in the development of micro investment theory and particularly so for the productivity theories of the allocation of the firm's resources. Return on investment is placed in a productivity context, related to the concept of the cost of capital, and the decision rule of accepting investment alternatives when the rate of return on investment is greater than or equal to the cost of capital is introduced.

**Investment Theory and Return on Investment**

Return on investment plays a part in many theories of investment. In order to understand its role and finally arrive at its place in the decision-making process of the firm, the general investment topic is briefly considered. One of the ways of classifying investment is on a macro and micro basis. The latter term limits consideration to individual firms while the former is concerned with aggregate problems and not with the actions of the individual units comprising the aggregate.

**Macro Investment and Return on Investment**

Various authors classify investment theories differently and take different interest in these theories. "Investment has been assigned a position of crucial importance
in almost all macroeconomic theories.\textsuperscript{2} One author considers the problem in a business cycle context and classifies the two principal contenders of modern cycle theory as the underconsumption theories and the overinvestment theories.\textsuperscript{3} In the former, investment declines because of a lack of consumer demand while in the latter, excessive investment causes the crisis because too much investment is attempted, given the amount of resources.\textsuperscript{4} Return on investment enters the overinvestment theories in the following manner: "When costs rise far enough, the rate of profit is lowered and, as a result, investment declines. The recovery begins when costs of production have fallen far enough to again raise the rate of profits."\textsuperscript{5}

Another pair of authors classify the modern theories of investment as "the profit maximization or marginal theories, the more technically oriented acceleration approach and inductive generalizations based upon institutional and empirical studies."\textsuperscript{6} The marginal theories circumscribe

\begin{itemize}
\item \textsuperscript{4}Ibid.
\item \textsuperscript{5}Ibid., p. 63.
\end{itemize}
what is generally called classical theory. "Classical theory has always held that capital is employed in an amount determined by its marginal productivity in comparison with the rate of return." 7

Contemporary theory incorporates classical theory, for as Ackley has said: "Keynes took over this theory in substance." 8 This is exemplified in Keynes' concept of the marginal efficiency of capital which he defined "as being equal to that rate of discount which would make the present value of the series of annuities given by the returns expected from the capital-asset during its life just equal to its supply price." 9

The discussion of investment has assumed a major role of importance because fluctuations in investment cause fluctuations in gross national product directly and "give rise to fluctuations in consumption, too." 10 In this sense, the investment with which theoreticians are concerned seems to be found in the equation used by macro economists: gross national product equals consumption plus investment plus government spending.

7 Ackley, op. cit., p. 461.
8 Ibid.
10 Ackley, op. cit., p. 460.
Return on investment has formed a part of the discussion of the determinants of aggregate investment and many times assumes the context of a generalized individual's or firm's behavior. Because of this context, it is not clear where a consideration of micro economics ends and where the macro theory begins in the matter of the determinants of investment. This paper attempts to deal with only the micro aspects of the investment problem in an effort to avoid the possible applicability of the fallacy of composition. Unfortunately, when reviewing the treatment of the concept of the rate of return on investment as it has been used and developed in the literature, this cleavage between micro and macro theory cannot be maintained. One reason for this is that until this century and indeed until the Keynesian era, there seemed to be no general separation of these two types of economic analysis and even Keynes is not precise in this regard.

**Micro Investment and Return on Investment**

Micro economic theoreticians' interest in investment seems to be either describing or prescribing decision rules for investment decision-making at the individual or firm level. This discussion has at times been carried on under

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the heading of capital budgeting, which according to one set of authors "is to provide guidelines for the managers of a firm so that they may allocate its resources to the activities that promise the most value so that they may select among the ways to obtain the needed resources those that have the least cost." ¹² In this sense, the investment problem becomes the classical problem of allocating scarce resources.

As a means of allocating resources, economists have dealt with the concept of return on investment for many years as a part of their development of a general economic theory. The mercantilists were interested in the problem of obtaining the greatest good for the state. They thought this would be brought about by governmental intervention into business. The "discovery" of Adam Smith was that through men's free interaction, the greatest good or benefit would accrue to society. ¹³ The "invisible hand" would guide all people, motivated by their self-interest, to use the available economic resources to obtain the greatest possible output if all the restrictions of free competition were removed. ¹⁴


¹⁴Ibid.
In his eyes, these restrictions were mainly those sanctioned by government.\textsuperscript{15} These assumptions of Adam Smith which would lead to optimal behavior might be called the assumptions of freedom and reason.

The assumptions of freedom and reason have remained in modern writings on investment and resource allocation. The assumption of freedom as a panacea has probably received more direct hits and is considered in the following chapter along with a discussion of the goals of an oligopolistic firm. In a practical sense, the idea that man can be totally free and have the interest of all served is questioned. Certain restrictions are applied to every man's freedom.\textsuperscript{16} This is generally accepted although debate is carried on with respect to specific freedom surrendered.

**Reasonableness and Investment Theory**

Not all has been tranquil for the assumption of reasonableness and some have expressed doubt about its place in modern economic theory.

Instead of the old simplifying psychological assumption that man is a pain-pleasure calculating machine, economists are compelled to look more profoundly at the question of what really makes man tick, alone and in groups. They must

\textsuperscript{15}Ibid., pp. 423-439.

\textsuperscript{16}For example, restrictions are placed on the manner in which one may operate an automobile, run a restaurant, or rent one's house.
find better ways both of improving human mate-
rial . . . and of making human actors boost their
productivity or creativity— whichever term you
like. In a society where people increasingly
are separated from the labor-capital-land nexus
and do intangible things—researching, concep-
tualizing, programming, advising, writing,
thinking, innovating— the distinction between
productivity and creativity blurs. 17

It seems of little value to clutter the terminological
jungle and argue who is productive and who is not. Adam
Smith thought that there were some members of society such
as servants and teachers who were not productive but now it
is generally recognized among economists that anyone who
generates utility or usefulness (certainly including teach-
ers and economists) is productive, though it may be in dif-
ferent ways and degrees and need not be tangible. The real
question, therefore, is whether or not the assumption of
reasonableness or rationality is justifiable.

Reasonableness in a simple and uncluttered sense
means that man, when making a decision or contemplating an
action, will weigh the costs and benefits, and if he has
alternative courses of action, he will take the one that
yields the most pleasure for the cost. In other words, he
would take more gain to less and less pain to more. Reason-
ableness is discussed in the literature as rational behavior.
Webster's New Collegiate Dictionary defines "rational" as

17 "The Shake-Up of Conventional Economics," Business
Week, June 25, 1966, p. 186.
having reason; reason.\textsuperscript{18} One of the definitions of reason is due exercise of the reasoning facility; right thinking.\textsuperscript{19} As a verb, a synonym for reasoning is thinking.\textsuperscript{20}

The assumption of reasonableness implies that man actually goes through an active decision making process and "thinks" about the alternative courses he may take. This is probably an oversimplification for there are many people who make some or most decisions on the basis of habit or custom and do not weigh the possible alternatives. For example, farmers in some parts of the world plant and harvest their crops in a fashion not different from their ancestors of many generations. They plant the crop and let it grow. In many situations cultivation would improve the yield greatly but instead of cultivating the crop, the farmer sits and watches it grow. It is easy to say that this farmer has acted rationally and has decided that he would rather have leisure than an increased yield. However, in a world short of food, this is not a satisfactory explanation. Rather, he is acting as those who have gone before him and he knows no better way or he is constrained by social and religious customs to which he gives little thought of challenge.

\textsuperscript{19}Ibid.
\textsuperscript{20}Ibid.
Looking at any particular decision in a historical sense, either the point of view that the decision was or was not made rationally can be argued. Care must be taken in looking at a person's or a group's decision and making a judgment as to whether it was made rationally or not. Just because one disagrees with the decision and thinks that an unwise choice was made does not mean that the decision was made nonrationally. Conversely, when one agrees with the choice made, one cannot say, ipsofacto, that the decision was made rationally.

One of the criticisms leveled against the assumption of reasonableness or rationality has been directed at the definition of the assumption. Von Neuman and Morgenstern, in their classic work on games and economic behavior, criticize the traditional conception of the rationality assumption because it implies to them a maximization of a single function.21 "A guiding principle cannot be formulated by a requirement of maximizing two (or more) functions at once."22

We wish to find the mathematically complete principles which define "rational behavior" for the participants in a social economy, and to derive from them the general characteristics of that behavior.

The rules of rational behavior must provide for the possibility of irrational conduct on the part of others.


22 Ibid.
We have described what we expect... "rational behavior" to consist of. This amounted to a complete set of rules of behavior in all conceivable situations... The entire result in the above sense is thus a combinatorial enumeration of enormous complexity. But we have accepted a simplified concept of utility according to which all the individual strives for is fully described by one numerical datum. Thus the complicated combinatorial catalogue—which we expect from a solution—permits a very brief and significant summarization: the statement of how much [much defined in a footnote as "utility; for an entrepreneur,—profit; for a player,—gain or loss"] the participant under consideration can get if he behaves "rationally." This "can get" is, of course, presumed to be a minimum; he may get more if others make mistakes (behave irrationally). 23

Thus it seems that Von Neuman and Morgenstern principally wanted to define rational behavior and are really not arguing that man should not play by the rules of weighing the benefits and costs of certain actions.

There have been attempts to modify the rationality assumption such as the approach taken by Papendreou.

It is often supposed that the assumption of profit maximization rests on the same universal grounds as the assumption of utility-index maximization or rationality. This is not correct however. Profit maximization does imply rationality of course; but rationality is consistent with maximization of other things as well as profits... As soon as the distinction between profit maximization and utility-index maximization is carefully drawn it becomes possible to distinguish between efficiency and profit maximization in an unambiguous fashion. Efficiency related to rationality, that is to maximizing a utility index. It implies maximization of ends with a given set of means or the minimization of

23 Ibid., pp. 31-33.
means in the attainment of a given set of related ends. Efficiency is implicit in profit maximization, but efficient behavior need not be profit-maximizing behavior. A business firm may be efficient without seeking to maximize profits.24

And while Papandreou preceded other authors and these authors read him, it is evident that there continued to be problems in accepting the assumption of rationality without the profit maximization assumption.

Dissatisfaction with the assumption of reasonableness remains, yet there is an unwillingness to discard the assumption. This position is exemplified by Richard Cyert and James March, who, in discussing the assumption of rationality, say that "the assumption of rationality in the theory of the firm can be reduced to two propositions: (1) firms seek to maximize profits; (2) firms operate with perfect knowledge."25 They point out the attempts made to expand these assumptions by introducing more complex goals than profit maximization such as the idea of satisfactory profits rather than profit maximization.26 They say that


26Ibid., pp. 8-10.
"theories of business decision-making generally assume that estimates of cost and return in some form are made by the firm and that decision behavior depends heavily on such estimates." 27 Their empirical research leads them to say, however, that the comparisons made by contemporary organizations are not very rigorous. 28 Nevertheless, in a chapter in their book written by O. E. Williamson titled "A Model of Rational Managerial Behavior" and presumably with some degree of continuity of thought, Williamson says that "the basic behavioral assumption of the model is the same as the rationality assumption of all of economics: people seek their own self-interest." 29

The assumption of rationality has remained a part of the theories which Meyer and Kuh classify as marginal theories. In discussing the assumptions behind these theories, they almost brush over the cognition of its presence when they add "assuming the entrepreneur maximizes the difference between discounted revenues and costs. . . ." 30 Many writings in finance seem to be in this category of marginal theories. For example, Weston and Brigham in introducing the topic of capital budgeting say it

27 Ibid., p. 44.
28 Ibid., pp. 237, 252.
29 Ibid., pp. 78-79.
is simply an application of the classic economic theory of the firm; namely, a firm should operate at the point where its marginal revenue is just equal to its marginal cost. When this rule is applied to the capital budgeting decision, marginal revenue is taken to be the percentage rate of return on investment, while marginal cost is the firm's cost of capital. 31

The reason this author thinks that the rationality assumption has remained a part of theories dealing with the decision-making of the firm is that many of these theories are directed to answering the question of how well the firm or management performed. This in turn is the efficiency problem alluded to by Papendreou earlier. 32 The attacks on the rationality assumption have come because the interest of the theoreticians was not the answering of the efficiency question. It seems reasonable to conclude that evaluation of how well a firm is performing or how well certain prospective actions will perform necessitates a comparison of the benefits and costs associated with them.

The comparing of benefits and costs is just a more specific application of the framework of comparing inputs and outputs. Generalized, the benefits are the output and the costs are the inputs associated with a particular process. The input-output comparison can be used in many


32 Papendreou, loc. cit.
relationships where it is assumed that some input will cause some output. This comparison of benefits and costs, pain and pleasure, input and output, is nothing more than looking at these relationships in a productivity context.

**Productivity and Return on Investment**

"Productivity is a ratio of output, or the results of production, to the corresponding input of economic resources, both during a given period of time. Thus, within a given time dimension it is a relationship between input and output."\(^{33}\) Further, productivity and efficiency are not the same although related. "Efficiency implies some definite economic goal such as accomplishing the greatest amount of work in the best possible manner with the least expenditure of time and resources."\(^{34}\)

The definition of productivity can be viewed either as a stock concept or as a flow concept. As a stock concept it deals with "x" quantity of output generated by "y" units of input. When productivity is viewed as a flow concept, it is viewed as the relationship of output per unit of input per unit of time. To be concerned with productivity implies that something is scarce. To the possible scarcity of the

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\(^{34}\) Ibid., p. 789.
quantities of inputs must be added the scarcity of time. One can question the scarcity of time, but it is perceived (or maybe conceived of) as scarce for most of us.  

