The Flow of Long-Lived Assets Funds.

Mary Barbara Beeler

Louisiana State University and Agricultural & Mechanical College

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THE FLOW OF LONG-LIVED ASSETS FUNDS

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The Department of Accounting

by

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To
FLORENCE AND EDWARD BEELER
Thank you.
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ABSTRACT

Distinctions between depreciation, recovery and replacement of depreciable property are made repeatedly but they are not held to be mutually exclusive. Regarding recovery - the paper questions, if the capital funds consumed have been recovered, what are the conditions contributing to the situation wherein it is observed that these funds "may be" available rather than "are" available for reinvestment in depreciable assets?

The study is not involved with techniques and procedures but rather is an idea - a hypothesis about long-lived assets funds, their tracing and analysis. The term "funds" unqualified is employed to encompass all financial resources; qualified variously, it is used to define the resources of a firm which are of a physical, depreciable nature (long-lived assets funds) and their transformation from this committed, embodied state to a state of liquidity (recouped depreciation funds) through utilization (depreciation funds). Without departing from general accounting procedures and practices, the "funds identification format" is introduced to emphasize the time dimension of the long-lived assets funds in the statement of position and the activity dimension of the depreciation funds in the income statement as well as correlating the two in the funds statement.

Initially an examination is made of the concepts of long-lived assets and their existence as reported through accounting expressions of their value. Such examination is expanded to include concepts of depreciation and the applications of these concepts through depreciation
accounting. Depreciation (and the accounting therefor) is treated as a consideration of prime importance in maintaining the real value of capital. In the politico-economic environment it is sought to ascertain whether there are pressures (or potential legal pressures) toward investing in long-lived assets, to shift the area of spending from fiscal policy and governmental spending to a greater degree of private investment. Capital budgeting for replacement (reinvestment) and expansion of capital goods is investigated. The cyclical flow of the long-lived assets funds through investment, disinvestment and reinvestment is repeatedly emphasized.

The investigations are limited to considering owner investment and internally generated funds for use in the acquisition of long-lived assets; the paper is not extended to the consideration of alternatives but rather the considerations contained herein may be construed as an examination of one alternative to the question of acquiring long-lived assets. A problem, revolving around "The Firm," is set forth and analyzed. The problem is evolved under varying conditions pertaining to the accounting for and the managerial directing of recouped depreciation funds.

Generally accountants recognize the flux or shift between long-lived assets funds and funds approximating a more liquid state but have continued to place too much emphasis in income accounting on the "net" inflow of funds. This flux needs to be emphasized for management, particularly that span of flow where these committed funds have attained once again relative liquidity and are currently available for a variety
of uses including re-commitment to the nature of long-lived assets funds. Emphasis on "net" revenues, to the exclusion of the consideration that it is "gross" revenues that should be the first object of management's attentions contributes much to the ambiguity of the accounting-management problem of maintaining capital intact.

Depreciation funds do not receive due emphasis in terms of being recouped and available and, therefore, a specific consideration among alternatives in decision making affecting maintenance of the integrity of the long-lived assets funds. It is suggested that the portion of accumulated depreciation account balances defined and originating from the current depreciation charges, economically stated, are "funded" to the extent that they are covered by revenues. Management has available to it a source of funds currently available for maintaining, at least a portion of, the functional capacity of the firm's long-lived assets.
CHAPTER I

INTRODUCTION

Accounting theorists (practitioners as well as academicians) seem to emphasize, in general, that depreciation, recovery and replacement of depreciable property are distinct one from the other, but at the same time they do not say that depreciation, recovery and replacement are mutually independent. It "is true that 'funds' resulting from the 'recovery' of capital consumed, through the charge for depreciation, may be available for replacement of depreciated assets."\(^1\) It is the expression "may be" that raises the question, what are the conditions which result in a "may be" rather than a "will be" situation?

As the complexity of modern economies has grown, the pressures of many groups have been exerted encouraging and resulting in the continuous, voluminous and often divergent expounding of views regarding capital and its maintenance. Pressures are evidenced by expressions of various elements of modern economies - the investors in capital, the managers of capital, the accountants for capital, engineers, legislative bodies, economists, and even politicians. Internationally, politico-economic concern with the investment in capital goods is evidenced. The Swedish investment reserve provisions when implemented by the individual firm are in effect a funding of depreciation, with

definite modern politico-economic overtones. The American allowance of the investment credit and accelerated depreciation procedures, and the British initial allowance (which furthers acceleration of depreciation and reduces the depreciable cost) and the added investment allowance can logically be deduced to be "interest free loans to encourage certain types of capital formation ...".

"Capital" is a term which can be classed as generic because of its many connotations. Using balance sheet construction as a point of reference it has been and is used to refer both to the left side and assets, and to the right side and owners' equity (in total and in parts). In this paper "capital" is used infrequently but when used it is primarily to refer to the former, and more specifically to that portion of total resources available to carry on operations which is of a tangible, depreciable nature, in other words those assets which


are manifestations of committed funds to a passive identity in time as opposed to a state of liquidity capable of relatively immediate external exchange such as cash. Primarily, there are two phases of capital formation with which this study is concerned: (1) defining the using and recouping of capital, and (2) planning or budgeting for continuance of capital, i.e., capital replacement (reinvestment) and expansion necessary for continuance of existing capital. This paper is based on the premise that capital must be maintained intact. This in no way implies that physical assets must or will be replaced by absolute kind but rather implies that there is a physical framework (as some have referred to it, a "basket of goods") that is necessary in order to carry on the activities of the business, and that as the physical plant is utilized (consumed) in such operations there are of necessity considerations pertaining to its replacement. The maintenance of the integrity of this physical capacity (i.e., the capacity to produce income) has been and is the concern of many theorists and practitioners in various phases of the total endeavors of the economy. This paper is concerned with an accounting approach to this problem and how accounting might serve management in discharging this responsibility. Management, in performing its functions, is attempting constantly to bring into effect the most harmonious "mix" of assets in the conduct of operations of the firm; accounting is continuously striving effectively

to define and describe this "mix" which is a mix of funds which are in a constant state of flux. In such endeavor, these descriptions (in records, reports and analyses) are involved not only with things but encompass activities (movements) as well. Whether implied or specifically stated later, "capital" is equated with purchasing power, economic power to command other goods and services - herein lies the integrity of the entity's assets. This study is not involved primarily with techniques and procedures but is rather an idea - a hypothesis about long-lived assets funds, their tracing and analysis.

In the Accountants' Handbook, under the topic of "disposition of recovered plant funds," it is observed in three of eight cases enumerated (i.e., used to expand plant, to make replacements, and to increase working assets) that "the absorption of funds is often so continuous and commonplace a feature of financial operation as scarcely to constitute a deliberate and special policy." In the original conclusions Mason drew with reference to the financial aspects of depreciation accounting, he observed that "the assets retained as a result of the recording of depreciation will not automatically be accumulated in a fund waiting to be invested. . . . The 'investment' of retained funds . . . is usually an automatic rather than a conscious


On the other hand Paton, in addressing a chapter of the N.A.[C.]A. and speaking with reference to the dedication and rede
dication of funds to the pool of cost factors observed that

... this is a matter of financial administration on which accountants can have little influence. We can, however, do a more complete job in tracing and registering the flow of funds. ... by following the flow of funds more closely ... there is no possibility of dividends therefrom [assets in which surplus resides] unless and until the funds involved are liberated, or unless and until other funds - such as the portion of gross reve
nues charged for the purpose of recognizing depreciation - are arrested in their normal flow and made to assume the role of net earnings.

In other words, an important function of accountants as accountants, within the sphere of internal control, is the tracing and describing of the flow of funds the object being control over such flows. Further, the more conscious the tracing of the flow of funds is the more con
scious, rather than automatic, the directing of these flows may be expected to be. Only through conscious directing can the funds in their normal flow be arrested and be channelled in respective directions

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8 ... cost factors, 'commitments,' funds already placed in jeopardy, already dedicated to the special purposes of the enterprise, primarily, in the form of inventories and plant. ..." William A. Paton, "Cost and Profits in Present Day Accounting," Paton on Account
ing, edited by Herbert F. Taggart (Bureau of Business Research, Graduate School of Business Administration, The University of Michigan, 1964), p. 318. (Talk delivered before Chicago Chapter of N.A.[C.]A. in 1934.)

9 Ibid., emphasis added.

10 This is not to preclude accountants from the role of manager, too, but present concern is with accounting and the practice thereof.
knowingly by management. More recently, Park and Gladson (basing their work on the contention that the main purpose of financial accounting is to measure capital and income of the firm) have concerned themselves with the depiction of monetary flows of business emphasizing the importance of distinguishing between

(1) circulating capital for meeting current productive commitments and (2) "fixed" (sunk) capital having strategic significance to the firm. This distinction carries over to the income statement where there is a piecemeal releasing of long-live asset services into the short-run or circulating-capital stream. . . . From a funds-flow standpoint, there is a simultaneous exchange in which an outgoing asset is given up for one incoming. . . . If intervening flows were stressed instead of changes in net assets, asset measurement over a service-flow period might be more meaningful because of the emphasis placed on current, non-current valuations.11

It is the implied, as well as the explicit, references to a process that is generally so continuous and commonplace that it can be referred to as being usually an automatic rather than a conscious process and yet, on the other hand, call for such flows to be more closely observed and stressed that have continued to feed the thoughts expressed in this paper with reference to funds identified with long-lived assets.12

The use of the term "funds" is encountered frequently in the


12 Paton, in his initial remarks concerning costs and profits, observed: "... it is no doubt desirable for us to detach ourselves occasionally from the routine technical matters with which we are intimately engaged and survey the general framework of problems and concepts within which, as accountants, we move and have our being, for the purpose of tightening our grasp of essentials and improving our sense of perspective." Paton, op. cit., p. 308.
accountants' general technical literature other than in specific situations such as governmental funds accounting and current funds statements investigations and elaborations. When encountered in such literature the term appears to be used, reverted to, to express a general sensing of the transiency of the financial resources of business, the continuous flux of the economic values of assets. In such situations the term is undefined generally and used more to impart this sensing of the effects of such transference of value rather than being specifically defined and pursued.

In this paper an idea, which has been named the "funds identification format," is introduced as a means of emphasizing the tracing and analyzing the funds committed to assets of a durable yet depreciable nature in the continuous investment, disinvestment and reinvestment of the firm through its operative procedures. Moonitz observed in his "director's preface" to Accounting Research Study No. 2, that "accounting has identified itself with the measurement of corporate net profit, to the virtual exclusion of other aspects of business activity." Such an observation implies that accountants either have not sought to do or are not doing an adequate job in tracing and registering the flow of funds, and it implies that the most complete and


\[\text{Cf. ante, p. 5.}\]
meaningful job in presenting general accounting information is not being done, therefore, for its users (external, but particularly internal users, i.e., managers). As observed above, the idea to be investigated and pursued further in this paper is not involved primarily with techniques and procedures but rather it is:

(1) A general re-examination of some of the general approaches to long-lived asset accounting, and

(2) A conscious development of the idea that when involved with such accounting pursuits the accountant is not dealing so much with material things but transient economic values.

The frequent use of "funds" which has been noted when inference to this flux (flow) of values is necessary leads to the conclusion that generally the term "funds" imparts to most a sensing of transiency. If this general connotation presently is employed (even though in general undefined), then an emphatic deliberate employment of the term may lead to an elucidation of the reports and analyses of financial accounting regarding long-lived assets. Any constructive clarification of reports makes them more usable. Making accounting reports and analyses more usable, therefore, is basic and very important to the direction and control of the individual firm, an individual segment of the economy as a whole. 15

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15 Cf. William J. Vatter, "Another Look at the 1957 Statement," The Accounting Review, Vol. XXXII, No. 4 (October, 1962), who, when discussing definitions, observes that "The issues of definition ought really to be based upon another consideration - whether or not the term is used in its ordinary or a specialized meaning. Thus when . . . used
This study uses the term "funds" in several different manners and these several ways are classified either as to source, nature or flow; in these several ways, it is to be borne in mind the underlying emphasis is on the transiency of the economic values being traced and analyzed. The classifications by nature and by flow are the most emphasized and used in this paper. The classification by nature follows from one of the now accepted definitions of funds - that funds are all financial resources. The funds, by nature, that are the object of study are those which have been identified by commitment with long-lived assets; in other words, one stratum of assets. Because of the flux of asset values, however, these specific assets cannot be isolated for consideration from all strata of assets of the firm and a flow in accounting (or anywhere else) it should carry only the meaning attached to it in ordinary language; when we use . . . a word in a restricted or technical sense, qualification and definition are required," p. 662, and these observations are annotated with, "No presentation should contain more than a minimum of technical definitions. The nearer we can come to saying what we mean in simple and direct language, the better. Not only will this produce a clearer understanding among those who prepare financial reports; the users of the reports may be enabled to understand a little more of what we are trying to present!" footnote 9, p. 662.


17 See the above definition of "capital," pp. 2-4.
classification is employed in defining and describing the activity characteristics of funds by nature. In tracing and identifying the spans of flows of these committed funds toward liquidity, two expressions are employed to identify the two basic phases beyond initial commitment; the term "funds" is incorporated as a part of these expressions for the purpose of emphasizing that the focal point is the transiency of economic values. Long-lived assets funds is used to define the time phase during which funds are evidenced by physical agents of future services (commonly referred to as an embodiment concept both in economic and accounting literature); depreciation funds is used to identify the activity phase of these funds. Unqualified, "depreciation funds" in this paper implies the adherence to the matching concept, that these funds are being accounted for as released into the stream of funds outflows (costs); qualified as "recouped depreciation funds" the term is

18Cf. "From the standpoint of asset funds . . . the effect of the accrual policy (where revenues are sufficient to cover all charges) is to acknowledge the shift of funds: from fixed assets to current assets . . . " Accountants' Handbook, op. cit., p. 744; and "The flow of funds refers to the transfer of economic values from one asset to another," Richard L. Smith, op. cit., p. 169.


20Cf. to the use of the expression "recovered plant funds" in the Accountants' Handbook, op. cit., p. 748.
used to observe these funds in funds inflows (revenues). 21

Without departing from general accounting procedures and practices, the "funds identification format" in reporting is introduced to emphasize the time dimension of the long-lived assets funds in the statement of position and the activity dimension of these depreciation funds in the income statement as well as correlating the two in the funds statement. For management it is hoped that this format may:

(1) Emphasize that "management must deal with assets, not with net income, an abstraction. Net income reflects increments in net assets." 22 Revenues have reference to the inflow of asset values, funds, and these, gross, are the objects of management's direction and control.

(2) Emphasize that commitments of funds to the identity of various assets of specific natures, the concern of this paper being long-lived assets, is done in the light of expectations regarding the future, that the present is a fruition (or a lack of realisation of expectations) of past commitments and this, continuously in its turn, warrants management's evaluation and continuous re-examination of the questions, "what can we do with what we have?" and "where do we go from here?"

21 Cf. "... expenses reflect outflows of capital for which an equivalent amount of revenue must be considered a return of capital;" Trumbull, op. cit., p. 27.

22 Horngren, op. cit., p. 120, emphasis added.
(3) Emphasize that not only does management constantly wrestle with new commitments anticipating the future but that it is living also with past commitments, the outcome of which is yet to be determined. Further, this determination in the future may or may not be subject to modification depending on whether or not the past commitments are of an adaptive nature in the present in the light of the future. Accounting not only seeks to aid management, through such techniques as capital budgeting, in arriving at a decision regarding new commitments, but also provides management with a statement of the present "mix" which is a blend of past commitments. In any "mix" there are certain basic ingredients that must be present and maintained if specific outcomes are the intent.

Within the framework of the income statement, the format is intended to shift emphasis from the "net" to the gross inflows and the cost factors expended to procure such revenues. Emphasis on the value of the assets as a commitment of purchasing power reserved to future


uses in procuring revenues and a more complete statement of the owners' equity in such asset values is the intended aim of the format in the statement of position. In the statement of funds and in capital budgeting, rather than passively grant replacement of long-lived assets as a continuous and commonplace process, to emphasize that the impact of depreciation charges on the current monetary accounts\(^\text{25}\) (which may be positive or negative) is the object of the use of the format. This repeated emphasis in these major accounting reports should raise repeatedly the question of the utilization of such recouped depreciation funds through deliberate and special policies. The latter is a question of such importance that it should not be resolved without management being completely cognizant of it and proceeding in a special and deliberate manner.\(^\text{26}\)

Initially an examination is made of the concepts of long-lived assets and their existence as reported through accounting expressions of their value. Such examination is expanded to include concepts of depreciation of these durable goods, and the applications of these concepts through depreciation accounting. Depreciation (and the accounting therefor) is treated as a consideration of prime importance in maintaining the real value of capital, i.e., the power to command.

Retained earnings, funds inflows and depreciation funds are scrutinized, primarily, from accounting and legal points of view. In


\(^{26}\)Cf. (vide p. 4 above), ibid., pp. 748-749.
light of the latter points of view, a side question is raised, are there pressures (or potential legal pressures) toward investing in long-lived assets? Very briefly Keynes' general theory is reviewed with respect to his particular emphasis on fiscal policy and government spending filling the gap left vacant by insufficient private investment in capital goods. That Keynes considered fiscal policy as the most important weapon against unemployment can be deduced and that such theorizing has had far reaching effects on our economy and, therefore, on the individual firm. There is a flexibility in Keynes' theory that is now being utilized. Whereas he primarily directed the application of his theory toward government spending in taking up the slack voluntary private investment in capital goods did not fill in pushing toward a level of full employment there is now a design to be investigated which, consciously or unconsciously, is to stimulate to a greater degree more private investment.

Tax implications, in general, are approached to ascertain whether there is evidence of politico-economic intent to shift the area of spending in an investing (spending) economy from fiscal policy and governmental spending to more sufficient private investment. Government is no longer just the framework expressing the existence of the body politic; it is an active entity operative at all levels and in all phases of economic activity.

... government has assumed far-reaching economic responsibility.

* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

Taxes are used to accomplish... overt or covert social ends.
Taxation is used to accomplish "brimful" employment... to promote or discourage certain types of economic activity... to promote the
investment of risk capital (via the capital gains provision). . . . to encourage a levelling of incomes via super-progressive rates and the abandonment of quid pro quo. The immense power of taxation gives aid to some and discourages others; it rewards the politically powerful at the expense of the politically weak. . . . taxation is . . . a weapon, and a powerful one, in the arsenal of government by which political means are used to accomplish economic ends. These are the aspects of taxation that are increasingly important.

In the maintenance of capital, taxes have assumed a primary importance and their effects, implied and real, merit serious consideration. Commencing with an incentive to invest overtone, to taxing the product of such investment, the consideration of taxes influences the whole of capital, from its formation and accumulation, to its utilization, to its disposal and replacement.

The investment credit, accelerated depreciation allowances and the reserve ratio test of the tax code are examined for their import in shifting some of the burden of investment from governmental to private shoulders given the premise that there is a correlation between investment in capital goods and employment. Effects of accelerated depreciation and the investment credit are scrutinized as to timing and for advantages, if any, in contributing to the recouping of depreciation funds. The use of the new guidelines and the application of the reserve ratio test receive specific attention with the thought beforehand that there are implied pressures which could be exerted to induce investment in capital goods.

In phase two, capital budgeting for replacement (reinvestment)
and expansion of capital goods is investigated. It is emphasized that
the more common techniques of capital budgeting inherently consider the
reccouping of the principal of the long-lived assets funds so committed. The tax influence investigated in phase one is still of import in such
procedures. From capital budgeting and the resultant decisions per-
taining to capital expenditures to the source of funds for such invest-
ment is the logical direction of investigation. Since the paper sets
out primarily to deal with long-lived assets funds derived from owners
and from internally generated sources of funds, the investigation is
led back to the original question expressed above - if the capital funds
consumed have been recovered, what are the conditions that contribute
to the situation wherein these funds "may be" available rather than
"are" available for reinvestment in depreciable assets?

A problem, revolving around "The Firm," is set forth and analyzed
in an extension of preceding discussion. The problem is evolved under
varying conditions pertaining to the accounting for and the managerial
directing of recouped depreciation funds in the light of accounting
reports and analyses. The question: "should operational budgeting pro-
vide the sought for funds, relatively speaking, fully provide the source
if the capital budgeting decision is reinvestment or maintenance of
present productivity (which may be a part of expansion decisions)?"

This paper is limited to considering owner investment and intern-
ally generated funds for use in the acquisition of long-lived assets;
it is not extended to the consideration of alternatives but rather the
considerations contained herein may be construed as an examination of
one alternative to the question of acquiring long-lived assets.

Much has been written and debated about the areas indicated; much controversy is evident. The intent of this investigation is to reconcile some of the relevant points contained in these writings and debates within the framework of an ordered hypothesis of funds. It is felt from such endeavor a reasonable answer can be obtained as to whether or not more or less emphasis on depreciation needs to be continued as a possible bridge between the depreciation of long-lived assets and the availability of funds for the maintenance of capital.
CHAPTER II

VALUES ASSIGNED BY ACCOUNTING DEFINE
COMMITMENT OF FUNDS TO LONG-LIVED ASSETS IDENTITY

If funds can be defined as all financial resources, it follows that within the composition of such an all inclusive pool there are various resources or strata of resources. This paper, as already indicated, proposes to trace and identify the spans of flow of funds committed to an identity by nature of long-lived assets. Figure 1 below is a schematic diagram emphasizing the particular flow which it is proposed will be traced and analyzed; the present chapter is concerned with the span of funds flow identified as "A" in the Figure. The problem of accounting for these particular funds encompasses two dimensions, the dimension of time and the dimension of activity. During the first phase the funds are physically evidenced by long-lived assets; the service benefits of the funds are passively embodied in these physical agents and the time dimension of the problem is of primary import.