Since productivity refers to output per unit of input, "there are as many productivity measures as the number of classes of input we care to distinguish: output per man-hour, output per ton of coal, output per pound's worth of investment. The most common form of measure is that of labor productivity, output per man-hour." Although labor productivity is perhaps the most common, some writers have focused on the productivity of capital or have viewed productivity from the capital input point of view. For example, one pair of authors say that "the business executive's major objective is to achieve a better ratio of output to input in each element of business activity, that is to make each

35 When productivity is viewed as a flow concept, time is conceived of as a continuum of minutes, hours, days, and so forth. In this sense the productivity ratio of output per unit of input can be expressed per unit of time with that unit being any customary time period. However, rather than conceiving of time as a continuum, it could be thought of as only a condition necessary for movement. In this sense it might not be considered scarce. If one further assumed then that we live in a boundless universe where nothing was scarce, the productivity thinking as we know it looses meaning for it is based on the assumption of scarcity. Should we change our thinking on time, so would we change from a productivity context.

element more profitable."37 Another author, focusing attention on marketing productivity, also takes the point of view of the capital input and expresses most of his productivity measurements in terms of profits.38 These are opposed in point of view by studies such as those of the Organization for European Economic Cooperation which are principally interested in the macro economic aspects of productivity and focus a good deal of their attention on labor productivity.39

The attention directed toward productivity in the study of the micro aspects of the investment problem seems to be centered in the productivity of capital. As an example, Joel Dean's classic article on the productivity of capital states that his main interest is in "being able to measure the productivity of capital."40 Adding a note of normativeness, he says that "moreover, my viewpoint here remains that of the missionary rather than the anthropologist."41


41 Ibid.
Return on Investment as a Partial Productivity Measure

Productivity refers to the relationship between output and input in the context of a particular activity or set of activities. In such a set of activities, a productive process, various inputs are combined to produce some output, usually thought of as a good or service but being encompassed by the general term of utility. The inputs in this productive process have been classified as land, labor, and capital. The input being evaluated explicitly with the rate of return on investment criterion is capital.\(^{42}\)

Since capital is only one of the inputs into the productive process, focusing attention on the output attributable to it makes the concept of return on investment a partial productivity measure. Therefore, in evaluating the productivity of capital, the portion of the output which was caused by the capital input has to be ascertained.

Another problem arising when evaluating the productivity of capital is that of determining the portion of the output caused by different segments of the entire productive process. This problem is encountered when analysing different departments or divisions of a company. By altering

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\(^{42}\)If it is assumed that the set of activities under consideration represents a closed system, the measurement of the productivity of two of the inputs can enable inference as to the productivity of the third. Moreover, since land and capital are usually considered as one input in micro usage, this can explain why attention seems to be focused on one factor, land or capital, and not on both at the same time.
internal pricing, allocation of shared overhead, and so forth, the amount of output which will be attributed to a particular division can be changed. Often it is impossible from a practical point of view to assign output or attribute output to a particular unit.

In order to evaluate the individual factors of production and the different units which they compose, the allocation of the output from the total process must be made. Firms face the problem and have to adopt policies on internal pricing and allocation of overhead. Collective bargaining helps allocate the output between the factors, labor and capital. The Federal Government has adopted policies called "wage-price guidelines" in an effort to help in the orderly allocation of the output between labor and capital and avoid inflationary wage settlements and inflationary price increases.

While it is beyond the scope of this paper to delve into the solutions and arguments of the productivity problem in detail, it should be noted that when the productivity of a factor of production is under scrutiny, the question being asked is: "How well is this factor being used in conjunction with other factors of production?" Productivity analysis does not imply that there are any inherent characteristics of a factor of production.\footnote{Wallace C. Peterson, Income, Employment, and Economic Growth (New York: W. W. Norton & Company, Inc., 1962), p. 97.} When evaluating the
productivity of capital with the rate of return on investment criterion, capital's use in conjunction with other factors of production is under consideration.

Common Uses of Return on Investment

Return on investment, a partial productivity measure, can be used in several ways. One of the ways it is commonly used is to compare the performance of different companies. Other things being equal, the company having the higher rate of return is considered the better. This use of return on investment has its perils and care must be taken in its application because of differences in the type of industry, the degree of diversification, size, risk, and so forth make the ceteris paribus assumption shaky. However, to the degree that these variables are the same, useful comparisons can be made.

A second use to which return on investment has been put is the comparison of past periods within the same company. Generally it is assumed that if a firm earns a higher rate of return on investment in one period than in another, that the period with the higher rate of return is better. Caution must be exercised in this use as in the one above. The nature of the business and the environment in which it is operating are changing constantly. Unless the periods are comparable in these respects, erroneous conclusions can
be drawn from the comparisons of rates of return for past periods.

A third use made of return on investment and one which perhaps has received the most attention in the literature because of an interest in capital budgeting and profit planning, is in evaluating the desirability of future investment alternatives. If a firm is faced with various investment opportunities, it wants to know which, if any, it should take. In order to decide this, one of the factors involved is to determine the probable return on investment for the various alternatives. Having computed the rate of return on investment for the various projects (the methods for this computation have drawn considerable interest in the literature in recent years) a firm would be able to say that the project with the highest rate of return was the most desirable, other things being equal.

These three uses of the concept of the rate of return on investment are "relativity" uses. That is, they are concerned with the ranking of companies, past periods, and various investment opportunities. There is nothing implicit in these uses to suggest cardinal measurement or desirability in an absolute sense. Using these approaches, the decision maker can say that, ceteris paribus, the firm, period, or investment opportunity with the highest rate of return is the best. This does not say that any of them are "good" or "satisfactory."
In order to make choices for future action rather than just ranking past performance, some absolute standard (even if it is an assumed one) is needed. Such a standard is not needed when evaluating past periods because nothing can be done to alter past performance. However, a standard may be used in historical analysis when the historian wants to know if the past performance met or exceeded the standard. An example of the need for a standard is found in a discussion of the application of the discounted cash flow approach to evaluating investment proposals for Continental Oil Company. John McLean, after a defense of the discounted cash flow approach, says that

as a final step in applying the discounted-cash-flow procedure to our business, it was necessary to develop some benchmarks that could be used in appraising the figures resulting from the calculations.

As a starting point, we recommended that approximately 10% after taxes be regarded as the minimum amount we should seek to earn on investment involving a minimum of risk, such as those in new service stations and other marketing facilities. We further recommended that the minimum acceptable level of returns should be increased as the risks involved in the investment projects increased.44

The development of a defensible cutoff rate of return or "benchmark" is often discussed under the heading of the "cost of capital."

The Cost of Capital and Return on Investment

The development of the concept of the cost of capital has come from a need for a standard to which rates of return can be compared. The two main uses of the concept of the cost of capital depend on the conception of the rate of return. The first, the present value conception, involves estimating an investment alternative's future flow of benefits and selecting a rate at which to discount these future benefits. The problem is in determining the "correct" discount rate. This discount rate is commonly chosen to be the cost of capital. The decision rule under this present value calculation is that if the present value of the future flow of benefits is greater than or equal to the cost of the investment, it should be accepted and otherwise rejected. The second, the internal rate of return conception, involves solving for the rate of discount which will equate the

45 The most common conceptions of the rate of return are the present value concept where the rate of return is an assumed discount rate and the internal rate of return concept where the rate of discount is derived. Other conceptions of the rate of return such as the average rate of return have demanded some attention but are not accepted widely in theory though perhaps in practice. The arguments for particular methods of calculating return on investment are not treated here, not because this author thinks they are folly, quite the contrary, but the general philosophy behind these various concepts of comparing input and output associated with capital seems to be about the same.
future flow of benefits to the cost of the asset. The derived rate is then compared to the appropriate cutoff rate, usually conceived of as the cost of capital. The decision rule becomes acceptance if the rate promised by the project is greater than or equal to the cost of capital.

Mathematical problems associated with both the present value and the internal rate of return methods have prompted some authors to suggest that the decision maker try to directly maximize the wealth of the stockholders. Beranek, in evaluating the present value and internal rate of return methods of choosing among investment alternatives, says that neither of these approaches is satisfactory because as yet no one has come up with a satisfactory definition of the cost of capital. He suggests the alternative of

direct maximization of the market value of equity. Tools are suggested for determining the market price impact of the variables leverage, earnings, dividends, and the number of outstanding shares of stock. With both this knowledge and information relating payoffs to proposed assets, the decision maker may set values for these controllable variables which maximize the total market value of the firm's common stock.

With knowledge of this nature, it would also be a lot easier to arrive at a defensible cost of capital. Porterfield, who

47 Ibid.
also suggests the maximization of market value, says we have assumed the goal of the owners of the firm is to maximize the satisfaction that they derive from their consumption over time. Accordingly, the objective of the firm itself should be to aid its owners to reach their goal. 48

Not everyone is ready to make the assumption that the firm should operate or be operated in the prescribed manner so that the utility of the owners is maximized. Nevertheless, the goals of the firm seem intertwined in the definition of the cost of capital as well as the interrelation of return on investment and the cost of capital. For example, Walker says,

businessmen invest funds in projects with the idea of increasing the firm's present worth. This goal is accomplished only if the rate of return on investment exceeds the cost of acquiring the funds that are necessary to finance the undertaking. 49

There are almost as many definitions of the cost of capital as there are authors writing about it. Their definitions vary depending on their bias as an historian (accountant) or planner and their beliefs about the economic system to which their theories pertain. A sample of these definitions follows:

1. In terms of a rate of interest, it [the cost of capital] may be defined as the rate that


must be earned on the net proceeds to provide the cost elements of the burden at the times they are due.50

2. The required rates of return, adjusted for selling costs when necessary, on each of its classes of securities constitutes the cost of a firm's capital from that type of capital....

The cost of equity capital is defined as the minimum rate that must be earned on equity-financed investments to keep unchanged the value of the existing equity.51

3. [The cost of capital] is the appropriate measure for the minimum rate of return that should be required on new investment proposals which offer returns of the same quality as those promised by existing assets.52

4. Cost of capital includes the contractual payments that must be made for short-term loans, long-term debt, and preferred stock. To this must be added the return expected by the stockholder; they place funds in a corporation because of an expected return. Unless that expectation is being realized new funds will not be available on the same terms that were previously accepted. New securities can be sold only at a price which will give promise of yielding this expected amount; this is the cost of equity capital to the company that has issued the securities.53

From these definitions it seems reasonable to draw the conclusion that the cost of capital is a normalistic

50Hunt, Williams, and Donaldson, op. cit., p. 436.
51Weston and Brigham, op. cit., pp. 292, 284.
rate of return concept. It is the rate of return that suppliers of capital demand (expect) in return for the continued use of the capital supplied to the firm. Reference is made to the question of leverage in some of the definitions of the cost of capital and there is a good deal of literature devoted to exploring the effect, if any, of leverage on the cost of capital to the firm. This controversy is not entered or reviewed here because regardless of the outcome, the usual treatment of the concept of the cost of capital arrives at a single rate. As a minimum concept it is assumed that the suppliers of capital expect that rate of return which will just satisfy them for the risk they are taking in supplying capital to the firm.

The measurement of the cost of capital as an expectation concept becomes a problem. Historically, the cost of capital is what the firm had to pay for the capital input to the productive process. The problem with calculating the cost of capital historically is that past periods might not have coincided with the expectations of the suppliers of capital. For example, most writers would not say that the cost of capital to a firm which showed no profit in a given year was zero. The cost of capital to that firm is what the suppliers of capital expect to receive. The minimal expectation conception of the cost of capital avoids the problems of an historical computation. It also is consistent with the present value concepts which are embodied in the
Keynesian marginal efficiency of capital and other concepts based on the premise that something is worth today the present value of all the future utilities to be gained from it. However, the neatness of computation is gone. If we want to "discover" what the cost of capital "is" we would have to gauge the minds of the people who are supplying capital to the firm. Some say that we could take the cost of capital from the "capital market" but this is relegating the problem to nonthought to ease our minds and the task of computation. In a world where all around us we see imperfect markets, it is rather hard to fathom the unquestioning contention that here, alas, is the perfect market. Notwithstanding, this paper too lets the discussion of the imperfections in the capital markets and their effects on the cost of capital trundle off to nonthought because the added complexity would carry it much beyond its present scope.

**Use of Return on Investment and Cost of Capital Summarized**

The rate of return is found by comparing the output attributable to capital to the input of capital. In the usual approach, time is introduced and the rate of return is conceived of as either some target rate demanded in a present value calculation or as a derived rate in an internal rate of return calculation. The cost of capital is the rate of return expected by the suppliers of capital as reward for the continued use of their capital and is a minimal concept.
It is usually thought of as a single rate and is used as the discount rate in the present value calculation or is compared to the internal rate of return in that method. The rule for acceptance is: accept where the present value is greater than or equal to the cost of the investment or the rate of return is greater than or equal to the cost of capital.

**The Problem Presented by Current Usage**

The practice of comparing the rate of return expected on new projects with a cutoff rate such as the cost of capital is prevalent among large firms and seems to be growing in acceptance. A problem in logic seems to arise though from the common practice. If the cost of capital is

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54 Not all authors agree on this. Pao L. Cheng and John P. Shelton, "A Contribution to the Theory of Capital Budgeting--The Multi-Investment Case," *The Journal of Finance*, XVIII (December, 1963), 622, suggest progressively higher rates of return should be demanded as investment increases.