In tracing the cycle or flow of funds identified with long-lived assets, the first facet of the problem encountered is the necessity of giving statement to the funds thus committed to such identity through the act of acquisition.\(^1\) These funds, because of commitment

---

\(^1\) Acquisition by purchase is the only form of the act of acquisition which is considered in this paper since an accounting statement of long-lived assets acquired by other means (e.g., gift or donation, exercise of credit, etc.) is not directly a matter needing investigation for present purposes. A statement of value subsequent to acquisition by such sundry other means would easily lend itself to adaptation of the discussions to follow.
Figure 1
Schematic Diagram of Study
The Flow of Long-Lived Assets Funds

- Tax Shield
- Depreciation Accounting
- Finished Goods
- Sales
- Receivables
- Funds Inflows
- Budgeting
- Dividends
- Other Investments
- Owners' Equity
- Debt Equity
- External Pressures
- Returns
- Etc.
to agents capable of rendering future service benefits, are committed to varying degrees of passiveness within the time dimension of their utility lives (i.e., utility to the firm). Within the activity dimension utilization of these service benefits gradually release these funds into the stream of funds outflows (costs) expended to procure funds inflows (revenues). A statement of the value of these funds through the different spans of their flow within the dimensions of time and activity is expressed by the accountant primarily in monetary terms. A statement of cost seems to be the most universal first approach to the value of these funds. Paton equates cost and value when he says,

Cost is not a mere figure. It is an economic measure, a value.
Cost is an amount of economic sacrifice incurred or economic force expended or committed.

---


3Paton, ibid. In subsequent discussions in this paper the influence of his further qualification of the above quote will be observed, and that is: "At the time the cost is incurred the figure
Even though this is an approach to the first span of flow, passive as it may be, of these funds to be traced, the need for expression of value of the funds thus committed pervades all subsequent asset accounting. In subsequent sections wherein the activity dimension of these funds will be dominant (i.e., depreciation funds within costs outflows and recouped depreciation funds within funds inflows or revenues), considerations of depreciation, primarily finding expression through depreciation accounting, will be a necessary object of investigation. In all considerations of depreciation, value is inextricably a major part of that to which such considerations are based. "The valuation of a depreciable agent is another aspect of the measurement of depreciation expense." For the purposes of this paper, therefore, the starting point is an examination of the concept(s) of value.

Some general concepts of value. Two things should underlie the pursuit of the definition of value, its origin and its continuation (whether maintained, appreciating or deprecating). The first accounting definitions of value have their origin in the past, expressed in terms of historic cost. Expanding and shifting of emphasis from the past to the present, as the time origin of values of long-lived assets, has given

recorded in the accounts is valid; with the change in the value of money it becomes invalid, as an expression of economic force, assuming that the reader is thinking in terms of current prices and measuring units." Ibid.

expression to accounting values in terms of current costs. Finally, with the shifting of emphasis to the future, value has become an expression of expectations. Accountants have come to grapple with the present and become more keenly aware of the future. With reference to the future, however, such conventions as verifiability, the oft-narrowly interpreted and applied conventions of objectiveness and a stable monetary unit, and because of occupation (sometimes preoccupation) with quantifying, the concept of the future as a conscious measure of value at the present time seems to find most favor in theory. It can be noted, however, that most who promulgate a statement of present or current valuing have commenced ideally with references to the future. Paton, with reference to replacement costs (used as present or current costs) versus historic cost, observed that there is more than a modicum of truth in the argument that those emphasizing

5Expressions of current costs as values have been sought variously through adjustments of historic cost through the use of index numbers, through current market prices (approached either as input or as exit costs), and through replacement costs (defined in sundry ways).

6This concept of value is frequently approached, most particularly in theory, by discounting to the present estimated future cash flows.

7For examples, the Accounting Research Study No. 3 of the A.I.C.P.A., commences with the expectations concept: "... the problem of measuring (pricing, valuing) an asset is the problem of measuring the future services ..." (p. 23). The need to quantify, however, must find expression in terms of money and suggestions as to solving this problem are advanced, such as the use of market prices, the use of index numbers or appraisals. Robert T. Sprouse and Maurice Moonits, A Tentative Set of Broad Accounting Principles for Business Enterprises, Accounting Research Study No. 3 (New York: American Institute of Certified Public Accountants, 1962), "Chapter 2, Measurement of Assets," pp. 23-36.
replacement cost over historic cost really are more strongly advancing the argument for adherence to cost "since replacement cost is of course likely to express actual economic commitment or sacrifice in terms of current dollars more closely than does original recorded cost." It is suggested that cost is an evaluation of future benefits discounted to date of acquisition (consciously or unconsciously) and equated to acquisition cost, otherwise it would not be worthwhile (profitable) to make the acquisition commitment.

Some concepts of accounting value are summarized in Figure 2 following. This Figure is in no way all inclusive, this lack seeming to result primarily from no general theories of value in accounting which are either individually exclusive or are the natural results of a traceable direct evolution. The conflicts which seem to manifest themselves in accounting endeavors to define value are: cost versus value, practical versus theoretical, subjective versus objectively verifiable, imputed versus discovered, generalized versus quantified. There is no tongue-in-cheek when under the second, third and fourth

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### Figure 2

#### SOME CONCEPTS OF ACCOUNTING VALUE

<table>
<thead>
<tr>
<th>Name</th>
<th>Source</th>
<th>Time</th>
<th>Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>HISTORIC COST</td>
<td>Cash or claims to cash surrendered at time of acquisition</td>
<td>Past</td>
<td>Economic sacrifice (value is a function of cost)</td>
</tr>
<tr>
<td>Objective</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CURRENT MARKET COST</td>
<td>Current market (value in exchange)</td>
<td>Present</td>
<td>Exchange value as determined in market (value is a function of cost)</td>
</tr>
<tr>
<td>Subjectively-objective</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REPLACEMENT COST</td>
<td>Current market of &quot;like&quot; asset devalued to present condition</td>
<td>Present</td>
<td>Market, which is a synthesis of many factors such as technology, expectations, imperfections of market, timing of decisions, supply of money, etc. (value is a function of market)</td>
</tr>
<tr>
<td>Subjectively-objective</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACCRETION INCOME CONCEPT</td>
<td>Economic power as appraised by the market</td>
<td>Present</td>
<td>Expectations as evaluated by the market (value is a function of market)</td>
</tr>
<tr>
<td>Subjectively-objective</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRESENT VALUE OF</td>
<td>Service potential Future benefits Expectations</td>
<td>Future</td>
<td>Future exchange values - if in terms of future incomes, then discounted to present (cost is a function of value)</td>
</tr>
<tr>
<td>FUTURE SERVICES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subjective</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Edwards and Bell recognize eighteen different concepts of market value.

approaches, in Figure 2, these are named as being "subjectively-objective." Market is indicated in all three cases as being the source of valuation; since perfect markets do not exist and used-asset markets, "to boot," are very spotty, without exception all concepts of value relying on the market have to be cognizant of such conditions. Alternatives to or means of estimating value must be offered, thus making the desired objectiveness subjectively qualified. With reference to the last column of the Figure, Paton's two approaches to valuation, i.e., cost or income, would be unsatisfactory because the approach is dependent upon the application by the user of the particular concept. The Figure does emphasize the general need to use qualifying adjectives whenever the term "value" is employed.

Underlying any concern with long-lived assets must be an understanding of how the particular expression acknowledging their existence is couched, and more particularly if the funds identified with the

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10Paton, "Valuation of the Business Enterprise," p. 28. "Costs" is balance sheet oriented with primary emphasis on the particular facility, and "income" is oriented in the concept of the going concern and emphasis is on valuation of the firm as a whole.


12Final definition of value for purposes of this paper is contained in the "Summary" of this chapter, pp. 34-35.
long-lived agents of future services are to be traced and analyzed.

Costs traditionally have been the medium of such expression. Paton submit[s] that cost is not merely a figure on a piece of paper. Accounting has used cost basically as

the best measure of initial value . . . but it doesn't at all follow that recorded cost continues to represent the original economic quantum when a change has taken place in the significance of the measuring unit itself. Cost is not a mere figure. It is an economic measure, a value. Cost is an amount of economic sacrifice incurred or economic force expended.

. . . it can be demonstrated that recorded dollar costs have ceased to serve the proper purposes of accounting.

For present purposes, the definition that "cost is an amount of economic sacrifice incurred or economic force expended" (above) should be emphasized and may be elaborated upon: (1) the acquiring of long-lived assets is economic sacrifice incurred or purchasing power foregone (is activity within the internal and/or internal-external environment) and (2) utilization of the assets' functional capacity (services) is economic force expended (is activity within the internal and external environments).

Applying such definition to long-lived assets funds

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Ibid., pp. 20, and 25-26, emphasis added.

Cf. post the above environments to the classifications of firm activity advanced in Chapter V, pp. 83-84.
encompasses both the time dimension and the activity dimension, both
dimensions having to be encompassed before liquid funds committed to
the long-lived assets funds identity can have regained a state that
may be defined as being liquid.

A specific concept of value. As suggested before, cost may be deemed,
in most cases, to be an objective expression of power to command being
surrendered to embodiment in long-lived agents of service at the time
of acquisition. Such power is committed only after due evaluation as
to whether the services the assets can render will produce future
revenues and/or reduce future costs. Subsequent to acquisition, in
tracing these funds committed to long-lived assets, it is necessary to
account for them proportionately in two positions in their flow toward
liquidity. The two positions or spans of funds flow are: the portion
of the funds values still embodied in the agents (their balance sheet
position) and the portion of the funds, relative to utilized services
of the agent, which have entered the stream of costs expended for
current revenues (their income statement position). The measuring
unit, the monetary unit, used to express such values does not possess
an inherent stability, nor does the demand expressed in specific prices
for such agents of service. The accountant, therefore, is confronted
with four questions for which he must seek a satisfactory answer in
tracing the funds identified with long-lived assets subsequent to their

17Cf. ante, p. 23 and footnote 9, p. 23.
date of acquisition:

(1) How much of the service potential remains unutilized, i.e., what service values are still embodied within the physical agent of service?

(2) How much of the service potential has been expended to produce current revenues?