55 Solomon, *The Theory of Financial Management*, pp. 27, 74, 75, does not include the case where the rate of return is equal to the cost of capital. He would have acceptance only where the rate of return on investment was greater than the cost of capital.

some minimal expected amount and the suppliers of capital will be happy to get this amount, by definition, and if the firm indeed does take projects which have a higher expected rate of return than this cost of capital, who gets the rest?
CHAPTER III

RETURN ON INVESTMENT UNDER CONDITIONS OF OLIGOPOLY--A SURPLUS RETURN

In the previous chapter, the productivity concept of the rate of return was explored and related to the concept of the cost of capital. The decision rule for accepting an investment alternative was that the firm should accept the investment if the expected rate of return was greater than or equal to the cost of capital. Use of this decision rule results in a logical discrepancy when applied in the case of an oligopolistic firm.

The corporate form of organization, markets characterized by fewness, and a separation of ownership and management give rise to problems which, for the most part, have been avoided or sidestepped in the development of investment theory using the productivity concept of the rate of return on investment. The hypothesis used in developing the following discussion is that under conditions outlined above and developed further in this chapter and using the decision rule developed in Chapter II, the firm will generate an "excess" or surplus return.
The relevance of the market conditions of what is generally referred to as oligopoly and the separation of ownership and management are discussed first. Then, the use of the return on investment in conjunction with the cost of capital is discussed under these assumed conditions.

The Contemporary Situation--Oligopoly and the Separation of Ownership and Management

The theory of micro investment decision-making seems to be based on the assumption of freedom as used by Adam Smith in his *Wealth of Nations*. This assumption is that, if free, men or firms by their own interaction would promote the greatest good for all. This assumes that no individual or group of individuals can influence these interactions to any significant amount or degree. In other words, a free market would exist and competition would assure the greatest benefit for society.

The assumption of freedom needed the catalyst of maximizing behavior of the mythical rational man in order to make the theory work. Each individual and firm should strive for his or its own self-interest. The problem of rationality was discussed in Chapter II and it was concluded that the comparing of benefits and costs has been and is an integral part of our thinking and that if theory is to be built around

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a productivity basis, the assumption of rationality, at least in a rough sense, has to remain. If theory is sought outside a productivity context, the assumption of some sort of rationality would not be necessary.

The assumption of freedom is not as constraining as the assumption of rationality on the development of a theory of investment decision-making within the context of productivity. Nevertheless, this assumption has tended to remain in the writing on the subject. In some, if not many, of the theories of investment decision-making, the author either assumes or builds from an implicit assumption of the limiting case of perfect competition. This is the market type used by Adam Smith and although perfect competition does not exist today nor does anyone claim it does, it is still used as a foundation for theory building. The implication of a theory of investment decision-making using the assumption of perfect competition and being applied to current situations where this market situation does not exist, is that it makes no significant difference to apply the theory to the current situation.

Most theoreticians probably agree that the theories used by practitioners should be applicable to the situation in which they are used. Moreover, these writers probably feel that their theories are applicable to the contemporary situations when they are written. As Robert Patton of The Ohio State University said in a paper delivered at the 1966
Midwest Economics Association meetings, "everyone is an empiricist so long as he is alive." Unfortunately, current problems are often complicated, and to build workable models and to theorize about the interactions of the parts of the models, simplifying assumptions are made. While such simplifying assumptions are necessary because of the complicated nature of the problems being analysed, these helpful assumptions also may move the model so far from reality that the model does not remain sufficient for describing "reality" or for dealing with the problems facing the practical decision makers.

Requisites for a Contemporary Model

A good deal of attention has been directed toward an inquiry of the desirable characteristics of a model, what its role should be, and how it should be constructed. A brief digression to such a discussion is warranted because of the implicit if not explicit charge in this chapter that the current theory, while it may be useful, is not sufficient to describe or deal with the current investment

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3The author is not suggesting that such models might not still be useful even though not sufficient. Changes in these models could make them more useful--change that can come from adaptation and evolution and need not come from revolution.
decisions because the assumptions are too far removed from "reality."

One author, in prescribing an approach to model building, says that

a useful model describes an imaginary world which is sufficiently complex and similar to reality to permit us to make some legitimate inferences about the behavior of the economy, but which is at the same time sufficiently simple for us to understand and manipulate with the tools at our disposal.\footnote{William J. Baumol, \textit{Business Behavior, Value, and Growth} (New York: The Macmillan Company, 1959), p. 2.}

His conclusion is that "a model can only be designed around and judged in light of a specific problem."\footnote{Ibid.} Accord from most theoreticians seems likely, for the "real" world seems complex and model building no less so. However, there is latitude in judging a model "in light of a specific problem."

Milton Friedman, in discussing the methodology of positive economics, holds that a model should be judged by its predictive ability rather than by comparing its assumptions with reality.

A theory cannot be tested by comparing its "assumptions" directly with "reality." Indeed, there is no meaningful way in which this can be done. Complete "realism" is clearly unattainable, and the question whether a theory is realistic "enough" can be settled only by seeing whether it yields predictions that are
good enough for the purposes in hand or that are better than predictions from alternative theories.\textsuperscript{6}

In other words, Friedman is saying that analytical relevance is more important than descriptive accuracy. He cites a passage in Alfred Marshall's \textit{Principles of Economics} as support for this contention. Marshall used the model of perfect competition in the development of his theory and Friedman points out that Marshall was not naive enough to suppose that pure competition accurately described the world.

He [the reader] will find Marshall saying: "At one extreme are world markets in which competition acts directly from all parts of the globe; and at the other those secluded markets in which all direct competition from afar is shut out, though indirect and transmitted competition may make itself felt even in these; and about midway between these extremes lie the great majority of the markets which the economist and the businessman have to study."

While it may be justifiable to say that a model should not be judged by comparing its underlying assumptions with "reality," the assumptions of a model need to be somewhat "realistic" in order to elicit confidence in the model. Models are necessarily a simplification of reality and one would never logically meet the requirement of complete reality and still be called a model. However, confidence in a model depends both on past and expected results.


\textsuperscript{7}\textit{Ibid.}, pp. 34-35.
The correlation of hindsight prediction and actual results is not the only test of a model or theory if the model is to be used to predict or plan. A model can be activated with historical data and the results it would have predicted can be compared with what actually occurred. This process has weaknesses outside the model itself such as data collection inadequacies and variables which played a part at the time the data were collected that are impossible to account for precisely. Moreover, there are numerous examples of the problems of finding a high degree of correlation and from that assuming that there was any revelation of a causal relationship.

Confidence in the predictive and planning value of a model can be increased by making the model's assumptions and simplifications conform to what is believed to be roughly realistic. If a model-builder believes a certain characteristic of the real world is an important variable, he should incorporate it in his model or at least not choose the opposite condition as a basic assumption.

**Condition of a Few Large Firms**

The situation or set of conditions which prevails and to which a theory of investment decision-making must be applied seems to lie somewhere around the area described by Marshall. The largest number of firms and certainly the most important firms are between the extremes of pure
competition and monopoly. As R. A. Gordon describes this reality in writing a new preface to his book, *Business Leadership in the Large Corporation*,

there has been no lessening in the dominant role played by the corporate form in American economic life. According to a recent estimate, three-quarters of all the national income originating in non-farm business activity and two-thirds of all those employed in non-farm business are in the corporate sector.

The 500 largest industrial corporations in 1955 controlled more than half of total sales in manufacturing and mining. The wealth owned and the number of workers employed by the 200 or 500 largest corporations have increased significantly in the last generation. The relative position of the giants has not altered but, in an absolute sense, the area over which they wield their influence is greater.8

The situation of large firms dominating business or at least playing a major role should be the assumption behind a model used in the current situation rather than the assumption of perfect competition. The development of theory around the assumption of relatively perfect competition is only justifiable in the current situation to the extent that it is considered a limiting case and leads to a better understanding of the cases of different degrees of competition. To do less than account for oligopoly (the situation alluded to above) would be to build a logical inconsistency into any model dealing with the real world.

Oligopoly. The label "oligopoly" is frequently applied to the contemporary situation in which large firms constitute a major force in most markets. Accompanying the phenomenon of largeness is a concurrent small number of firms.

Fewness is an important characteristic of the contemporary economic scene. Many prices and wage rates are determined under conditions which are neither atomistic nor monopolistic. They are determined under conditions of fewness: a few decision-making units shape their policies in view of how they mutually react to each other's moves.⁹

The concept of fewness seems to be in various author's definitions of oligopoly as exemplified by the following two definitions.

Oligopoly is a situation in which the number of firms is sufficiently small that mutual interdependence exists among them; that is, each firm, in determining its own policies, takes into consideration the possible effects which these policies may have upon the actions of competitors. The product of the various firms may be either homogeneous or differentiated.¹⁰

The definition of the term "oligopoly" as it is used in this book is relatively important. I take this designation to apply to any relatively large company that produces commodities some of which are identical with, or very similar to, the output of other firms. There is nothing remarkable in this rather vague definition except what

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it omits: it does not specify the extent to which interdependence colors the decision-making of oligopolistic firms . . . management if often not deeply concerned with these elements of interdependence in its day-to-day decision-making. If this is not the conventional oligopolist, it is still possible that he is the giant producer, who plays so large a role in our economy.\textsuperscript{11}

The basic differences in these two definitions do not conceal the importance of the condition of fewness.

In an oligopolistic situation, the firm is not thrust into a market where pricing, output, wage rate, and other related decisions are dictated (or given) by a market. Rather, these are determined by the cognitive bargaining and decision-making of the parties involved. The amount of latitude the firm has in altering these variables which compose its environment depends on its relative size, the nature of substitutes for its output, and the type of union relations it has, among other things. Moreover, the importance or significance of fewness, concentration, and oligopoly is augmented even more when the separation of ownership and management is added to it.

\textbf{Separation of Ownership and Management}

Largeness and concentration of business in the United States have been coupled with a separation of ownership and management. This phenomenon is chronicled as follows.

\textsuperscript{11}Baumol, \textit{op. cit.}, p. 13.
The one-hundred-and-thirty-odd largest manufacturing corporations account for half of manufacturing output in the United States. The five hundred largest business corporations in this country embrace nearly two-thirds of all nonagricultural economic activity. . . . The management—that is, the control—of these corporations is in the hands of, at most, a few thousand men. Who selected these men, if not to rule over us, at least to exercise vast authority, and to whom are they responsible? The answer to the first question is quite clearly: they selected themselves.12

The current prototype, increasingly, is that of a corporation with stock widely scattered among individual, investment trusts, or institutional investors, who faithfully vote for the incumbent management, and resolutely refuse to participate in its concerns. In such companies, the stockholders obey the management, not the management the stockholders.13

In the traditional approach to a theory of how a firm should or does allocate resources, rationality attached to the individual is assumed to be followed by the firm. The firm, acting as though an entrepreneur, should seek and choose those alternatives which benefit it most. With each firm and individual seeking its own self-interest, a market forms with resources going to those who can use them most efficiently. This market arising from the interactions of


the participants maintains a balance in the economic system. Resources are efficiently allocated and each factor of production gets its "fair share" of the income generated in the economy.

The problem of balance in an economy, assumed to be the function of the market in the traditional approach to the allocation of resources problem, is not so easily dispensed with in the case of oligopoly—or the real world. As Edward Mason summarizes,

almost everyone now agrees that in the large corporation, the owner is, in general, a passive recipient; that, typically, control is in the hands of management; and that management normally selects its own replacements. It is, furthermore, generally recognized that, in the United States, the large corporation undertakes a substantial part of total economic activity, however measured; that the power of corporations to act is by no means so thoroughly circumscribed by the market as was generally thought to be true of nineteenth-century enterprise; and that, in addition to market power, the large corporation exercises a considerable degree of control over nonmarket activities of various sorts.14

Alternative solutions have been proposed to a market mechanism for the case where large firms have discretionary power to act in a manner which might not be as if a market were dictating alternatives. Instead of management acting in the best interests of owners, perhaps management of the large corporation has a new responsibility to go along with its power. As Adolf A. Berle, Jr. suggests,

14 Mason, op. cit., p. 4.
directors of corporations must ... become trustees not merely for shareholders but for the entire community ... modern directors are not limited to running business enterprise for maximum profit, but are in fact and recognized in law as administrators of a community system.15

Goals of the Firm

If as Berle suggests, the management of a firm has become the administrators for a complex system which includes more than stockholders, the problem of defining the goal(s) of the firm is more complex than under a market system. The problem of defining or establishing the goals of a firm has not escaped attention in the literature. To do justice to this area of the literature would require attention much beyond the scope of this paper. Therefore, it is only shown how authors generally arrive at the goal of profit maximization or some variant of it while still recognizing the reality that there are probably other goals.

The complexity in defining the goals of a firm implied by large firms and management separated from owners is avoided by many finance writers. The approach chosen by James T. S. Porterfield in his book, Investment Decisions and Capital Costs, illustrates the manner in which this complexity is sidestepped.

Without an objective, the firm lacks a criterion by which to measure the effect of proposed decisions.

There is, at the outset, the question of whether the firm should seek to maximize the welfare of its owners by one criterion or another, or whether it should have broader aims extending beyond the owners' welfare.

Some would argue that the owners deserve only a "satisfactory" return on their investment and that the firm's management should equally be concerned with the welfare of its various other publics--its customers, employees, suppliers, creditors, and the residents of the community or communities in which it operates. Some would include the general public and the government among these other publics whose welfare the firm should seek to advance.

Others would observe that, whatever the goal or goals of the firm should be, in practice managers of companies are frequently concerned primarily with promoting their personal interests as managers.\(^\text{16}\)

Having thus established the need for a goal and having summarized the alternatives to profit maximization, Porterfield chooses the maximization of the welfare of the firm's owners as the goal which management should pursue. He gives as reasons: (1) the Adam Smith premise that the individual pursuing his own self-interest will lead to the greatest good for all, (2) the rationalization that serving other ends is a means of maximizing owners' welfare, (3) owners though dispersed will replace management which persistently fails to seek the welfare of the owners, (4) the firm should know the cost to owners of pursuing other ends if it chooses

\[^{16}\text{Porterfield, op. cit., pp. 11-12.}\]
to do so, and (5) maximizing a single goal is easier than dealing with a complex of goals.  

Joel Dean, one of the first to focus attention on capital budgeting, has dealt with the realization that the firm is not singleminded. However, he suggests that "the concept of management as arbiter among employees, customers, and stockholders can lead to capital-expenditure policies and commitments that stray from the directional beam of capital productivity." He does not object to pursuing other goals but suggests that a firm should still measure the productivity of capital in order to determine the cost of pursuing other than profit or profitability goals.

The prominent writers in this area of investment decision-making seem to recognize the institutional conditions of oligopoly and the separation of ownership and management. Furthermore, they seem to recognize that these raise questions concerning the applicability of the traditional theory about the acceptance of investment alternatives. Nevertheless, these problems are circumvented by these writers. They are either assumed away or the institutional constraints and behavioral characteristics implied by these conditions are assumed to have no significant

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17 Ibid., p. 12.
18 Dean, op. cit., p. 121.
19 Ibid.
effect on the investment decision.²⁰ The decision rule has remained: accept the investment if the rate of return on investment is greater than or equal to the cost of capital.

**Surplus Return**

The hypothesis for this section is that if a firm uses the decision rule of accepting an investment alternative when the rate of return is greater than or equal to the cost of capital, it will generate an "excess" or "surplus" return. This surplus return arises from applying the decision rule to the contemporary situation outlined above.

A firm is faced with or can find investment opportunities which promise to yield a rate of return which is higher than the cost of capital. This assumption is promulgated by both the theoreticians who believe that the goal of the firm and management is and should be the maximization of the shareholders' welfare and by the other major group of theoreticians who hold that the goals of the firm are and should be viewed as more complex and that management is not bound by the single goal of owners' welfare maximization.²¹


²¹Those holding to the complex goal formulation would include Richard M. Cyert, James G. March, Andreas G. Papandreou, and Robert N. Anthony. Those holding to the wealth maximization formulation would include, Ezra Soloman, James Porterfield, Robert Johnson, and Alexander Robichek.
The latter group implies the existence of such projects by assuming management has latitude in which to choose alternatives. If the only investment alternatives facing the firm were ones in which the expected rate of return just equaled the cost of capital, there would be no latitude of choice. The former group of theoreticians assume the existence of such projects by using the decision rule of acceptance of alternatives where return on investment is greater than or equal to the cost of capital. They talk about ranking projects with the highest rates of return first. If projects did not exist having an expected rate of return higher than the cost of capital, management would be faced only with the task of choosing among those whose rate of return equaled the cost of capital and rejecting the remainder.

The General Case of Surplus Return

If the expected rates of return on proposed investments exceed the cost of capital necessary to finance these proposed investments, there is a certain amount of return which is not "necessary" to command the desired amount of capital. This amount is what the author calls an "excess" or "surplus" return.\(^{22}\) The surplus return can be seen graphically in Figure 1.

\(^{22}\)See Appendix for a discussion of the relation of this surplus return to Alfred Marshall's producer's and consumer's surplus concepts.
Fig. 1. Surplus return when available rates of return are greater than the cost of capital.

The terms "excess" or "surplus" are in no way intended to convey any value judgment. That is, the author is not saying that the returns as such should or should not arise. The only intent is to show that when the decision rule so commonly advocated is employed in the real world, there are logically returns which are greater than are "necessary," by definition.

Refinements to the General Case

In the case above, a number of assumptions were made implicitly which must be made explicit and examined. These include assumptions about the riskiness of the assets, the cost of capital to the firm, the continuity of investment opportunities, and the use of marginal rather than average analysis. Further, note must be taken of the time context
implied by the above analysis, the relevance of perfect markets and certainty to the surplus return, the possibility of market power coming on the buying side rather than the selling side of the firm, and assumptions about the capital market.

**Riskiness of assets.** It is assumed initially that all of the investment proposals are of the same riskiness and possess the same degree of riskiness as the rest of the assets of the firm. Most theories using the rate of return on investment in their decision-making process consider return as a reward for risk taking. Realizing that the firm is faced with an array of investment proposals which vary in amount of risk, the simplifying assumption is made that all the investments are of the same risk, whatever that may be. In reality the firm probably has to consider investments with expected rates of return which vary and whose degree of riskiness varies also and perhaps not in proportion. By assuming the proposals are of the same degree of riskiness, this paper avoids the problem of converting these proposals into equivalent risk categories.\(^\text{23}\) By assuming that the degree of riskiness is the same as the present assets the above problem is avoided and further, the cost of capital should not vary because of the degree of risk of the proposals—the riskiness of the firm's assets should remain constant.

\(^{23}\) However, it assumes that this can be done—which might be open to question.
The firm's cost of capital. The cost of capital to a firm—or the rate of return that is expected by the suppliers of capital in order for them to continue to supply the firm with capital on the same terms—is assumed to be constant. Moreover, it is assumed that the cost of capital can be expressed in a single rate.

A change in the degree of riskiness of the assets of the firm would presumably change the cost of capital to the firm. Reality would force consideration of varying the cost of capital because the degree of riskiness probably would not be the same for all the proposals. Even if individually the riskiness of the assets of the firm were the same, combining them could change the riskiness of the firm. Therefore, by assuming the cost of capital to the firm to be constant, the implicit assumption is that the degree of risk for the total assets of the firm stays the same and that the degree of risk of the additions to the firm at any particular time is the same.

A second assumption concerning the firm's cost of capital is that it can be expressed as a single rate. This avoids the problem of determining the cost of capital for various sources of funds. It avoids dealing with the acceptance of investment proposals which are financed with debt where the expected return on investment is greater than the cost of the debt capital but less than the combined cost of equity and debt for the firm. For those of the school which
believes that leverage does not affect the cost of capital, this assumption will not cause discomfort. For those of the school which holds that varying the capital structure does affect the cost of capital, it will be further assumed that the capital structure is held constant and thus the cost of capital too should be constant.

A third assumption concerning the firm's cost of capital is that at the single rate described above, the firm can command all the capital it wants. This, too, is not a reasonable assumption when pushed to its limit. As a firm commands more and more capital in a given period of time, it would be reasonable to expect the cost to rise—especially if it were a large firm and the amounts large. Various reasons can be given justifying the assumption of a single rate in the face of this logic. One is that the firm probably does not consider a large amount of investment in any one time period and thus to consider a rising cost function would necessitate an examination of the total supply of capital in the economy over time. A second reason is that the individual firm would probably be faced with a cost of capital schedule which when graphed would be a step function rather than a continuous function and if it is more palatable to the reader, he can assume that the cost considered here is one of the segments of the function and constant over the relevant range.
Continuity of investment. In the simple case outlined above, it is assumed that investments can be taken in minute increments. Investment occurs to the point where the incremental return on investment is equal to the cost of capital. No doubt, investment is made in chunks in the real world and that the amount-of-investment function is not continuous. This does not prove to be a serious defect because the surplus outlined above would still occur if the model allowed for lumpiness but it would not be of the exact amount specified by the more simplified model.

Marginal analysis. The decision rule of investing to the point where return on investment equal the cost of capital as used in the simplified model, implies the use of marginal rather than average analysis. That is, the decision rule is to invest up to the equality of the marginal return on investment and the marginal cost of capital. If average analysis were used and investment occurred to the point where the average return on investment just equaled the average cost of capital, the surplus return would disappear. As can be seen in Figure 2, investment would increase from $Q_1$ to $Q_2$ and since for these investments the expected return on investment is less than the marginal cost of capital (and average), the surplus generated with the investments from zero investment to $Q_1$ would be just offset. If investment opportunities were relatively small and independent, investment could not go past the equality of return
Fig. 2. Offsetting the surplus return by increasing investment to the point where the average rate of return equals the cost of capital.

on investment and the cost of capital. If, on the other hand, investment opportunities were not mutually exclusive, the firm might accept some investments which by themselves promised a return less than the cost of capital but which enhance the return of other investments the firm is going to make or already has made. This line of reasoning however, degenerates into a problem of how to measure the productivity of the parts of the whole productive process.\textsuperscript{24}

\textsuperscript{24}For example, when the productivity of a drug department in a department store is evaluated by itself the return on investment might not be as great as the cost of capital, but the department might draw people into the store, increasing the profitability of the other departments and therefore of the store (the entire productive process).
Statistics and dynamics. The simplified model considered here is a static model. The surplus return generated occurs within a specific period of time and in relation to a specific set of investment alternatives. Firms are not in reality faced with such a static world. However, if it is assumed that the firm can perpetually find investment opportunities with rates of return greater than the cost of capital, the surplus return can exist through time. Problems associated with the distribution of this perpetual surplus return are considered in Chapter IV.

Perfect markets and certainty. Model builders generally have a difficult task of balancing the reality of the model with the problems of comprehension and ease of manipulation. One of the popular ways to build a model about the investment decision is to start with the assumptions of perfect markets and certainty. These assumptions are then removed to generalize the model.

If the assumption of certainty is introduced into the model by itself, the surplus could still exist. All the assumption of certainty does is remove the need for a premium for risk taking. All projects would be of no risk and should yield the pure rate of interest which would also be the cost of capital to the firm. The only way that a project could yield more than the pure rate of interest would be if the firm had some advantage over other firms. But this is the case that is specifically being considered in this
paper and hence, the surplus could still remain. The size of the surplus return would depend on the degree to which the firm enjoyed this advantage and the degree to which the other members of the economic community were not able to obtain the surplus return for themselves--they would know about it or the condition of certainty would not exist.

The assumption of perfect markets is much more limiting than the assumption of certainty. The surplus return developed previously arises from or because of non-perfect markets. If the model builder starts from the assumption of perfect markets, the problem under analysis has been assumed away. It is only after the introduction of the possibility that the firm can find investment alternatives which promise to yield more than the cost of capital that the surplus return arises. Thus, the danger in starting with a perfect-market model is that when this simplification is removed, the model builder may not uncover the significance of the "imperfection."

Oligopsony. The surplus discussed in the previous paragraphs arises from a firm having control over some facet of its operation so that it can and does find investment alternatives which have an expected rate of return higher than the cost of capital. The case considered up to this point has been the situation generally classified as oligopoly. Whereas the control the oligopolist exercises is on the output side, control could exist on the input side.
The situation where a firm has some control over the inputs it uses in its productive process is sometimes referred to as oligopsony. As one pair of authors define the term, oligopsony is characterized by smallness of numbers of buyers, in which each buyer has direct influence on the price and is aware that his actions will affect the price which he pays, and the policies of his competitors.

The oligopsonist wants as low a cost as possible. If he raises the price of a factor, others will follow for they do not want to decrease the amount of the factor they are using. This assumes full employment of the factor(s) involved which is a realistic assumption for otherwise there would be no reason for the initial increase in prices.

The case of oligopsony can be coupled with oligopolistic and competitive situations in a number of combinations. Regardless of the combination chosen, the surplus return will exist as long as the firm can control some aspect of its environment. In the usual accounting procedure for calculating the profit or return which is to be compared to the investment, expenses are deducted from revenue to arrive at income. The oligopolist controls to some degree the revenue variable in the equation whereas the oligopsonist controls the expense variable. In either case,

25 Due and Clower, op. cit., p. 54.
the firm can alter the equation so that it chooses investments with rates of return higher than the cost of capital and thus generate a surplus return.

**Capital market assumption.** Since capital is the factor of production which is under consideration when using the concept of the return on investment, brief attention should be directed to the capital market. The assumption in return on investment decision-making with a cost of capital cutoff (as used in the simple model above) is that the capital market is competitive. If there is a condition of oligopoly in the capital market—meaning the suppliers of capital can influence directly the price they receive for their capital—the surplus return could become part of the cost of capital to the firm.

The case of a variable cost of capital arising from an oligopolistic influence in the capital market has been largely ignored by finance writers as evidenced by the continued use of the decision rule of accepting investments when the rate of return on investment is greater than or equal to the cost of capital to the firm. This rule suggests the possibility of return greater than the cost of capital.

There is a surplus return in the sense used here only if the rates of return on projects are higher than the cost of capital. If the suppliers of capital can alter the cost of capital to the firm so that it is always equal to
the rate of return available to the firm, then by definition there could not be a surplus return. However, it must be noted that return then becomes more than just a reward for risk taking. Indeed, risk might decline while the rate of return demanded (by the oligopolistic capital market) rises.

**Conclusion**

The use of the rate of return on investment in conjunction with a cost of capital cutoff as an investment decision-making criterion gives rise to a surplus return under conditions of oligopoly. The surplus return is generated in an expectational sense—that is, the rates of return on alternative investment proposals are expected to be higher than the estimated cost of capital. This surplus return is in no way imbued with value judgments but simply arises from a firm being able to find and take investment opportunities which yield more than the sum of the minimal demands placed on it by the various factors of production and their subgroups.

Management, separated from ownership as documented by numerous authors, is charged with choosing investments in this oligopolistic environment. The "givens" assumed by the authors in Ezra Solomon's *The Management of Corporate Capital* cannot be taken as givens, for the market is not a
These managers have the power to choose investment alternatives which will satisfy the various suppliers of the inputs to the firm but which will not necessarily maximize the interests of any particular group. Constrained by the minimal demands of the various inputs, management must distribute the surplus return. This can be done either implicitly or explicitly but the task cannot be avoided.