(3) What is the magnitude of the monetary unit in terms of purchasing power in the present relative to its magnitude at time of acquisition of the long-lived agents?

(4) Has specific demand for such functional capacities changed?

Under static conditions answers to questions 3 and 4 would give evidence that no changes have occurred, that the purchasing power of the monetary unit has stabilized and that demand for the specific agents of service has attained stability. The concept of fixed assets funds under these conditions is pictured in Figure 3 below.
Historic cost is acquisition cost. Because of the static conditions pictured in Figure 3, acquisition or historic cost and a current cost for comparable functional capacities are the same in terms of the monetary unit.

Conditions under which purchasing power and specific demand have stabilized would be exceptional in the practical situation. The effect of one (i.e., purchasing power of the monetary unit or specific demand) stabilized and the other changing forms the basis of a set of two possible situations pictured in Figure 4, page 30. If conditions under "A" in Figure 4 and the accounting tack indicated were prevailing, then purchasing power, though fluctuating, would be maintained (ideally, free of taxation); under "B" purchasing power would be maintained because it is not fluctuating and the holding gain ideally would be reported separately. The holding gain, under the latter

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19 The accounting tack indicated in these Figures (i.e., Figures 3 and 4 and Figure 5 infra) gradually will be elaborated upon, to a degree, in subsequent chapters.


CONCEPT OF FIXED ASSETS FUNDS UNDER MODERATELY DYNAMIC CONDITIONS

A. CONDITIONS: Purchasing power changing
Specific demand constant

TIME MEASUREMENT

Historic (input) \( \times \) \{ Index of \ changed purchasing power \( \rightarrow \) Current (input) Costs

MEASUREMENT OF ACTIVITY

Current (exit) recouped Revenue (entry) Funds

B. CONDITIONS: Purchasing power constant
Specific demand changing

TIME MEASUREMENT

Historic (input) \( \times \) \{ Index of \ changed specific demand \( \rightarrow \) Current (input) Costs

MEASUREMENT OF ACTIVITY

Realizable holding gain
\{ current costs \ minus \( \) historic costs \}

Realized holding gain

Current (exit) recouped Revenue (entry) Funds
conditions, may be realized either through use (regular activity) or through sale of the asset(s) (irregular activity).

Before making a final statement of cost valuing of committed fixed assets funds, Figure 5, below, is presented as an elaboration

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Figure 5
CONCEPT OF FIXED ASSETS FUNDS
UNDER DYNAMIC CONDITIONS

Conditions: Purchasing power and specific demand changing, the changes being disproportionate

---

of cost under dynamic conditions where both purchasing power and
specific demand are changing and changing disproportionately. In
Figure 5, purchasing power is maintained as under conditions "A" in
Figure 4, although it is incognito\textsuperscript{22} in a current (input) cost arrived
at through application of an index of changed specific demand as
applied to historic (input) cost; holding gains realized receive their
same ideal, separate reporting as under conditions "B" in Figure 4.\textsuperscript{23}

The preceding Figures (i.e., Figures 3, 4 and 5) are employed
in the present chapter, primarily, to elaborate upon the effects of
the time dimension on funds while committed to the nature of long-
lived assets. Measurement of activity through depreciation accounting
is the pursuit of identification of the proportionate part of long-
lived assets funds with the utilized services of the assets, expended
to procure current revenues (funds inflows). The measurement of activity
is considered in succeeding chapters.

In Figures 3, 4 and 5, the two positions of the funds, referred
\textsuperscript{24}
to previously, are reflected: the balance sheet position primarily

\textsuperscript{22}Incognito: "under a name or title not calling for special

\textsuperscript{23}Cf. "An additional refinement within the 'holding gains and
losses' category would be secured by distinguishing between the effects
attributable to changes in the general price level and gains and losses
attributable to changes in the value of specific assets," Committee on
Concepts and Standards - Long-Lived Assets, American Accounting Associ-
ation, "Accounting for Land, Buildings, and Equipment, Supplementary
Statement No. 1" (supplementary to "Accounting and Reporting Standards
for Corporate Financial Statements: 1957 Revision"), The Accounting

\textsuperscript{24}Cf. ante, p. 27.
defined through the time measurement and the income statement position, through the measurement of activity. Neither measurement, however, is to be regarded as mutually exclusive; the time dimension encompasses the activity dimension, but whereas time is continuous activity is not necessarily continuous or uniform. Activity utilizing the services of the assets may be irregular and/or discrete. Accountants, in general, seem to adopt either the balance sheet approach or the income approach in recording, reporting and analyzing the progress of the firm. The latter approach seems to have gained most favor in recent years as evidenced by accounting literature. With reference to Figures 3, 4 and 5, the flow movement of the long-lived assets funds from a committed state in time through the activity of utilization in the flow toward liquidity through recoupment in operating revenue evidences that the problems of asset accounting and income accounting are co-existent. Accountants, in general, have been reluctant to reflect in the accounts and, therefore, in basic reports the changes in purchasing power and the effects of changes in specific demand. It has been and can be demonstrated that such changes can be incorporated into accounts and reports.\(^{25}\) Objections to such procedures must be

overcome; accountants are among the qualified groups who should be taking a lead in overcoming such objections.  

Summary. For purposes of this paper, cost values of the fixed-assets funds (proportionate parts positioned in the agent, as reported in the balance sheet, and in the flow of current cost, as reported in the statement of income) will be construed as current costs encompassing any changes in purchasing power as well as changes in specific demand for comparable functional capacity. The origin of value, in this context, is defined as the purchasing power committed at the time of acquisition of the asset, this commitment having been equated to the valuation of future benefits discounted to the present. The continuation of value is qualified jointly by changes in the purchasing power of the monetary unit (used to give expression to the existence of the assets) and by changes in specific demand for comparable functional capacity. With reference to the latter change, an adjustment arrived at through internal evaluation is contemplated as preferable since owner value probably varies from external valuations (e.g., market values). Owner value is an appraisal of value in the light of utility.

21 Cf. e.g., "I feel strongly that we should not damn theories solely because practical difficulties hinder their application. Life would get very dull if we did. Besides, if we can establish what is right in principle, we may then be able at least to move towards some workable compromise." W. T. Baxter, op. cit., p. 179; and Paul Grady, "Economic Depreciation in Income Taxation and in Accounting," The Journal of Accountancy, Vol. 107, No. 4 (April, 1959), pp. 54-60, wherein it is concluded: "The appraisal shibboleth should no longer stand in the way of proper accounting recognition of economic depreciation," p. 60.
to the entity. This concept of value is consistent if at the first step acquisition cost is accepted as an evaluation of the service potential of the facility to the user. Logic dictates that such evaluation has discounted these future service values to the present and has been quantified by original cost - such acquisition of future services would have been foregone had they had to be bought at "par" or at a "premium."
"Depreciation" appears to be a generally understood term; however, specific connotations attaching to it are functions of many factors. In all considerations of depreciation, value is inextricably a major part of that to which such considerations are based. Such valuation of depreciable agents was the subject of Chapter II.

To this point the funds embodied in or committed to the identity of future services within the nature of long-lived assets have been defined in terms of cost values. It has been noted that these funds are in a constant flux. Since the embodiment of these funds in physical agents persists through a period of time, the flow is dammed within these agents of future services (this could be referred to as a state of suspension). Utilization of these dammed services and/or the encroachments of time and obsolescence release these funds into the main stream of costs. This ebbing of funds is turned by meeting the revenue stream and the recoupment of funds is merged in this funds inflow, i.e., in the revenues.

The acquisition of revenues is of the reverse nature to the acquisition of the long-lived assets. In the latter case, liquidity was exchanged for an embodied funds; now the exchange is of embodied funds for liquidity. It should be borne in mind that there are varying
degrees of liquidity dependent upon the exchange effected, e.g., intermediate exchanges for finished goods, intermediate exchanges for receivables, intermediate exchanges for services, or direct exchanges for monetary units. The exchange of liquid funds for long-lived assets is, in effect, an intermediate exchange between liquid funds in the present and the inflow of liquid funds (revenues) in the future. The major difference between this intermediate exchange and others is the time element involved; the time involved is more extreme than in most other funds exchanges.

**Depreciation.** The present problem is to give statement as to how accounting defines the releasing of embodied funds into the stream of costs. Referring to the Schematic Diagram of Study, page 19, the present chapter shifts the consideration of long-lived assets funds to the span of funds flow identified as "B" in the Figure.

"Depreciation" defines the releasing of long-lived assets funds into the stream of costs; "depreciation accounting" defines the quantity of this release. Stated another way, depreciation is that portion of the agent's total cost, lagged initially because of future service potentials of the agent, which now has been identified with the agent's services expended through utilization. Using Figure 5, page 31, as a point of reference, activity is the object of measurement. This measurement is referred to variously as a measurement of expenditure, of consumption, of diminution of value of the long-lived assets funds. "Capital is a value magnitude, and is consumed as value is exhausted . . .
Depreciation is the exhaustion of capital value. In the next section, the purpose of depreciation accounting to define this degree of exhaustion is examined.

Depreciation accounting. Reference to the Schematic Diagram of Study, page 19, indicates the bend, so to speak, has been reached in the flow of funds identified with the long-lived assets. Accounting for depreciation is the accounting for the value which as utilized (consumed) becomes a part of the total costs of operations and which flows back into the firm in the revenue stream. Terborgh has stressed this transiency of the "nominally 'durable' but nevertheless ephemeral goods" and pointed out that depreciation policy is the way "to make financial provision against the wastage or consumption of durable assets. . ." ¹

This section in part is a consideration of depreciation accounting practices (policies), purportedly designed to account for the consumption of value in one form and thereby enable the accounting for


²Cf. the definition of "depreciation accounting" of Ralph Coughenour Jones, Effects of Price Level Changes on Business Income, Capital and Taxes (American Accounting Association, 1956), p. 150, "Depreciation accounting is simply a method of separating expired costs from unexpired costs or of differentiating between capital recoveries and net income," emphasis added.


⁴Ibid.
continuance of such value in another form. The accounting for depreciation is necessary so that diminutions of value may be charged against revenues in order to ascertain that all economic sacrifice has been offset, been recouped. "The central purpose of depreciation accounting is to allocate the cost of these long-lasting assets to the periods of use in a reasonable and orderly fashion." If why this is the central purpose is questioned, it first should be recalled that "economic sacrifice" has been imputed as one definition to the expression "cost." Boulding then answers the question: "Generally we should expect every diminution in an asset to result in a corresponding increase in some other asset." Many times this does not occur; however, this does not contradict the reasonableness of the statement "should expect" from the point of view of "expectations" of a going concern.