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CHAPTER IV

DISTRIBUTION OF THE SURPLUS RETURN
AND ITS IMPLICATIONS

The hypothesis around which this chapter is built is that a firm must plan for the distribution of the income generated by the use of the various factors of production at the same time it plans for undertaking income generating activities. Chapter II discussed and examined the theory which is commonly used of accepting investments when the rate of return on investment is greater than or equal to the cost of capital. Chapter III examined the implications of using this decision rule under conditions of oligopoly where ownership and management are separated—the real world conditions for the most important firms in this country.

**Review of Generation of Surplus**

Surplus return, as discussed in Chapter III, arises when the type of firm in question considers and chooses investment alternatives which yield higher rates of return than the cost of capital. In calculating the rate of return on investment, revenue generating capabilities are assessed, wages and other expenses are deducted from this revenue, and
taxes are deducted, arriving at some profit or return. If labor and capital are taken as the inputs into the productive process and if these inputs are willing to accept some minimal remuneration (the going wage for labor and the cost of capital for capital), there can and will be projects which return more than the cost of capital and thus a surplus return.¹

**Surplus Return vs. Productivity Increase**

The surplus return generated under the assumption of a two input model is not the same as an *ex post* surplus owed to an increase in the productivity of either or both labor and capital. An increase in the productivity of one of these factors would result in more output being produced than in previous periods with the same amount of input—indeed this is the aim in trying to increase productivity. This means that more output is produced per unit of input or less input is required per unit of output.

In analysing the productivity of labor and capital, the ratio of the current output attributable to the factor per unit of the factor is compared to the similar ratio in some past or base period. A base period would be such that

¹This surplus could be viewed as a higher discount rate than necessary times the dollar value of the investment, summed for the alternatives taken, or if a present value calculation is used, the surplus would be equal to the present value minus the cost of each project summed for all alternatives taken.
the output attributable to the input and the input would be defined as being equal.$^2$ As the productivity of labor or capital increased, it would be revealed by a growing output per unit of input.

An apparent surplus can exist if the productivity of labor and capital increase and base period analysis is used. If any time period $t_n$ is taken as the base period, a unit of input could be defined as the amount of input required to produce a specified amount of output, and the productivity ratio for each labor and capital would be one to one. Then if the labor and capital inputs are assigned the values they had in time period $t_n$, their productivity increases, and their productivity is analyzed in time period $t_{n+1}$, the productivity ratio for each will be greater than one to one. The difference between what a unit of input produced in $t_n$ and what it produced in $t_{n+1}$ could be viewed as a surplus.

The apparent surplus owed to an increase in the productivity of labor and capital can be distributed to these factors and there still can be a surplus return as developed in this paper. Since any period could be taken to be $t_n$, assume that for analysis of the surplus return, the

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current period is taken to be period $t_n$. Then management would assign values to labor and capital so that their productivity ratios would be one to one. In other words, the output attributable to capital would be defined equal to the cost of capital and the output attributable to labor would be defined equal to the wage demanded by labor. But the total output of the firm can be anticipated to be greater than the sum of the wages demanded and the cost of capital, regardless of whether or not the productivity of labor and capital increase. This surplus is what has been discussed as surplus return. If in time period $t_{n+1}$ the productivity of labor or capital has increased, the reward for the use of either could be increased (distributing the productivity gain to the factor) but the surplus return would still exist because time period $t_{n+1}$ could be taken to be time period $t_n$ and the above analysis traced through again.

**Possible Distributions of the Surplus Return**

The surplus return can be distributed to various groups—perhaps not even directly or indirectly related to the productive process in question—since it arises because of the context within which the inputs are used. The output of the firm is equal to what labor and capital consider

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3 The context within which labor and capital are used perhaps could be viewed as a third input.
their portion of the output to be (as evidenced by labor's wage and capital's cost of capital) plus some output attributable to the use of the labor and capital where the firm has some control over its environment. One way of looking at it might be to say that labor and capital would have generated a certain amount of output in other processes, thereby determining their reward demands. These demands, however, are not as great as the output which they generate in the oligopolistic framework of consideration here.

A purist might immediately say that if labor and capital do not get all the output, including the surplus, they are not getting their fair share (since they are the only factors of production in the simple model). The use of labor to produce more than it gets as a wage can lead to charges that labor is being exploited. The Marxist argument that labor is being exploited could be applied to capital and the result being that they are both being exploited. It is also possible to say that if a surplus exists, consumers are in a sense being exploited because they are paying "too" high a price for the output.

For the exploitation argument to be valid, one has to be willing to say that competition would do a more efficient job than the present structure of industry—-or make the flat statement that the total output must go to the labor and capital inputs only. Under perfect competition, the surplus dealt with in this paper would not long exist.
Either the price of the output would be driven down (distributing the surplus to consumers), or the price of the inputs would be driven up (distributing the surplus to the inputs by changing the market values for the inputs). It is possible that neither of these would happen if a presently oligopolistic industry were made competitive. For example, if one of the large and concentrated industries such as the steel industry were subjected to classical competition, the price of steel could be decreased to use up the surplus, or wages could be driven up to take the surplus (and under the assumption of competition, prices would not rise to offset the wage increase as might be the case with the present industry structure). However, for the steel industry to meet the definition of classical competition, there would have to be many more firms. If the requirement for a large number of firms were met, each firm might be much less efficient in the production of steel than are present firms. The smaller firms might have to operate at such a low level of activity that there would be few economies of scale and the cost of steel could be much higher. Prices would not be able to drop but might rise instead, thus leaving the consumer worse off. There probably would not be an increased distribution to labor because with a less efficient level of operations the previous surplus return would not exist. Capital would not receive a greater return for the same reason.
Barring the statement that labor and capital should by definition get all the output of the firm and lacking the conviction that classical competition would cure the "exploitation ill," there is in oligopoly a surplus return which must be distributed. Based on the above discussion, it is apparent that the surplus return could be distributed to customers, labor, capital, or some other factor such as society or the firm itself. These possibilities are discussed below.

**Distribution to Society**

Various means could be devised to distribute the surplus return to society. Consumers, taken to be representative of society since all people are consumers, could get the benefits of the surplus return but as direct recipients of the surplus return they are discussed in the next section. Government could act to influence the distribution of the surplus return through its power to govern industry structure and by its power to tax. Social causes, such as education, could benefit by being recipients of the surplus return and to the extent these are social causes, society could benefit.

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4 Even in classical competition a surplus return could exist when the system is not in equilibrium. However, markets in classical competition tend to adjust toward equilibrium, removing the surplus return so that management does not have the long term responsibility or possibility of distributing the surplus return.
Society could get the benefit of the surplus return by its agent, government, exercising the power to control industry structure. By insuring competition, presumably prices are held down and customers are not charged more than necessary. In this way the resources in the society are allocated more efficiently and the incomes distributed more equitably. As discussed above, in order for competition to yield lower prices, it must be assumed that the industry structure of competition would be as or more efficient than the oligopolistic one so that prices could decline.

In cases where there are recognized economies of scale and the need for monopoly powers as in the case of public utilities, society can receive the surplus return by government controlling (holding down) prices of the output so that only a fair rate of return is given to the capital supplied to the utility. It is assumed that there is a relatively perfect market for labor and for indirect inputs (for example, generators, though sometimes the assumption of a relatively free market in this sector has not proved accurate) so that wages and other costs are not driven up to take the surplus.

Another way government might obtain the surplus return for society would be to tax the surplus return and distribute it to various groups within society or spend it for the collective good. The greatest difficulty with this proposal would be the problem of determining the amount of
the surplus return. Standards probably would have to be set for wages and other expenses and for what would be a fair rate of return for capital before the amount of the surplus return could be determined.

Society might also receive the benefit of the surplus return if management distributed it to social causes. These might include educational institutions, public libraries, art museums, symphonies, and so forth. Another group of social causes which might be supported by the surplus returns is the set of activities and benefits associated with welfare. While the previous alternative distributions to society have been based on law, the benefits society reaps by having social causes supported by surplus return probably springs from managers' sense of duty and philanthropy.

**Distribution to Customers**

A firm's customers are possible recipients of the surplus return. The firm could reduce price, hold price constant but add more value or utility to the product or service, or give rebates. Pricing under oligopolistic conditions has not escaped the critical attention of the economist but it seems difficult to make generalizations. In an

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5The term customers is used because it is a more general term than consumers. Consumers are customers, at least as represented by a member of the family doing the buying for the family, but the term customers also encompasses those buying for resale or for production of other products.
oligopolistic market, the firm which reduces price would probably be followed by its competition and it is possible that the surplus of the entire industry could be given to the customer in this way. However, the firm runs the risk of having other firms, which might have a more secure position in the industry, reduce the price still further with the end result being that the firm which was trying to distribute the surplus return to customers is unable to continue business because it cannot meet the minimal demands of the factors of production.

The surplus could be distributed to customers by increasing the utility of the product without increasing price. Automobiles might be an example illustrating this. In the opinion of the author, the price of an automobile has not increased as rapidly as the utility embodied in the product. If the prices of automobiles are converted into constant dollars, this seems an even more appropriate example. This is not to imply that the surplus return discussed in this paper does not exist in the automobile industry, for to make a valid analysis of this sort other things such as the productivity of labor and capital would have had to remain constant and they have not.

Rebates are still another way that the surplus could be distributed to customers. This is used in the case of farmers' cooperatives. If it were used on a wide scale and for the "normal" firm in the economy, it would probably
serve the same purpose as a price reduction, the rebate being matched by other firms and the end result might be unfavorable for some individual firms.

Management might be motivated for various reasons to distribute some of the surplus return to customers. Some of these might be to gain entry into an industry, to discourage entry by other firms, and to lessen the chances of governmental intervention. Management also might be distributing some potential surplus return by not charging as high a price as possible simply because they view the present price as satisfactory and it might be too much trouble to determine the probable effects of a price increase.

Distributing the Surplus to Labor

The surplus return could be distributed to labor. If management foresaw the surplus, wage rates could be raised so that no surplus would be shown. An alternative would be for management to pay bonuses to the workers at the end of the accounting period—again having the effect of not showing the surplus. However, since the surplus return is not demanded by labor, its distribution to this factor is briefly examined.

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6 In fact, there are many empirical examples of this.
Labor's share of the total output will depend on its power to get increased wages (as through labor unions) and its relative scarcity with respect to the other inputs. Unions can increase the power of the labor factor and increase the share of the output distributed to labor—even the threat of unionization could cause management to distribute more to labor than it "had to" in order to discourage workers from electing union representation.

The distribution of the surplus to labor can cause institutional changes. The most important of these changes probably would be the expectation on the part of labor that these distributions would continue. Wage increases would probably not be viewed as temporary but rather as a permanent increase and would therefore increase the cost of the labor factor. In future periods when the surplus might decline, wage reductions might not be feasible. More importantly, in considering future investment alternatives, the increased wages could be considered permanent and projects which would have been accepted prior to the institutionalization of higher wages would be rejected.

One way of avoiding the institutionalization of higher wages and still distributing the surplus to labor is to employ more of the factor without increasing the output attributable to labor. In other words more laborers would do the same amount of work as a previous lesser number. This of course assumes that there are such laborers
available. Perhaps to command these additional laborers a slightly higher wage would have to be paid to all—that is, all the labor employed would share to a small degree in the distribution of the surplus but most of the surplus return given to labor would be distributed in the form of wages to more labor rather than more wages to the same amount of labor. This type of distribution could also become institutionalized but it might be easier to cut people than wages in general.  

As a special case, the distribution to labor, including management, could be made with consumption like expenditures. For example, attractive grounds around factories, paved parking lots, and air conditioned offices could be provided by the firm to be enjoyed (consumed) by employees but they might not be "necessary."

Possible effects on labor market. The existence and distribution patterns of the surplus return could cause changes in the labor market. The existence of the surplus return could give rise to institutions, such as the labor union, which might have as part of their purpose the distribution of part of the surplus to labor. To the extent they are successful in getting some of the surplus return for labor, these institutions achieve a certain degree of permanency. The distribution of surplus return can cause

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With a guaranteed annual wage this might not be the case.
structural changes in industry which might necessitate an
offsetting increase in labor union concentration. For exam­
ple, if the distributions to labor become permanent, they
will be incorporated in the cost functions of the firms.
The increased costs might tend to squeeze out of business
the smaller firms which have a lesser differential advantage
and hence a lesser surplus return. This in turn could lead
to more concentration of firms which might tend to necessi­
tate strong organizations such as labor unions represent
laborers for their own good. A third way which the distri­
bution might affect the labor market might be its tendency
to immobilize the labor force. If the distributions are
made in the forms of pension funds, rewards based on senior­
ity, group hospitalization and life insurance benefits, and
so forth, the distribution might immobilize the work force
and tie workers to individual firms.

Writers in the area of finance have not been too
concerned with the distribution of the surplus to labor.
It is implicit in most financial management analysis that
the minimum required market wage will be paid—or some rea­
sonable wage necessary to command the amount and quality of
labor necessary on a continuing basis. The same cannot be
said of capital.
Distributing the Surplus to Capital

There are two major categories of suppliers of capital to the firm which could share in the distribution of the surplus return: debt and equity. For debt there is a recognized reward which needs to be paid in order to continue operations of the firm and to obtain other debt. This is recognized legally and reflected in accounting practice by subtracting interest payments from revenue as an expense, much the same as wages. If the demands of debt—interest payments—are not met, the firm is unable to continue operations as before. The question of distributing surplus return to debt does not seem to arise for it seems that managers are not eager to give bankers or bondholders more than they absolutely must. A similar view has not been held with respect to equity.