Turning again to Figure 5, page 31, based on prevailing economic conditions, the following will be imputed to the concept pictured therein:


Historic (input) cost ........ $10,000
Estimated residual value .......... 0-
Estimated time measurement ....... 5 years
Measurement of purchasing power commitments
and specific demand:

<table>
<thead>
<tr>
<th>End of Year</th>
<th>Indices of Changed Purchasing Power</th>
<th>Indices of Changed Specific Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>1</td>
<td>110</td>
<td>120</td>
</tr>
<tr>
<td>2</td>
<td>120</td>
<td>140</td>
</tr>
<tr>
<td>3</td>
<td>130</td>
<td>160</td>
</tr>
<tr>
<td>4</td>
<td>140</td>
<td>180</td>
</tr>
<tr>
<td>5</td>
<td>150</td>
<td>200</td>
</tr>
</tbody>
</table>

The schematic pattern of Figure 5 and the above information are used to show the 5-year life (straight-line depreciation pattern) in Figure 6, page 41.

In Figure 6, the depreciation charges (item "F") for the individual periods vary even though straight-line depreciation was the general method taken in computing the annual charges. The relative bases of comparison, indices of purchasing power and of specific demand, vary and, therefore, the computed charges vary. Edwards has observed this phenomena:

Clearly the periodic depreciation charge is subject to considerable variation depending upon the nature of the base selected and whether or not this base is variable over time. In addition, the equivocal nature of the time pattern to be applied to the base expands further the range of values that the depreciation charge could assume.7

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7Edgar O. Edwards, "Chapter 2, Depreciation and Maintenance of
Figure 6
CURRENT COST DEPRECIATION OF A 5-YEAR-LIVED ASSET
AND THE ASSOCIATED HOLDING GAINS

Year 1 + schematic pattern

(A) $10,000
Historic (input) Costs

(B) 110/100
(Index of changed purchasing power)

(C) $11,000
(Purchasing power held in)

(D) 120/100
(Index of changed specific demand)

(E) $12,000
(Current (input) Costs)

(G) $1,000/5 yrs.
Realizable holding gains

(H) $200
Holding gains realized

(I) Operating Revenue
Current (exit) costs recouped (entry) Funds

Year 2

(A) $10,000

(B) $12,000

(D) $11,000

(G) $1,000/5
$1,000/4

(F) $2,400
+ 500
+ 667
+ 1,000

Year 3

(A) $10,000

(B) $13,000

(D) $16,000

(G) $1,000/5
$1,000/4

(F) $2,400
+ 500
+ 667
+ 1,000

Year 4

(A) $10,000

(B) $11,000

(D) $18,000

(G) $1,000/5
$1,000/4

(F) $2,400
+ 500
+ 667
+ 1,000

Year 5

(A) $10,000

(B) $15,000

(D) $20,000

(G) $1,000/5
$1,000/4

(F) $2,400
+ 500
+ 667
+ 1,000
+ 2,000
The sum of the depreciation charges (item "F") is $20,000, and if the sum of capital gains realized (item "H"), $5,000, is offset against this, then the purchasing power, the economic funds committed, $15,000, has been retained and is present for management's directives. How depreciation charged affects the flow of total funds indirectly by affecting the flow of liquidity out of the firm in taxes is the subject of a subsequent section of this paper. The matter of emphasis at this point is that the above depreciation charges state that as long as there is economic income the above funds have reappeared in the form of other assets (were an economic loss the case the depreciation charges not only express a diminution of value embodied in the long-lived agents but also lend themselves to helping define a decrease in assets in other forms, a decrease in equity).


8 It can be demonstrated that price level increases reduce the effective rate of interest, that economic life varies directly with the rate of interest, and, therefore, under conditions of inflation there should be an increase in the rate of depreciation. Vide Howard D. Lowe, "The Essentials of a General Theory of Depreciation," The Accounting Review, Vol. XXXVIII, No. 2 (April, 1963), p. 300. Cf. the four proposals for accounting for depreciation by Paul Grady, "Economic Depreciation in Income Taxation and in Accounting," The Journal of Accountancy, Vol. 107, No. 4 (April, 1959), pp. 57-59.

9 Cf. post, pp. 118-119.

10 Cf. "A dollar of revenue, if distributed in terms of cost, must be distributed proportionately. . . . The only costs which are residual are the 'implicit' costs . . . ." William A. Paton, "Costs and Profits in Present Day Accounting," Paton on Accounting, edited by Herbert F. Taggart (Bureau of Business Research, Graduate School of Business Administration, The University of Michigan, 1964), pp. 315-316.
The premise of this chapter is that depreciation accounting defines the quantity of the depreciation cost flow into the total costs stream. To trace and analyze such flows it is necessary to comprehend "how much" has been determined to be present at given points. The present point in the flow of long-lived assets funds is the intermediate flow between embodiment in physical agents and the recoupment of the flow in revenues. A cursory examination, at least of depreciation accounting practices is necessary if the quantity (volume) of the flow at this point in the movement of the long-lived assets funds toward liquidity is to be appreciated.

**A cursory examination of depreciation accounting practices.** The factors contributing to depreciation most commonly have been expressed as the triumvirate of "wear," "tear," and "obsolescence." For purposes of this paper, these are reduced to two factors - "functional"¹¹ (embracing wear and tear) and "technological"¹² (embracing obsolescence in its ramifications). With reference to the latter, it suffices to note that the more rapid the technological advance the shorter the economic life of the asset.

In dealing with functional depreciation, a three-faceted problem

¹¹Functional: "having or serving a utilitarian purpose; capable of serving the purpose for which it was designed." *The Random House Dictionary of the English Language*, the unabridged edition (New York: Random House, Inc., 1967).

¹²Technological: "Econ. caused by technical advances in production methods," and economic: "Affecting or apt to affect the welfare of material resources." *Ibid.*
manifests itself; the three facets are: (1) cost, (2) tenure of use, and (3) residual value. This problem of depreciation accounting is most commonly tackled through a methodological approach; the most familiarly prescribed methods are straight-line, diminishing charges, sinking fund, and annuity methods.

The ease of approaching the problem through straight-line depreciation, and the hoped for resultant ease of understanding, therefore, has made for its acceptance as evidenced by its extensive application in practice.

Arguments for due weight to be extended to (1) the economic facts of life (i.e., generally that which is younger, which is newer, is more capable of serving the functional demands made upon it) and (2) the "usual" pattern of increasing repairs and maintenance costs, have brought forth methods of diminishing charges for depreciation. Examples of such methods are the sum-of-the-years' digits and the fixed percentage of diminishing value methods. The former is a simple arithmetic approach advanced as an answer to such arguments; the fixed percentage of the diminishing value is based upon an algebraic statement describing decline of value and utility. Hatfield succinctly summarizes with reference to these two methods when he observes that they give you decreasing depreciation charges but in themselves neither has anything "whatever to say in favor [or disfavor] of the particular series of decreasing charges secured . . . ."

---

Broadening of the demands on the representations made by the periodic depreciation charges to include interest on the amount of the capital utilized has called forth the annuity approaches. In tangling with the question of interest on capital, however, they omit other pertinent factors. The straight annuity approach supplies periodic depreciation charges which are still of equal amounts but are composed of two elements, the decline in the value of the capital employed plus an annual interest charge on the diminishing value of available employed capital. It is more expansive in its approach than the straight-line method in that it recognizes an implicit cost of capital. This implicit cost, however, is charged incognito under "depreciation expense" and, therefore, for the manufacturing entity is treated as a product cost rather than a period cost, while the credit for the interest on the funds recovered through revenues produced through normal operations is not deferred in applying the matching convention. The latter, for either the merchandising or manufacturing entity, is offset by the introduction of marked-up values of assets by an allowance for the implied interest. The sinking fund method of charging depreciation (no funding being implied here) is a variation of the annuity method in that the charges for depreciation are exclusive of the implicit interest, thus resulting in a pattern of charges that increase over the several periods of time charged for the utilization of the capital.

These methodological approaches employed in depreciation accounting should be a binding factor of the facets of the depreciation
problem, cost, tenure of use, and residual value. Referring to Figure 7, page 47, which graphically represents the patterns of the more generally discussed methods of depreciation and the corresponding carrying value of the asset, the dissimilarity between the two related curves (with the exception of the declining balance methods) is noted immediately. The conditioned thought is that depreciation as a charge against income assumes primary importance—according to most promulgations, valuation of the asset is not the intended function of depreciation accounting. The depreciation pattern, therefore, is to be selected in the light of income determinations. Such conditioned thought is primarily one of expediency (as such it will be treated accordingly in a subsequent section when dealing with expediencies dictated by outside influences, primarily tax code influences). The present concern is with the funds initially embodied in long-lived agents of service but now being released through use into the stream of funds outflows (costs). In this light depreciation can be construed only as a function of the factors which affect the functional capacity of the asset. Contrary to the above noted conditioned response to carrying value patterns of long-lived assets being a function of the expeditiously chosen depreciation pattern, the primary emphasis on the respective pairs of curves of Figure 7 is shifted from the depreciation curve to the carrying value curve.

When binding, "fitting," depreciation to a standardised curve, the several factors which affect the functional capacities of the assets, therefore, need to be emphasized as primary considerations
Figure 7. Patterns of: Depreciation & Carrying Value
in the process of quantifying depreciation. Cost of the agent is a joint cost and its contribution is diminished if other costs must be incurred and/or increased so that the agent's remaining services may be utilized. Time-usage implies a ramification of attentions. Is the utilization of the agent a function of time and/or use (including an acknowledgment of obsolescence encroachment) and, if either or both are factors, how may they be influenced by the incurring of the aforementioned other costs with which they are joint? Certain relatively close costs need more emphasis than perhaps they are accorded, e.g., one major item is the interest factor. The agent's longevity and, therefore, the employment of the agent's services beyond the present entails an implied cost of the value "suspended" in the agent. The adoption of an established depreciation accounting method should not be accomplished without due weight being extended to these factors which affect the functional capacities of the assets. It is reasonable to anticipate that in the given situation certain of the factors will be more dominant than others and the degree of relevance should aid in the analyzing of the particular situation. The approach to a selection of a standardized method of depreciation accounting, if it has been

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\(15\) Vide ante definition of "cost" for purposes of this paper, pp. 34-35.
determined such is to be used, should be one of reasonableness (this approach will be tempered also by outside influences, some of which are to be discussed in a subsequent section).

With the above thoughts in mind, one or two of the carrying value patterns, which are the result of the several more common depreciation accounting approaches, are to be considered. If, for the sake of analysis, only one of the factors is allowed to be dominant, the pattern of the carrying value is quite evident but becomes hazier in proportion to the compounding of factorial considerations. As an example, the asset which was depreciated by straight-line under the varying economic conditions of a changing purchasing power of the dollar and a varying specific demand for comparable functional capacity in Figure 6, page 41, is used; for simplicity the varying economic conditions already treated are held stable. The arbitrarily chosen straight-line approach in Figure 6 is justified if the asset were possessed of the characteristics of the time-honored "one-hoss shay." By token as each year of life lapsed the sum of the remaining years' services would be one less; its life (its carrying value) would be decreasing in equal annual amounts.16

Deviating from the above conditions, assume that the investment had been made based upon the forecast of revenues shown in Figure 8, page 50, and further there are no alternative investment opportunities, therefore, net revenue contributions are withdrawn at the close of the respective period. Is the straight-line pattern still reasonable? The

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Forecast revenues were based on an anticipated 10% return on investment; the cost was the sum of such revenue flows discounted to the present at 10%. The carrying value at the start of each subsequent period is the sum of the remaining anticipated net revenue contributions discounted to the present.\(^{17}\) The straight-line pattern is still reasonable because the above illustration was controlled ideally. The initial cost value equaled the sum of the future services discounted to the

---

\(^{17}\)These relationships may be defined as follows:

Let \(A\) = asset at beginning of period

\(E\) = expected net contribution to revenues

\(r\) = cost of capital (i.e., the rate of discount required to equate the stream of output values with the initial cost)

Arabic numerals used as subscripts denote respective periods of time

Then: 

\[
\begin{align*}
A_1 &= E_1/(1 + r) + E_2/(1 + r)^2 + \ldots + E_n/(1 + r)^n \\
A_2 &= E_2/(1 + r) + E_3/(1 + r)^2 + \ldots + E_n/(1 + r)^{n-1} \\
&\text{Or:} \\
A_2 &= A_1(1 + r) - E_1 \quad \text{And:} \\
A_n &= A_{n-1}(1 + r) - E_{n-1} \\
\text{Depreciation} &= A_{n-1} - A_n = E_{n-1} - A_{n-1}r
\end{align*}
\]

---

\(^{a}\)At the beginning of the respective period.

\(^{b}\)Contribution of "economic" income after all relevant operating costs other than depreciation.

\(^{c}\)After depreciation.
present; the rate of discount equaled the rate of return on investment; and the asset was depreciated over its economic life. Had these factors not been so selected the decline in capital value would not have paralleled the decline in service values. Vary any one or a combination of these factors and the pattern of the value decline of the above asset will vary. For example, refer to Figure 9, page 52: illustration "A" is a plotting of the data presented in Figure 8; compare illustration "B" in the Figure to "A" - the life in "B" was extended to double the original data. Other service value patterns and their corresponding depreciation curves (representing the decline in asset value) have been plotted also in Figure 9.

The emphasis of Figure 9 is that the depreciation pattern is a function of the decline of the potential service values of the agent, the capital value of the asset being the sum of the remaining service values discounted to the present. Bierman makes suggestions along these same lines:

... that a period should not be charged with an arbitrary amount, but rather the proper depreciation charge is determined at the moment the decision to invest is made. At that time the cash proceeds of the future are discounted back to the present and compared to the cost of the asset. In a sense the cost of the asset consists of the cost of purchasing the proceeds of different periods.18

**Figure 9**

**Depreciation Patterns Implied by Patterns of Service Values**

**Basic Data - All Graphs:**
- **Cost:** $10,000
- **Residual Value:** $0
- **Estimated Life:** 10 years
- **(in 'A', 5 years)**
- **Discount Rate:** 10%

**Definition:**
- **Capital Value:** Sum of remaining service values discounted to present.
- **Depreciation:** Declining by constant percentage of declining sum.
Analysis of the expected service flows of the asset indicates its particular depreciation pattern; this analysis is performed in a good many instances at the time the investment decision is made. If it is desired that such be "fitted" to a methodized depreciation curve, even visual fitting should serve the purpose reasonably well in most instances; for example, the specific depreciation curves in "C" and "E" of Figure 9 approximate reasonably the depreciation pattern of the sinking fund method.

Summary. In tracing the funds identified with long-lived assets, depreciation accounting defines how much of this funds has entered the costs total being expended for revenues. The quantity thus defined is a function of the factors affecting the functional capacity of the asset.

Adoption of a purely methodological approach to accounting for depreciation invites the criticism that "merely an argument of a [depreciation] method . . . has nothing whatever to say in favor of the particular series of charges secured . . .". The cost value of these funds committed to the nature of long-lived assets are quite logically

19Cf. "The formula utilized should be designed to yield depreciation estimates that roughly parallel the expected service pattern even though this may be determined only within very broad limits . . . it should be possible to select a systematic formula which will produce an acceptable approximation," Committee on Concepts and Standards - Long-Lived Assets, American Accounting Association, ibid., emphasis added.

20Cf. ante, Figure 7, page 47.
21Hatfield, loc. cit.
equated to purchasing power expended in the present for future services; an analysis of the factors affecting the functional capacity of the asset should enable financial accountants to make a reasonable statement of depreciation of these cost values. The concept which approaches asset cost values as a sum of the cost of future service benefits held in expectation of the future emphasizes that the former, once acquired, is a function of the course of these service benefits, that they are distinct but not mutually exclusive economic phenomena. In turn, this relationship emphasizes the relationship between the depreciation pattern and the asset carrying value pattern; the former is a function of the latter rather than the asset carrying value pattern being merely a result (a consequence) of the depreciation pattern.
CHAPTER IV

RETAINED EARNINGS, FUNDS INFLOWS
AND RECOUPED DEPRECIATION FUNDS

Funds identified with long-lived assets within the body of the firm commences with the acquisition of such assets. This acquisition necessitates not only an initial but a continuous statement of valuation of the funds committed to the long-lived assets identity. The initial problems of such a statement relate to the subject of "value," and as such, was discussed in Chapter II. It was observed that the valuation problem even more strongly manifests itself in the process of measuring activity, i.e., in defining the consumption of the services of the assets (utilization of the services and encroachments of obsolescence) in the course of activity through time. This span of long-lived assets funds is defined and quantified by depreciation accounting and was the primary subject of Chapter III.

Subsequent to consumption of the services of the assets the tide of flow of the cost values is turned by and becomes merged within the inflow of revenue funds. Assuming that these two statements of flows (i.e., statement of cost flows and of revenue flows) have found satisfactory expression, then the Schematic Diagram of Study, page 19, indicates the present point of analysis is of the span of funds flows identified as "C" in the Figure. Emphasis is shifted now to revenues, seeking, if possible, a reidentification therein of the funds identified with long-lived agents of service. At this point where revenues
and costs have been matched, employing conventional accounting pro-
cedures, the result is used as a qualification of owners' equity. This
would seem to indicate that the tracer of funds should follow the "net"
to the retained earnings account.

**Retained earnings.** General definitions of retained earnings have
tended to say the same thing, using generally the same expressions,
e.g.,

The accumulated net earnings of the corporation as reduced by
net losses, distributions to the owners, or transfers to paid-in
capital are called retained earnings. Barring restrictions that
may be imposed by law or by contractual agreement, the retained
earnings establish the amounts that may be withdrawn by the owners
as cash dividends. . . .

Even a cursory survey of definitions will confirm the universality\(^1\) of
this definition. In such a definition it is not so much what is said
but what is implied - retained earnings are available for use and the
common connotation attaching to "earnings" is "cash."\(^2\) There generally
is no emphasis or elaboration of the fact that "retained earnings" (in

\(^1\) Carl L. Moore and Robert K. Jaedicke, *Managerial Accounting*

\(^2\) "Universality" is qualified to extend primarily to American
practice. As a case in point, the C.I.C.A in its Research Bulletin
No. 11 says that contributions to a business and amounts earned in
the conduct of the business are the only sources of realized surplus.
Consequently, whatever surplus may not be included under the heading
contributed surplus must come under that of retained earnings . . ."
H. A. Finney and Herbert E. Miller, *Principles of Accounting, Inter-
mediate*, sixth edition, Canadian edition prepared by Kenneth F. Byrd

\(^3\) Cf. "accounting already goes a long way towards protecting
the liquid position. Its income concepts usually refuse to recognize
fact, all "right side" accounts of the statement of position) represent equities - sources of funds. ¹

The above observations have been made to forestall any suggestion that in following the flow of funds identified with long-lived agents of service such tracing should be continued to the resting place of the residual after matching revenues and their costs. Retained earnings are not funds; retained earnings are sources of funds and their emergence very strongly suggest that an increase in total funds (assets) has occurred with the inflow of revenues. This paper is concerned with the particular funds identified with long-lived assets through commitment to such nature - concerned with their origin and their continuation. The contribution of long-lived assets funds to increases in unrealized gains, and so ensure that cash equal to recognized gains is still - or could have been - available at balance sheet date for dividends. In fact, the cash may already have been re-invested, or it may be earmarked for future re-investment; if so, its non-availability can be explained . . ." W. T. Baxter, "General or Special Index? - Capital maintenance under changing prices," Journal UEC, Issue No. 3 (Düsseldorf, 1st July, 1967), pp. 177-178.

¹There is a trend toward dispelling this initial and usually lasting misconception. Finney and Miller insert "owners' equity" in their 1968 definition: "The retained earnings of a corporation is the portion of the owners' equity derived from income. It is the excess of the company's aggregate income since organization over all dividends distributed to stockholders," H. A. Finney and Herbert E. Miller, Principles of Financial Accounting, A Conceptual Approach (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1968), p. 42. Black, Champion and Brown, after a conventional definition, very strongly point out: "Retained Income is often mistakenly thought to be money available for the payment of dividends. Actually, Retained Income, like all other equity accounts, merely shows the sources from which business assets were derived. . . . Retained Income is only one of the sources of net assets in general." Homer A. Black, John E. Champion, and R. Gene Brown, Accounting in Business Decisions, Theory, Method, and Use, second edition (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1967), p. 214.
total assets funds as accounted for through income accounting and reflected in retained earnings is not the object of this study.

Before leaving the equity accounts it may serve well to emphasize the sources of funds: (1) creditors, (2) owners, (3) actions of managers, and (4) operations. With reference to the first source listed, the arguments for tapping such a source are well known; for many businesses it has become almost as permanent a source of funds as is owners' equity; this is beneficial to the firm if the rentals of such funds are less than the revenues generated by their employment. The distinction between the principal of the funds from this source as compared to that secured from owners and operations is that it is never a part of the corpus of the firm, demonstrable by projecting to maturity or call date without equal creditor financing being obtained at such time. Consider Figure 10, page 58. The contents are drastically simplified to emphasize the present comments (some of the overly simplified qualifications being: (1) the accounting is in strictly monetized units; (2) straight-line depreciation is the arbitrarily chosen depreciation method; and (3) all earnings after depreciation, financial expenses and taxes are withdrawn). The previous statement is reiterated in the light of the right-hand column of the statements in Figure 10—funds from creditor sources are not of themselves a part of the corpus of the firm. Only continued creditor financing assures that the condition pictured at the end of year 10 in the right-

\[5\] Vida post, Figure 13, p. 65.
hand column of the Figure will not occur; continued creditor financing is never guaranteed.