Traditionally, the stockholders of a corporation have been regarded as the residual claimants to the output of the firm. As such, they have by definition received all the output after giving labor what it demands and paying interest charges to debt capital. This portion of the total output could vary from negative (constrained by the amount of capital originally contributed) to very high positive values. This appears to have been viewed as a satisfactory description of the role of the suppliers of equity capital until the recent interest in the cost of capital.
With the growing importance and increased cognizance of the large firm with dispersed shareholders and self-perpetuating management, the view of stockholders as residual claimants becomes unsatisfactory. Assuming there is validity to the concept of the cost of capital as a minimal expected rate of return, the separation of ownership and management allows management not to distribute the surplus return to equity—that is, equity need not be viewed as the residual claimant. As developed in Chapter II, the cost of capital has been recognized as some sort of minimal concept. The cost of equity capital is the expected rate of return which equity demands in an ex ante sense. If this demand is not met and gives rise to the expectation that future demands will not be met, the firm will not be able to obtain equity capital—at least not on the same terms. This does not imply, however, that equity be rewarded more than it expects.

Though management does not have to, it might choose to give part or all of the surplus return to capital. As mentioned previously, there does not seem to be much of a penchant for paying bondholders or bankers more than necessary. Therefore, it would be equity to which the surplus would fall if it were given to capital.

There are various ways the surplus return could be given to equity, but the key variant in managements' decision(s) to distribute the surplus return to equity is the expectations it engenders in the minds of the suppliers of
equity capital. Since the cost of capital is expectational, and by assumption the only reason for demanding a positive rate of return is for risk taking (including the time value implied in the pure rate of interest), an expectation of a distribution of more return than demanded should cause a change in the price of the stock of the company.

Expected changes in the price of the stock will depend on expectations about the generation of the surplus return and its distribution. The surplus could be expected to be generated on all or part of the assets of the firm on a one shot or a continuing basis. The surplus return could be expected to be distributed to equity on a one shot basis as retained earnings, as one shot dividends, or on a continuing basis of either retained earnings or dividends or a combination of both. Depending on how these factors are interrelated, expected price changes will differ.

The price increase would be the greatest when equity expected the surplus to be earned in future periods to be distributed to equity in the form of retained earnings. The stock price should rise sufficiently to reflect a discounting, at the cost of equity capital, of the expected earnings plus surplus earnings on both the original assets and additional assets obtained with the retained earnings.

The price rise would be the lowest when the surplus return was distributed to equity as a cash dividend on a one shot basis. In this case the stock price should not rise at
all. Implicit in this statement is the assumption on the part of equity that the cash distribution of the surplus will not happen again and that they were not expecting it in its single instance.

Since the distribution of surplus returns or their expectation should change the price of the stock of a firm, the effect of the distribution on the cost of capital merits brief examination. If there is an effect on the cost of capital, management might be motivated to distribute the surplus return to equity.

Apparent effects on the cost of capital. Historical data (which stock price data are) can be used as an indication of the cost of capital. While historical data have the limitation of not being relevant in the sense that they cannot be changed, they are nevertheless in many cases the best indication of what the future might be. The problem which must be recognized is the chance of error in interpreting the historical data.

The use of historical data to estimate the cost of capital coupled with the distribution of some of the surplus return to capital can lead to erroneous estimates of the cost of capital. The cost of debt capital, as discussed before, would not be difficult to ascertain, but the cost of equity capital could easily be distorted. This certainly would be the case if the surplus return given to equity either as earnings or dividends were assumed to be demanded
by definition (and thus used in determining the cost of equity capital). This would lead to highly erroneous figures for the cost of equity capital. In times when the surplus return was large, the cost of capital would be high. When the firm suffered losses or low levels of performance (and hence no surplus return was in fact generated), the cost of capital would be low. As discussed in Chapter II, this is not a very meaningful way of looking at the cost of capital.

One of the major problems with historical stock price data is that they need not necessarily reveal the expectations of the suppliers of equity capital at the time the data were generated. For example, if some of the surplus return were distributed to the suppliers of equity capital as a cash dividend and the price of the stock did not rise, what were equity's expectations? They could have been that the cash dividend was a one shot distribution of a surplus return not to be expected in future periods--thus the price stayed the same. Or, they could have expected the distribution as "normal" and included it in their expectations--thus the price did not rise. Comparing the distribution given to the suppliers of equity capital and the price of the stock in the market, two conclusions could be drawn. Both cannot be the "correct" conclusion so one of the cost of capital estimates is not correct. There is no way of
determining which cost of capital is (or was) the correct one, short of going back and determining what people thought at the time.

The existence of surplus return could decrease the real cost of capital when the surplus return was generated but not distributed to the suppliers of equity capital. If the shareholders expected that management of the firm would use the surplus, being distributed to other groups, to even the flow of earnings (or dividends or both) to the shareholders and thereby decrease the variance of earnings, it could be that the firm would be perceived as less risky from the point of view of the suppliers of equity capital. In this situation, the expected rate of return for supplying capital would be less than that demanded of a firm which did not generate the surplus but otherwise was equal, or than the firm which distributed the surplus to equity as earned.

If the distribution of the surplus return were made to equity, the lowering of the real cost of capital to the firm probably would not be realized. As discussed above, the price of the stock of the company should adjust, discounting the distribution of the surplus return depending on the expectations of equity about the generation and distribution of future surplus returns. If a distribution of the surplus return was made to equity and there was not a corresponding price rise discounting this distribution, the absence of a price rise could imply that the riskiness of
the firm was judged to be higher than that of the firm which did not distribute the surplus to equity (thus more return is demanded). Based on the above analysis, this does not seem like a very logical explanation of the lack of a price increase. A more likely explanation is that the suppliers of equity capital do not expect the surplus return in future periods. This expectation could occur in spite of high current earnings and dividends for currently high levels of activity do not necessarily mean that these levels of activity will be enjoyed in future periods. Thus, if the distribution of the surplus return were made to equity and there was a corresponding price increase, the cost of capital to the firm would not be decreased. If a corresponding price rise did not occur, it seems logical to conclude that the suppliers of the equity capital do not expect the surplus to be generated or distributed to them in future periods, in which case the cost of capital to the firm has not been decreased.

The existence of a cushion effect similar to that obtained by generating a surplus return but not giving it to equity is found in Cyert and March, but they are concerned with intra-organizational actions and interactions. If the

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8 Cyert and March, op. cit., pp. 36-38. They discuss what they call organizational slack, saying that almost all the parties involved in the operation of the firm receive more than is necessary to keep them in the firm. When economic conditions get tight, this slack acts as a cushion, enabling the firm to survive. The cushion effect discussed
cushion effect with respect to equity and the cost of equity capital does occur, it would be to the advantage of the firm not to distribute the surplus to equity but to spend it on a variable expense project. The question of whether or not people act the way hypothesized (perceiving less risk when the distribution is not made to equity) is left for future research—it seems reasonable to assume that they will, but perhaps empirical testing (if possible) is needed to verify or disprove this hypothesis.

In developing the logical reason for not distributing the surplus return to equity, the possibility of distributing the surplus return to equity on a temporary basis as a means of manipulating the price of the company's stock has been ruled out. As has been established before, if the surplus is distributed to equity and this engenders the expectation that the distribution will continue, the price of the stock should rise. The cost of capital to the firm should not change and the benefit would accrue to current shareholders. Management could, however, distribute the surplus return to equity in anticipation of offering new shares, induce expectations that the distribution of the surplus return would continue to go to equity, get a higher price for the stock, and then discontinue the distribution above is similar in some respects but equity would not be paid more than necessary. Thus the cushion would come from being able to curtail variable expenditures to maintain earnings.
of the surplus return after the new issue was sold. This would mean that the old equity gained at the expense of the new. The only motivation for this sort of action would be personal gain.

Effect on the capital market. If most firms distributed surplus returns to capital and particularly to equity, the capital market could reflect this pattern of distribution. However, to be of interest to the individual firm, this would have to be reflected in a change in the cost of capital to the firm—the rate of return demanded for an assumed amount of risk would have to change. This could happen—the rate of return demanded for a certain sales level situation with assumed labor costs and an assumed variance in sales and costs could change. This would be very plausible if there were a few suppliers of capital (an oligopoly in the capital market), but barring that, there could be a change in the attitudes of the suppliers of capital.

In evaluating the effects on the capital market of a distribution of the surplus return, one would have to evaluate the effects of the distribution on firms' costs of capital. In doing this, it would be difficult but necessary to separate the effects of a general distribution of surplus returns on the cost of capital and the effect of the relative scarcity of capital and peoples' changing perception of this relative scarcity. There is no absolute scarcity
relationship but a perceived scarcity. If for some reason people thought that capital were more scarce relative to labor than before, even though the amount of capital were greater than or equal to the amount before, the cost of capital could rise. This effect would be difficult to separate from the expectation that the surplus return would be distributed to the suppliers of equity capital and in fact demanded.

Distributing the Surplus to the Firm

The surplus return could be distributed to the firm itself. Since this distribution would be out of the ordinary system of thought prescribed by law and other institutional arrangements, a discussion is needed of why the surplus return can be distributed to the firm, what such a distribution means, and how the distribution can be made.

The surplus return can be distributed to the firm because it is not demanded by the other interests associated with the firm. There are minimum requirements for wages, taxes, and interest on debt which are well recognized and institutionalized. Though in any particular example there might be benefits to be gained by distributing part of the surplus return to consumers and to labor such as discouraging entry into the industry by other firms or the entrance of unions (if this is believed to be a benefit), assume for the sake of argument that further such distributions would
produce no more benefit. Then management, acting rationally, could not distribute more to these groups unless there was no other distribution which would produce greater positive benefits. As discussed above, more benefit might accrue to the firm by not making the distribution of the surplus return to the suppliers of equity capital; therefore, assume that such a distribution is not made. This leaves only the possibility of distributing the surplus to the firm, save distributing it for negative benefit, no benefit, or philanthropy (which might have benefit for management but probably very little for the firm).

A distribution of the surplus return to the firm implies that the firm could hold assets, the benefits from which would not be given to the inputs labor or capital, to customers, or to society either through taxation or by gift. Size and power could well be attained by the firm and the benefits of these distributed to the firm by growing more and becoming more powerful. Some might say that these are goals of management and that they get pleasure from managing a large and powerful firm; and it might be so. Certainly the distribution of the surplus return to the firm can be rationalized away—assuming that the inputs are getting benefit from these distributions in one way or another (either by direct payment, payment in kind, or by consumption benefits). Capital might benefit because the flow of benefits to the firm might be variable, thus reducing the
riskiness of investing capital in the firm. Labor might accept stability instead of a higher money wage and the stability enhanced by the distribution of the surplus return to the firm. However, in addition to and in spite of these benefits assumed to be accruing to these inputs, there still can be output which is claimed or expected by no group and which can go to the firm.

The distribution of the surplus return to the firm would be carried out by incurring expenses which act as a purchase of assets. Examples of these expenditures which are generally shown as expenses of the firm, but which are in fact investments, are expenditures for advertising and for research and development. Advertising expenditures might create brand preference or other effects which tend to secure the position of the firm and increase its monopolistic position. The benefits from these expenditures will be realized in future time periods but are not recorded as assets with a potential of future income producing power. The same is true of expenditures for research and development— it would be unrealistic to assume that these expenditures were incurred with no expectation of future benefit.

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9Not all advertising or research and development expenditures would be the purchase of assets for the benefit of the firm alone. For example, some advertising expenditures probably have to be made to enhance and maintain the value (earning power) of the assets whose earnings are claimed by the suppliers of capital.
The benefits from these assets purchased with surplus return and recorded as expenses do not need to be given to any group associated with the firm. They can be used for more advertising and research and development, cycling over and over again. The benefits would never need to go to any group other than the firm. As long as labor gets its wage and capital can be obtained at a rate commensurate with the risk, the firm does not have to give the surplus return to either of these inputs. The firm can grow and become more and more powerful—it even might be considered an input in itself.

**Implications of the Distribution of the Surplus Return for Management**

The existence of a surplus return, the effects caused by various distributions of this surplus return, and the effects of the surplus return on the rate of return on investment criterion complicate management's task but offer benefits if planning is carried out. Consideration first is given to the benefits which management might enjoy if it plans for the distribution of the surplus return and then to the effects of the surplus return and its distribution on managerial decision-making.
Benefits of Planning the Distribution

One of the possible benefits of planning the distribution of the surplus return might be a reduction in the cost of capital. As discussed previously, this could well come about if the surplus were not given to equity—just the opposite of what would be done if no thought were given to planning the distribution of the surplus return. A variable distribution to some other group with an intention by management to even the flow of earnings recorded for the benefit of shareholders might reduce the variance in earnings and hence the risk associated with supplying capital to the firm. This should in turn result in a lower cost of capital.

Managerial flexibility could be gained by planning the distribution of the surplus return. Some distributions are more likely to become institutionalized than others. To the extent that a particular distribution would be variable and not become institutionalized, management would have more flexibility. This might be important to management, for equity does have a vote and some power and management could be replaced if it did too badly (not defined); thus, flexibility is a desirable goal from a managerial point of view. Moreover, if true flexibility is to be achieved and the attendant effect of a lower cost of capital realized, the expenditures must in fact be variable. If the distribution were made in such a way that it became institutionalized, it could result in only a permanent shifting upward of the cost
functions of the firm and perhaps increase the riskiness of supplying capital to the firm—just the opposite of the desired effect.

Planning allows management to try to balance and offset countervailing powers to the extent that they can and do arise. An example of this might be an attempted prevention of union organization of workers by distributing some of the surplus return to workers as wages and other benefits. Another example might be pricing to discourage entry into the industry which could have the effect of distributing some of the surplus to customers. A parallel effect might be the prevention of different institutions from arising to fill customers' needs, as price cutting on the part of department stores.\(^1\) Not to be ignored in this respect is the possibility of distributing the surplus return in such a manner that government, state or federal, is not pressed to intervene.