<table>
<thead>
<tr>
<th>Sources of funds used</th>
<th>Only owners' equity</th>
<th>Owner and creditors' equity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(as of beginning of year 1)</td>
<td></td>
</tr>
<tr>
<td>Working capital</td>
<td>$ 10,000</td>
<td>$ 10,000</td>
</tr>
<tr>
<td>Long-lived assets</td>
<td>10,000</td>
<td>10,000</td>
</tr>
<tr>
<td>Creditor equity</td>
<td>$ 20,000</td>
<td>$ 20,000</td>
</tr>
<tr>
<td>Owner equity</td>
<td>$ 20,000</td>
<td>$ 20,000</td>
</tr>
</tbody>
</table>

Addition of one further qualification to those underlying Figure 10 can lead to very different results and that is making provision for "buying" the creditor funds over the life of the obligations(s), i.e.,
only earnings after depreciation, financial expenses, taxes and funding of maturing liabilities are withdrawn (necessarily, earnings must be sufficient at least to cover these items). Recasting the last statement (under condition where owner and creditor funds are both employed), Figure 11 below is presented for consideration. The course of action

<table>
<thead>
<tr>
<th>STATEMENTS OF POSITION OF A FIRM EMPLOYING OWNER AND CREDITOR FUNDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>(as of end of year 10, immediately prior to retirement of debt)</td>
</tr>
<tr>
<td>Working capital ........................................... $ 20,000</td>
</tr>
<tr>
<td>Debt retirement fund ........................................... $ 10,000</td>
</tr>
<tr>
<td>Long-lived assets ........................................... $ 10,000</td>
</tr>
<tr>
<td>Less accumulated depreciation ................................ $ 0</td>
</tr>
<tr>
<td>Creditor equity (matured) ..................................... $ 10,000</td>
</tr>
<tr>
<td>Owner equity ....................................................... $ 20,000</td>
</tr>
<tr>
<td>(as of end of year 10 immediately following retirement of debt)</td>
</tr>
<tr>
<td>Working capital ........................................... $ 20,000</td>
</tr>
<tr>
<td>Long-lived assets ........................................... $ 10,000</td>
</tr>
<tr>
<td>Less accumulated depreciation ................................ $ 0</td>
</tr>
<tr>
<td>Owner equity ....................................................... $ 20,000</td>
</tr>
</tbody>
</table>

reflected therein results in the owners having "bought out" creditors through a voluntary long-term installment plan. It is conceded without argument that it is as much the exception to find a business voluntarily engaged in such a "forced saving" plan as it would be to find an
individual. Comparing the two Figures (Figure 10 and Figure 11) it may be observed that creditor funds are the element which provides the business entity with a leverage not enjoyed when only owners' equity is employed; continued use, however, of such funds is the result of several factors, internal as well as external. The above observations and statements should serve to emphasize that in the employment of either or both creditor funds and owner funds the principal amount of funds must be recouped before any increment, net of operating expenses plus rentals, accrues to the entity employing the funds.

Primarily, this study is concerned with the funds proceeding from three of the four sources enumerated above, i.e., owners' investment, actions of managers and operations. Even though the preceding illustrations have been advanced on a strictly unitized monetary basis, the thought that should prevail in all such considerations is that all funds constructively are power to command; the increments accruing through the exercise of such power only are obtained after the initial power is recouped and, if such increments do emerge through the exercise, they are generally the balance reflected in "retained earnings." It should be noted also (as has been inferred in earlier sections), these increments are really from a two-fold source - those directly resulting from operations, and those indirectly, from actions of managers.

6 The parallel is to the individual who borrows, places the funds in a savings account, uses the account as collateral for a loan and the interest on the savings account to defray the interest on the loan plus "forced" payment of the principal of the loan "out of pocket." Object: the savings balance accumulated through "forced" savings.
Throughout this Chapter, the terms "assets," "financial resources," "funds," "cost flows," and "depreciation (with all of its modifiers)" are used within the connotations defined in Chapters II and III. The incremental inflows, therefore, are assumed to be of an economic nature. If such considerations are not economically defined and stated, the case which exists in actual practice is:

When prices have risen appreciably since original investments in plant and facilities were made, a substantial proportion of net income as currently reported must be reinvested in the business in order to maintain assets at the same level of productivity at the end of a year as at the beginning.

This would necessitate further examination and qualification in this paper of what is intended to be implied by the balance referred to as "retained earnings."

Funds inflows. "Funds" already have been defined in various ways — from one extreme which is the narrow, specific concept of cash to the other extreme which is broad and general, that funds are all "financial resources." Somewhere in between flow the funds which are identified with long-lived assets, funds which because of their state of flux

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7 Cf. ante, "Summaries," pages 34-35 and 53-54.


9 Cf. "Funds, therefore, refers to economic values expressed in dollar measurements which are subject to the firm's jurisdiction. The reservoir of these values is described in the list of assets to which the funds have been committed." Richard L. Smith, Management through Accounting (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1965), p. 166.
change in their degree of liquidity at various points in their cycle.\footnote{10} For purposes of this paper having dealt with and dispensed with the increments reflected in retained earnings, the present focal point in tracing long-lived assets funds shifts to the inflow of funds\footnote{11} and to a "statement of revenues and recouped costs." It is to be emphasized immediately (since so many become overly concerned with the net reflected therein) the inflow of funds is the gross not the net revenue figure - it is that for which the costs were expended.

... the recovery or compensatory aspect of revenue ... is important to the concept [of revenue], for the revenue figure is expected to reflect customer acceptance of enterprise output by showing the (minimum) value placed on that output by those who are expected to pay for it. ... it should also be noted that revenue is more than mere compensation for the goods or services delivered; it presumably covers those services offered, whether or not they were actually received. ... \footnote{12}

Referring to Figure 12, page 64, which is a stylized, single-step income statement, revenues to date are first the recouping of the costs (expenses) enumerated; revenues are not impeded, hindered in their flow by other cost flows including continuing intermediate cost flows which have been set in their course by decisions of management (their final expending committed to the procuring of future revenues). At this point there are two types of funds flows being dealt with - funds outflows (costs) and funds inflows (revenues). An understanding of

\footnote{10}Cf. ante, pp. 9-11.

\footnote{11}Vide ante point "C" in the Schematic Diagram of Study, p. 19.

these types of funds flows reflected in Figure 12 below is necessary

Figure 12
STATEMENT OF REVENUES AND RECOUPED COSTS
For "period" ended

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues (including financial revenues)</td>
<td>$ XXXX</td>
</tr>
<tr>
<td>Less:</td>
<td></td>
</tr>
<tr>
<td>Cost of sales</td>
<td>$ XXXX</td>
</tr>
<tr>
<td>Operating expenses</td>
<td>XXX</td>
</tr>
<tr>
<td>Depreciation</td>
<td>XXX</td>
</tr>
<tr>
<td>Financial expenses</td>
<td>X</td>
</tr>
<tr>
<td>Taxes</td>
<td>XX XXX</td>
</tr>
<tr>
<td><strong>Net (economic) income</strong></td>
<td>$ XXX</td>
</tr>
</tbody>
</table>

at this point in order to avoid confusion. A redrawing of the Schematic Diagram of Study is designed with this purpose in mind (see Figure 13, page 65), the layout of which emphasizes these two primary types of funds flows as well as the primary sources of funds, as discussed

13 Within each type of funds flow there are intermediate movements, e.g., within funds outflows there are such intermediate (interrupted) flows, which suspend movement for a time, as the acquiring of inventories, the prepaying of expense items, as well as the acquisition of long-lived assets, etc., but which are nevertheless outflowing. Within funds inflows there are also interruptions in the flows toward liquidity, the most striking example being the detour through receivables. When any interrupted flow is reactivated, then its identity and tracing continue, such identity has not been lost because it was interrupted for a time. Referring to Figure 12, if the statement is for a manufacturing concern, depreciation is not only present and distinctly reported as a value cost charged against revenue but it is present also in the cost of sales figure, probably, the major portion. With reference to the latter (except under direct costing) the element of depreciation contained therein must be used to adjust the depreciation accounted for under operating costs if total depreciation charged
Figure 13. Sources, Natures and Flows of Funds
earlier. "Capital in transition becomes a flow of funds,"\# and until such flow is turned by demand into an inflow (a revenue flow) it is an outflow (a cost flow).

Funds inflows is the present span of funds flows under consideration at this point. The earlier Figure of a stylized income statement (Figure 12) lends itself to the expanded presentation of Figure 11, page 67, in tracing funds flows. Looking at the funds identification made in Figure 11, financial rentals are identified as "funds earned for creditors" in order to emphasize that whereas they are a part of total funds inflows their residence within the entity is temporary, i.e., they are revenues earned for and distributable to the liability equity. They are committed in that prior actions at prior times committed them as earnings for the creditor equity; for example, interest on notes and bonds payable - commitment to earning such revenues was made when the instruments of borrowing were entered into. "Funds

\#Smith, op. cit., p. 170.

in the statement is to be evident in studying the recouping of depreciation funds. The inventory which remains unsold, is eliminated in computing cost of sales and is reported as an asset (a suspended funds outflow - a part of which is depreciation) in the statement of position (an asset is an agent for providing future benefits and the depreciation therein is an element of funds identified with long-lived agents, still possessing the capability of producing future benefits). When in a subsequent period the inventory costs complete their outflow movement and are recouped, re-enter the firm in the revenue stream, a part of such inflow conventionally defined by cost of sales is an element of depreciation rather than being representative entirely of working capital recouped. For the non-manufacturing firm, depreciation is defined entirely under operating expense; for the manufacturing firm it is an added ramification of the problem of lagging costs.
earned for government" (commonly referred to as taxes) are a portion of total inflows earned for and distributable to another equity, having

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Table:

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<thead>
<tr>
<th>Condensed Conventional Format</th>
<th>Funds Identification Format</th>
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<tbody>
<tr>
<td><strong>Revenues (including financial revenues)</strong></td>
<td><strong>Total &quot;activity&quot; funds inflows</strong></td>
</tr>
<tr>
<td><strong>Less:</strong></td>
<td><strong>Types of &quot;activity&quot; funds inflows:</strong></td>
</tr>
<tr>
<td>Cost of sales</td>
<td>Cost of sales(^a)</td>
</tr>
<tr>
<td>Operating expenses</td>
<td>Other necessarily incurred costs</td>
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<tr>
<td>Depreciation</td>
<td>Recouped depreciation funds(^b)</td>
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<td>Financial expenses</td>
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<tr>
<td>Net income</td>
<td>Incremental &quot;activity&quot; funds inflows</td>
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<tr>
<td></td>
<td>Total &quot;activity&quot; funds inflows</td>
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\(^a\)For the manufacturing concern this is qualified by the observations noted in footnote 13, pages 64 and 66.