Perhaps the most significant benefit to be gained by planning the distribution of the surplus return is that then projects can more nearly be evaluated "correctly." Projects can be put in the contexts of time and income distribution

\(^1\) Even without the planning of the distribution of the surplus return, the effects of discouraging entry by other firms and other types of institutions designed to fill customers' needs have probably occurred in many instances. The distribution of the surplus return could have been carried out without conscious thought having been given to the distribution by management.
which have developed and are likely to develop. Then, changes in the income distribution can be made which would be more advantageous for current proposals and for future ones. But this variability and ability to plan at least the partial distribution of the income of the firm raises questions and suggests implications for managerial decision-making.

**Implications for Managerial Decision-Making**

Management's task of investment decision-making is more complicated than it has traditionally been considered. At the beginning of this paper, attention was directed to the assumptions that the market will take care of the allocation of resources and distribution of income problems so that management—primarily the management concerned with the financial management of the firm—would not have to concern itself with these decisions.\(^{11}\) Management would only have to make decisions about the allocation of resources within the firm and not trouble their minds with problems of distributing the income. Now, the task is not so simple.

Management must recognize that it has not only the freedom but the responsibility for distributing at least

\(^{11}\)For example see Robert W. Johnson, *Financial Management* (3d ed.; Boston: Allyn and Bacon, Inc., 1966), pp. 4-8. Johnson concedes that a price system does not operate within a firm but he assumes that the allocation of resources in our economy is automatic—implying that markets take care of the problem without managerial interference.
part of the income generated by the activities of the firm (at least the surplus return) and for the use of the assets held by the firm for the benefit of the firm itself. As has been established in the above analysis, management can distribute the surplus return to various groups. Abstention from actively distributing the surplus return will result in it going to equity because as a result of the normal accounting practices it will show up as earnings (barring management's *ex ante* distribution to another group), and once having shown up as earnings, equity would have a legal claim to it. This might not be the best alternative; management and the firm might be better off if the distribution of the surplus return were not made to equity. Other benefits and pitfalls associated with various distributions of the surplus return have been discussed, and to get the benefit from favorable distributions, management has to plan for the distribution before the surplus return shows up as earnings. Further, management must realize that, in a sense, it alone is responsible (and only to itself) for the use of assets held by the firm for the firm's account and not stated as part of stockholders' equity. Since these are unrecorded in the usual sense, management must keep track of them, recognize their potential earning power, and actively plan (*ex ante*) the distribution of the income from these assets so it is distributed to the firm or an active decision is made not to do so.
Management must also recognize that its decision-making will be influenced by the effects the surplus return and its distribution have on the rate of return on investment criterion. The implications for the rate of return on investment are intertwined with the implications for management itself except to the extent that management pursues its own self-interest. Managers could increase their own salaries, consume more and more at the supposed expense of the firm, and in general reap the benefits of the surplus for themselves. This probably is done to some extent and perhaps can be seen in plush offices, corporate jets, management meetings in warm climates in winter months, and so forth. It also might be argued that management benefits or has certain desires for power and prestige fulfilled if the firm grows in size. However, even if these benefits can be identified and measured, they are not the only ways of distributing the surplus return. It is therefore more useful for analytical purposes to assume that management acts as the professional decision-making body of the firm, separating the welfare of the various groups and interests, including their own, from the decisions at hand.\textsuperscript{12} This avoids dealing with complex behavioral characteristics of

\textsuperscript{12}The realism of this assumption and the advisability of so simplifying it could be questioned. Perhaps in subsequent analysis the assumption could be relaxed to allow for a more complex and complicated model incorporating or allowing for personal prejudices and whims.
individuals and groups and allows the construction of simpler and more easily understood models. Therefore, attention is directed to the effects the distribution might have on the usefulness of the rate of return on investment as a managerial decision-making tool.

**Static sufficiency of return on investment.** In a static situation, where a ceteris paribus assumption can be invoked, management can use the criterion of accepting investment alternatives when the rate of return on investment is greater than or equal to the cost of capital for it performs satisfactorily. A minimal wage can be assumed to be given, and the price of the output can also be assumed. Investment alternatives which cover the labor cost and return a rate sufficient to cover the cost of capital can justifiably be taken.

An example of an author who uses a static model for investment decision-making is Ezra Solomon—though almost any writer who has written on the subject could be the chosen one. Solomon prefers the use of the return on investment criterion in an indirect sense—that is, discounting the stream of earnings by the cost of capital and choosing those investment alternatives which have a present value greater than or equal to their cost. With this use he argues that the distribution can be made to any group:

Business management is concerned with . . . the values created through the investment and financing decisions which are geared to the
objective of profit-maximization. These values can be given to customers, to employees (directly or indirectly), to charity, to management itself, or to owners.  

He further says that owners, society, and probably management are better off if the wealth maximizing criterion is used—choosing the alternative with the largest present value. His writing contains the implication that the use of the wealth maximizing criterion to its best advantage implies that competition exists. If this is not the case, the wealth maximizing criterion can lead to wrong decisions but Solomon contends that the fault is not with the criterion but with the situation.  

It is definitional that if competition exists (with static and timeless equilibrium), the distribution of the income is no problem—markets take care of the problem. But the relevant situation is one of oligopolistic markets and relatively few firms. It is in this context that the set of rate of return, present value, and wealth maximization criteria are questioned.

**Dynamic insufficiency of return on investment.** The usefulness of the rate of return on investment criterion diminishes when time is introduced; that is, when the static situation is allowed to be dynamic. While the usual use of

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the rate of return criterion only deals with a certain alternative or set of alternatives, reality necessitates the consideration of alternatives in a flow of time. The various criteria evaluating investment alternatives are concerned with the productivity of capital but the productivity concept is most meaningful when used as a flow concept—concerned with the output per unit of input per unit of time. When time is introduced, the distribution of income over the life of the project makes a difference in its desirability over time and affects the desirability of other projects.

Present projects, when evaluated in terms of the return on the investment necessary to undertake them, probably reflect past decisions about the distribution of the surplus return. For example, the surplus return might have been given to labor, showing higher labor costs than would have occurred if the distribution would have been made to some other group. If these distributions are continued, they will be reflected in the estimated expenses associated with the current proposal.

The distribution of the income from current proposals (if accepted) will influence the acceptability of future projects. This will be so because of the effects on the apparent and real costs and performance levels owed to the particular distributions of the surplus return.

The profitability of a specific project can change over time according to how the distribution of the surplus
is made. To assume the same level of profitability for particular projects after resources are committed, assumes showing the benefits in the same manner as at the time the project was being considered. This might not occur. Management, for a number of reasons, may choose or be forced to distribute the income from operations differently. The income shown as profits in the beginning could well be shown as increased expenses if the distribution were made to labor instead of capital. Or, it could show up as expenses if the distribution were made to the firm.

Alternatives considered equal with the rate of return criterion (i.e., management is indifferent as to which it takes) might not be considered so when the distribution of the surplus return is considered. In evaluating projects according to their present values, current theory says that management will be indifferent if there are two proposals with equal riskiness, present values, and costs. However, if one of the projects returns its early life and the other later, this might affect the decision. The projects with the heavier early income flows could cause an income statement, which when prepared according to accounting principles, revealing a surplus return early rather than late. Management has to distribute this surplus return and if these distributions become institutionalized, the project with the heavier early income flows could cause subsequent projects to meet a higher hurdle than would the other project.
Firms which depend primarily on outside suppliers might evaluate projects differently than a firm which depends primarily on inplant capacity. The prices charged by suppliers are not as likely to rise in response to the generation of a surplus return as are labor costs within the firm. Thus, these firms might consider proposals differently. One group might favor early generation of the surplus return and the other a later generation, other things being equal.

Need for Productivity Model

The situations outlined above, which in all likelihood are not all inclusive, suggest that there are problems with the rate of return on investment criterion and that there is a need for a more complete criterion allowing for the variable distribution of surplus return to factors and groups other than labor and capital. The problems with the rate of return on investment criterion arise from the ability and responsibility of management to distribute the surplus return generated on projects taken by the oligopolistic firm. These problems make return on investment an insufficient criterion for investment decision-making.

A criterion or set of criteria for management's use in investment decision-making could be based on factors not related to productivity. For example, a firm might match investment expenditure of other firms in the industry in amount and kind of investment. Another way of choosing
might be to accept investments if certain individuals connected with the firm (or family) would benefit. No doubt there are many other criteria based on friendship, love, greed for power, and so forth, which could be enumerated. Such an enumeration could easily lead to a complete study of mankind.

It is suggested here that the development of a more complete criterion be within the bounds of productivity. There are various reasons for this limitation other than the practical limitation of size and scope of this paper. One of the basic reasons for suggesting that the bounds of productivity be observed is that, as discussed in Chapter II, most of the theory in finance and economics has been developed in terms of comparing benefits and costs associated with various courses of action. This was discussed as rational behavior. Productivity is a more specific statement of the rationality framework—dealing with the terms output and input and generally dealing with a productive process associated with the activities of a firm. In turn, the rate of return on investment is just a more specialized statement of productivity—dealing with the productivity of capital.

It is because of the fact that the rate of return on investment concept is a partial productivity concept that the problem of surplus return arises when this concept is used in an oligopolistic framework. Even in a two input
model where labor and capital are the only two factors of production, the productivity of labor is not considered directly when using the rate of return on investment concept. As discussed before, this does not cause serious problems when it can be assumed that markets allocate resources and distribute income. But, in the situation of oligopoly with a separation of ownership and management, management can distribute part of the income—that represented by the surplus return—on some basis other than productivity. Moreover, various distributions can conceal the real productivity of the factors such as labor and capital by paying them more than they demand and then assuming they demand what they are paid.

In addition to the problems associated with the rate of return on investment as a partial productivity measure in a two input model, the use of the concept in oligopoly probably necessitates more than a two input model. The firm, for example, should be considered as a factor of production (contributor of input) because it holds (or can hold) assets which are used in the productive process of the firm. Without allowing for the firm as a variable, the output associated with the input contributed by the firm cannot be evaluated. Society might be considered another supplier of input and the productivity of what it supplies should be considered in evaluating the productive process.
Relaxing the constraint of having only a two input model can give rise to thinking of a flood of inputs which could be associated with the productive process of the firm, and it is not suggested that all possible inputs or outputs be considered. There are some inputs which can be considered free from the point of view of the firm and other members of society. These free goods might change in character, as is happening to clean air and water which were once considered as free, but as long as they are generally accepted as free goods, the firm probably does not have to consider the problems of valuing them as inputs or the output associated with them. There are probably psychological benefits which accrue to the member of society as a result of the firm operating. These outputs, such as the friendship of co-workers, can probably be assigned values of zero for purposes of managerial decision-making about investment alternatives. Perhaps some of these variables cannot be assigned zero value, and to the extent that these inputs and outputs are considered valuable, they should be incorporated into the productivity model.

It is being suggested that a more complete productivity model is needed and that all the relevant inputs, including the firm, be considered in relation to the output attributable to them. The output which must be derived from the use of any particular input in order to command the use of that input would act as a constraint in any particular
evaluation of alternative investments. For example, labor must be paid its wage, capital its cost of capital, and government its tax (a fixed tax such as a property tax). If alternatives do not generate sufficient output to meet these constraints, they will not or should not be taken.

In addition to the suggestions above, the development of a more complete productivity model should allow for evaluating groups of factors of production such as those brought together in a division of a firm. Also, it should allow for subdividing the various factors into subparts. For example, labor could be broken down into different types of labor to allow for the heterogeneity of labor and capital could be subdivided by type of supplier. If done properly, the subdivisions of the productivity model would be additive so that the output of the various subdivisions would sum to the output of the firm and the various inputs would sum to the total input into the productive process of the firm. In this way the productivity of the parts as well as the whole could be analysed--something that cannot be done with the rate of return on investment criterion.
Conclusion

There are alternative distributions of at least part of the income generated by the activities of the oligopolistic firm. Planning the distribution of this surplus return can benefit management and the interests associated with the firm, including the firm itself. The way the surplus return is distributed will influence management decision-making and cognition of the ability and responsibility of distribute the surplus return will allow for better decision-making. Planning could also result in a lowering of the cost of capital to the firm and perhaps lead to a more efficient use of economic resources.
CHAPTER V

SUMMARY AND CONCLUSIONS

Summary

The concept of the rate of return on investment has occupied a major position in the writing about the theory of investment and investment decision-making. It has been a part of both macro and micro theories, though the latter is of primary interest in this paper. As used in micro theories, the rate of return on investment mainly is concerned with the allocation of resources—capital in particular—and hence with the choice of activities to be undertaken by the firm.

Interest in this paper is focused on the use of the rate of return on investment in conjunction with the cost of capital as an investment decision-making criterion. Return on investment can be used in an ordinal sense, ranking investment alternatives, but some standard is needed to make a judgment as to whether or not a particular investment should be taken. Such a standard is the cost of capital and is widely advocated as a companion concept to the rate of return on investment. The most useful conception of the
cost of capital places it in an ex ante or expected sense and in some way describes the cost of capital as the rate of return on investment which the suppliers of capital expect (demand) as a reward for supplying capital to the firm. When these two concepts are used together, the rate of return on investment is estimated (by one of several methods) and projects are accepted when the rate of return on investment is greater than or equal to the estimated cost of capital.

The use of return on investment in decision-making implies a productivity context and the assumption of a rational decision-making process. Rationality dictates that the benefits and the costs associated with an alternative be compared. The translation of this requirement into economic terms is that decisions are made on the basis of the productivity of the inputs. Examining the productivity of an input such as capital means that the output attributable to capital is compared to the capital input.

The situation or hypothesized conditions of market "imperfections"—mainly centered on the conditions of oligopoly—is the environment into which the rate of return criterion is thrust. Oligopoly is used in this paper to connote the conditions which typify the large and most important firms in the country in terms of assets and sales. There are other types of market imperfections, if one desires to call them imperfections, such as oligopsony, which might
also be of interest. But regardless of the label, attention
is centered on the firm which has some control over its
environment so that it can find projects which have rates of
return greater than the cost of capital to the firm.

A concurrent condition affecting the use and usefulness of the rate of return on investment criterion is the
separation of ownership and management for the firms in ques-
tion—the large corporations in oligopolistic environments.
Ownership, represented by shares of stock, is widely held
and management commonly perpetuates itself. Replacement
through other than planned advancement and retirement is a
rather moot point unless management does an extremely poor
job or generates the expectation in the minds of shareholders
that it will perform poorly.

When the rate of return on investment criterion
(including the cost of capital) is used for investment
decision-making by the management of the oligopolistic firms,
a surplus return is commonly generated. As long as capital
gets its minimal expected rate of return (the cost of capi-
tal), it will be satisfied. In calculating the rate of
return on investment, the cost of labor is deducted and as
long as workers are paid the wage they demand, they will be
satisfied. Then, if the firm can and does find investment
alternatives which promise a rate of return greater than the
cost of capital, that return above the cost of capital is a
surplus return. It can be viewed as a surplus because it is
over and above what is "necessary" as defined by input and output markets.

Management must plan for the distribution of the surplus return. Since no particular distribution is necessary, by definition, management can make the distribution to any group but it must make the decision. Management's decision can be made either actively or passively. If management abdicates responsibility for making the decision, the surplus return will go to the suppliers of equity capital. This occurs because the surplus return would show up as earnings if the firm followed normal accounting procedures and having once shown up as earnings, the surplus return would be claimed by equity. If management makes an active decision about the distribution of the surplus return, it has numerous alternatives available for the distribution including labor, capital, management itself, society, customers, and the firm itself.

The benefits from some distributions might be greater than from others. For example, some distributions are more likely to become institutionalized and thus limit the flexibility of management for future decisions. If the distribution of the surplus return were made as increased wages, these wages might become expected and represent a new permanently higher level of wages. Management then might not have the flexibility of lowering wages and doing something else with the surplus return. Some distributions might
offset the need for and growth of countervailing powers. A distribution of part of the surplus return to customers through reduced prices or added service could act to discourage entry into the industry by other firms. A distribution of some of the surplus return to labor could discourage the unionization of the workers (if unions are perceived as unfavorable by management). It might be better not to give the surplus return to the suppliers of equity capital but to spend it on variable expense projects with the intention of evening the flow of earnings for this might tend to lower the cost of capital.

Perhaps the most important benefit to be gained by planning the distribution of the income, including and particularly the surplus return, is that then the "correct" evaluation of alternatives can be made. The distribution of the income from past alternatives can and probably does influence the rate of return for current proposals, and so it will be for future proposals. Also, the rate of return on investment for current projects can change over time depending on how the distribution of the income for the activity is made. Being cognizant of the distribution and the possible variability of these distributions, management can evaluate the output attributable to capital and compare it to the capital input, as well as evaluate the productivity of other inputs. However, to evaluate the productivity
of all of the inputs and relate them to one another meaningfully, a more complete productivity model is needed.

**Conclusions**

The major conclusions of this paper are as follows:

A surplus return is generated when the rate of return on investment criterion is used for investment decision-making under conditions of oligopoly. This surplus return is represented by a higher rate of return available to such firms on investments than they are required to pay in order to attract capital.

The rate of return on investment approach (including the use of the cost of capital) to investment decision-making makes no conscious decision regarding the surplus return. The cost of capital represents a minimal rate of return and when higher rates of return can be earned, the surplus return is generated with no particular distribution mandatory.

The implied plan for distributing the surplus return is to give it to equity. If no action is taken to otherwise, the surplus return will show up as earnings where the suppliers of equity capital will claim the surplus.

Other distributions could be more desirable. There are various distributions of the surplus return which could be made including to capital, labor, consumers, society, government, management, and the firm.
It is possible to distribute the surplus return to the firm itself. This is accomplished by the firm purchasing assets with the surplus return, recording the outlay as an expense rather than as an investment, thus giving no group claim to the benefit from these assets.

Among other benefits to management, risk can be adjusted by varying the flow of the surplus return to a factor such as the firm and maintaining a more even flow of benefits to labor and capital. The risk is reduced because the variance of earnings and wages is decreased.

Risk reduction could lower the cost of capital or the cost of labor. Since part of labor's wage must be compensation for the riskiness of not having a permanent job, a reduction in the variability of the wage could mean that labor would be satisfied with a lesser wage. Since capital demands a return as a reward for risk taking, reducing that risk should decrease the return demanded and hence the cost of capital to the firm.

Attention to planning the distribution of the income of the activity of the firm (at least the surplus return) reveals the inadequacy of the rate of return on investment as a decision-making tool. This concept is a necessary condition for evaluating alternatives in a productivity context but not a sufficient one.
Suggestions for Further Study

One group of topics which merits attention and perhaps lends itself to empirical testing is the effects of the distribution of the surplus return on the various inputs and the markets for these inputs. One of the first problems to which a researcher would have to address himself would be isolating the surplus return. This would be difficult because of the time flow context in which he would have to work. Even if this could not be done precisely, however, it could be valuable for a study of finance to try to isolate the surplus return in specific examples and examine the effects of the distribution of this surplus. For example, it might be possible to examine the possibility of the cost of capital decreasing when the surplus return was not distributed to equity capital. Of course, this research would be wrought with frustrations and logical problems associated with much empirical research but it could give clues for further development of the theory of finance.

An area needing more theoretical study, thus avoiding some of the pitfalls of empirical research, is the general subject of productivity and particularly its relation to the individual firm and its subparts. The rate of return on investment is only a partial productivity measure. The same is true of the productivity of labor. If only a two input model is used, these two should be related so that
they are considered together. However, in the oligopolistic situation toward which attention is directed in this paper, a two input model is not sufficient for it would only allow output to be attributable to two inputs. Since there is more output than is demanded by these two inputs, and since output and input must be equal in any particular period by definition, this output must go to someone and a more complete productivity model must be at least sophisticated enough to handle this.

In constructing a more complete productivity model, various factors should be considered in addition to allowing for the distribution of the surplus return to groups other than labor and capital. For example, the model might allow for the evaluation of divisions of firms and the inputs within these divisions. It might also allow for the heterogeneity of inputs such as labor where perhaps it is not valid (though perhaps necessary from a practical point of view) to say that any two units of labor are the same. The model might allow for inputs and outputs like social costs and benefits.

From the point of view of a study of finance, the development of a productivity model should be directed to constructing an additive model. That is, the productivity of the subparts of the model should sum to the productivity of the total process in question. In the past, ratio analysis has received varying degrees of support, sometimes
bordering on enthusiasm. Since productivity analysis is ratio analysis in a sense, for productivity is the ratio of output to input, care must be taken when constructing a productivity model so that attention is not diverted to ratio analysis which is not related to productivity. For example, while the ratio of current assets to current liabilities might be useful in describing a firm and comparing it relative to other firms, it is not a productivity ratio. Therefore, in constructing a more complete productivity model, the ratio of current assets to current liabilities would not be included. Productivity, as is true of the rate of return on investment concept, is concerned with a comparison of inputs and outputs—benefits and costs. As long as this sort of rationality is the basis for the theory of evaluating alternative courses of action, models should be consistent with this framework of comparing costs and benefits.
APPENDIX

MARSHALLIAN SURPLUSES

Alfred Marshall, in his Principles of Economics, discusses the concepts of a consumer's surplus and a producer's surplus.¹ In as much as this paper has been considering the problem(s) associated with the generation and distribution of surplus return, the similarity or dissimilarity between the Marshallian concepts and the concept in this paper merits attention.

Two Marshallian Surplus Concepts

Consumer's Surplus

The first of Marshall's two surplus concepts is the idea of a consumer's surplus. This surplus is generated in a situation where there is a falling demand function interacting with a supply function to determine a market price. In this situation, the consumers whose utility for the

product equals the going market price are not receiving any surplus—they are receiving the utility they are paying for. However, the purchasers of the product who would have purchased it at a higher price are receiving more utility to them than they are required to pay in order to get the product. Therefore, they are receiving a surplus. The size of the surplus will depend on how much the consumer would have been willing to pay in relation to what he is required to pay. This surplus need not be in dollar terms in a direct sense—though perhaps Marshall intended it to be so (or at least in pounds)—but rather in terms of utility. In turn, this can give rise to a debate about whether or not the surplus value or utility should be put in terms of cardinal measures or ordinal measures. However, to assume that it exists in some amount does not seem unreasonable.

**Producer's Surplus**

The second surplus concept developed by Marshall was the concept of a producer's surplus. This concept is like a mirror image of the consumer's surplus in some respects but is represented in dollar or monetary terms rather than in terms of utility in a more general sense. There are two ways of looking at the producer's surplus.

One way of looking at the producer's surplus is to assume that the supply function is a normal supply function and concurrently assume that the costs of producing previous
units of output are not affected by the production of subsequent units. In this view the producer's surplus can exist within the definition of competitive equilibrium and the surplus arises because of assumptions about the costs of production. It is assumed that the costs of producing a unit of output at a lower level of production would have been less than at the current higher levels of production, that the current higher level of production does not raise the cost per unit corresponding to lower levels of production, and that the price per unit is based upon the interaction of the demand function (assumed to be given) and the costs of producing the last unit of output.

Another way of looking at the producer's surplus is to assume that the supply function is a particular expenses function, as Marshall calls it (he dealt with the concept in terms of curves rather than explicitly using the term function). The various producers, whose output is represented by the supply curve, have different cost functions—i.e., some producers have differential advantages. The producer of the last unit would presumably have no differential advantage and would receive no surplus, but the producers of the rest of the output would receive a surplus depending on the degree of their differential advantage. For example, if land is one of the factors of production and the best land is called into production first, there can be a producer's surplus—or rent. Another example might be a situation
where there is some fixed factor such as locations for service stations, shopping centers, and so forth.

Relating Marshallian Surpluses to This Paper

The Marshallian surplus concept which at first glance seems to be related to the surplus discussed in this paper is the concept of producer's surplus. However, it must be noted that the producer's surplus can be generated under conditions which would fit, at least roughly, the classical definition of competition. The surplus discussed in this paper explicitly arises from an oligopolistic position of the firm.

This author does not think it was Marshall's intent, but if the producer's surplus is taken to include monopoly profits, it could have some similarity to the surplus discussed in this paper, but this would be true only under very special assumptions. It would have to be assumed that the quantity of investment as discussed in developing the surplus in this paper is taken to mean the total investment of the firm. Further, it would have to be assumed that all of the surplus was distributed to the suppliers of equity capital.

The quantity of investment dealt with in this paper has to be interpreted as being equal to the total assets of the firm in order to say that the surplus is equal to the
Marshallian producer's surplus. If this equality is not maintained, it would not be reasonable to assume that the income generated by the assets in question would be the same. The only income this paper has been directly concerned with in previous chapters is the expected income generated by proposed investment alternatives. Possible distributions of the income were discussed, dependent upon the projects being taken and the income being generated. In this sense, all the prior discussion has been in an \textit{ex ante} or planning frame of reference. No judgment was made as to the income producing capabilities of the projects already taken other than to note that distribution patterns which could have developed in response to the distribution of the income from these projects could (and probably do) influence the evaluation of the income producing capabilities of the current alternatives. Past projects could be very productive of income or nonproductive, influencing the Marshallian producer's surplus because it is an \textit{ex post} concept--concerned with the surplus generated by the assets of the firm actually in use and not directed to proposed assets.

An additional assumption necessary to equate Marshallian producer's surplus and the surplus returns in this paper is that all of the surplus is distributed to the suppliers of equity capital. If any of the surplus discussed in this paper is distributed to a group other than the suppliers of equity capital, it will raise the cost functions
or curves in the Marshallian analysis, decreasing the producer's surplus. This paper has not attempted to dictate any "right" distribution and if the distribution is to be made to any other group than the suppliers of equity capital, the cost curves will have to rise. The conclusion from the above analysis must be that by manipulating words and ideas, it is possible to define the producer's surplus and the surplus return to be the same. However, this author believes that Marshall did not intend his producer's surplus concept to be so inclusive but rather intended it to deal with competitive situations temporarily out of equilibrium or ones in which the differential advantage was similar to that afforded by good land.

The concept of a consumer's surplus has more relation to the surplus return concept of this paper from the point of view of the firm. The consumer gets more utility than he is required to pay for unless he is the marginal consumer. This surplus is in terms of utility but when a firm is considered as a purchaser of the use of capital, a parallel between the consumer's surplus and the surplus return can be drawn. As a user of capital, the firm obtains capital at a price depending on the risk involved. However, because of its oligopolistic (oligopsonistic, monopolistic) position, it can and does find projects which return a higher rate of return than the cost of the capital necessary
to undertake these projects. This surplus rate of return times the amount of capital parallels the consumer's surplus, for the firm is getting more benefit than it is required to pay for. Moreover, this parallel leaves open the question of the distribution of the surplus. The difference between the two surpluses remains though, the consumer's surplus is in terms of units of utility and the surplus return is in monetary units.
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