\(^b\)As defined and illustrated in Figures 5 and 6, pages 31 and 41, respectively.

been defined in fact in advance and in amount contingent upon the earning of taxable income, i.e., advance commitment to earning a part of net revenues for bodies having the power to levy taxes is a part of the "privilege" of engaging in business.\(^{15}\) The residence of these

\(^{15}\)cf. Sidney Davidson, "Accelerated Depreciation and the
inflows, too, is temporary within the firm. Some of the discretionary aspects that are present as regards the amount of taxes will be considered in subsequent sections. With reference to funds denoted as "working capital funds" in Figure 14 (for the manufacturing concern as qualified by footnote 13) it suffices to observe in passing that working capital funds have been recouped to function another day, another time as such.

Recouped depreciation funds. Further elaboration may prove worthwhile with reference to recouped depreciation funds and economic funds inflows. That depreciation funds must be recouped as well as all other costs outflows expended for revenues before any economic increment in assets accrues to the entity is accepted generally without debate. Finney and Miller say, "The economic capital of a business - its capital, not in dollars, but in things - must be maintained before there is any economic income"; by implication, therefore, in total income a portion must be a re-entry of depreciation funds (commonly called capital funds). Dicksee very early noted:

The particular issue that has to be faced in the case of every business concern is that . . . provision must . . . be made for the maintenance of its fixed assets, if it be desired that the business


17 Finney and Miller, op. cit., p. 357.
shall retain its permanent character; and if this end is to be assured, it is further necessary that the fair and reasonable charges in respect of such provision should be debited against each year's profits, . . . By no other means is it possible to insure reasonably stable income, revenue or profit, that may properly be divided, or otherwise taken out of the business, without detriment to its continued permanence.18

By implication, a part of total revenue inflows are recouped depreciation funds and unless accounted for and directed will be allowed to enter into a singularly common identity, assets. Canning also makes reference to these funds flows:

Rights to, or in, things and persons are, in economic essence, rights to benefit by their services. These rights are divisible and transferable in innumerable ways. It is through the processes of dividing, transferring, and recombining of rights that we chiefly regulate the flow or succession of those scarce, desirable events called Income.19

In the presentation of the statement of revenues and recouped costs (most frequently called an income statement) a report as to the income occasioned by the events utilizing "stocks of services" is made. Canning points out that the accountant's general perspective of this flow is from below, near the mouth of the stream, looking back up against the current, and as a result "where it ultimately came from is a lesser concern than how much of it appears recently to have passed and how much of it appears to be coming and when it is likely to arrive."20


20 Ibid., pp. 161-162.
This flow between long-lived assets funds and funds approximating a more liquid state generally is recognized;\(^{21}\) accountants need to continue their pursuit of the tracing of these economic values from one asset to another and to emphasize this flux for management. Particularly, accountants need to emphasize for management the span of flow

\(^{21}\)Cf. to the continuous references to the flux in funds over a relatively long period of accounting literature. For example: 

"... if a decline in the value of one asset has not resulted in a net loss, there must ... be an equivalent increase in the value of another asset. The presence of an Allowance for Depreciation account, signifies then, the substitution of some new, presumably some floating asset in place of part of the value of one of the fixed assets." Henry Rand Hatfield, Accounting, Its Principles and Problems (New York: D. Appleton-Century Company, 1927), p. 111, emphasis added; among "the principal sources of working capital are: ... (c) conversion of fixed assets through depreciation, ... in periods of depression ... If working capital is to be maintained it must be done by the conversion of fixed assets through depreciation or the sale of securities held as investments." Earl A. Sailer, Depreciation, Principles and Applications, third edition (New York: The Ronald Press Company, 1939), p. 107, emphasis added; "From the standpoint of asset funds ... the effect of the accrual policy (where revenues are sufficient to cover all charges) is to acknowledge the shift of funds from fixed assets to current assets, and to raise the question of the utilization of such converted funds." William A. Paton (ed.), Accountants' Handbook, third edition (New York: The Ronald Press Company, 1948), p. 744, emphasis added; when "funds" is defined as working capital, it can be maintained that depreciation represents a transfer from 'fixed capital' to working capital ..." Footnote 8, page 60, and the "portion of the cash flow associated with the accounting for depreciation ... is merely a part of the cycle of (1) investment in an asset, (2) recovery of the cost from revenue-earning operations (disinvestment), and (3) reinvestment." page 39, Perry Mason, "Cash Flow" Analysis and the Funds Statement, Accounting Research Study No. 2 (New York: American Institute of Certified Public Accountants, 1961); "... structural changes in other working-capital items may tend to absorb changes in long-term items with neither being adequately reported." Hector R. Anton, Accounting for the Flow of Funds (New York: Houghton Mifflin Company, 1962), p. 32, emphasis added; and "shifts, over-all funds," Park and Gladson, op. cit., pp. 12iff. These examples could be continued indefinitely, but these will suffice for sake of emphasis.
wherein these committed funds once again have attained relative liquidity and are available currently for a variety of uses including reinvestment or re-commitment to the nature of long-lived assets funds. In tracing funds flows, the opposite direction (i.e., opposite from the one noted by Canning) is faced and the noting of the long-lived assets values which have re-entered the flow of funds, now the revenue flow, is the pertinent observation, particularly if a part of the function of accounting is of a service nature, providing financial information to management.

To this point traditional funds analyses (primarily engaged in within the framework of the statement of sources and applications of funds) have been avoided, one of the intentions of such avoidance being to emphasize that all costs, each of which is possessed of a specific nature, must be recouped. For present purposes, traditional funds analyses are dismissed on the grounds that: (1) by adding back depreciation charges, with no subsequent follow through, the implication of the commonness of the funds inflows causes the emphasis that "in the inflows recouped depreciation funds are present" to be lost, and (2) by implication, depreciation has no affect whatsoever on funds flows. 22 Although Horngren is referring to traditional fund-flow approaches, he emphatically notes:

A part of funds provided by operations [i.e., revenues after current expenses are met] is considered to be the recovery of past

outlays for fixed assets. This recovery (depreciation) is, or should be, devoted to paying off the long-term debt which arose from prior expenditures, or else applied to maintaining or enhancing physical capacity. Thus depreciation is considered to be something special which is related to outlays for fixed assets.\(^{23}\) Horngren further notes that the final or residual difference may be employed in a variety of manners, but the inflows of funds in part are recouped depreciation funds. Further emphasis in this direction is

Management must deal with assets, not with net income, an abstraction. Net income reflects increments in net assets. A realistic interpretation of income relates it to dividends, replacement of fixed assets, retirement of long-term debt, and plans for diversification and expansion.\(^{24}\)

The net figure (the "incremental 'activity' funds inflow" of Figure 14, page 67), which so frequently receives undue emphasis, may be available for replacement of fixed assets but depreciation funds have been recouped in the gross inflow. If economic accounting of such flows is made, then management will be cognizant that so much of the service values of the long-lived agents have been used and recouped. This may serve further to emphasize the maintenance of capital\(^{25}\) rather


\(^{24}\) Ibid., pp. 120-121, emphasis added.

\(^{25}\) Cf. "Depreciation ... usually an important element in the measurement of income from ordinary operations. Income from ordinary operations should represent an amount, in current dollars, which ... is available for distribution outside the firm without contraction of the level of its operating capacity ... in order to continue operations without contracting the level of operating capacity, exhausted services must be restored ..." Committee on Concepts and Standards - Long-Lived Assets, American Accounting Association, "Accounting for Land, Buildings, and Equipment, Supplementary Statement No. 1" (supplementary to "Accounting and Reporting Standards for Corporate Financial
than allowing capital funds to flow into the common assets funds without due recognition of their nature, their presence, and, as a consequence, their loss of identity (as Terboorgh expresses it, their "wastage or consumption"\textsuperscript{26}).

In Mason's companion articles,\textsuperscript{27} there are several points which are enumerated here since they are valid support of the "funds approach" to redefining total funds inflows (gross revenues), as presented in Figure Iii. As well as a brief summation of Mason's conclusions, drawn with respect to the "financial aspects of depreciation accounting," certain views of Graham, as well as McLean, are incorporated at several points, along with a further elaboration of the emphasis of the nature of funds intended by the "funds identification format."

1. Mere record keeping does not affect an inflow of funds, "the increase of depreciation [charges] will not increase the gross income and the omission of an entry for depreciation will not decrease it."\textsuperscript{28}

Prior to this statement Mason has noted the effect of depreciation in

\begin{footnotesize}
\begin{enumerate}
\item Perry Mason, "The Financial Aspects of Depreciation Accounting," The Accounting Review, Vol. X (September, 1935), pp. 238-246, and "Depreciation and the Financing of Replacements," The Accounting Review, Vol. X (December, 1935), pp. 318-324. (The points enumerated in this paper are from the earlier article but since the latter was a consequence of the September article, attention is called to both articles.)
\item Mason, "The Financial Aspects of Depreciation Accounting," ibid., p. 245.
\end{enumerate}
\end{footnotesize}
so far as it may have helped in the determination of the selling price of a product. McLean notes "the mere act of recording depreciation produces no cash. However, if depreciation policies affect an increase in funds provided by revenue-producing activities, then depreciation is the factor primarily responsible for these incremental funds and the sales activity is only the mechanism by which they are collected."\(^{29}\)

The same general principle, extended further to include management activity, is expressed by Graham: "There will be no change whatsoever in the amount of . . . available funds unless the change in depreciation policy is reflected in a management decision that affects an income item, an expense item (other than depreciation expense) or the amount of dividends paid. But of course depreciation policy does influence management decisions. This is one of the primary reasons for a sound depreciation policy."\(^ {30}\)

The insistence on the depreciation charge in the "funds identification format" is a must as a follow-through to such a primary reason for a sound depreciation policy. Such insistence in no way implies any affect on the magnitude of gross funds inflows but rather seeks to define by nature a respective portion of such gross funds inflows as recouped depreciation funds (recouped long-lived assets funds, capital funds), an application of a law of nature that like kinds beget like kinds. The emphasis is not only that the funds are available,

\(^{29}\)McLean, op. cit., p. 74

have been recouped for subsequent re-employment but the nature by
"ultimate source"\textsuperscript{31} of the funds available.

2. "The deduction of depreciation from gross income does not
involve an expenditure of funds, so the funds received in connection
with sales and other income will to this extent be retained in the
business."\textsuperscript{32} Graham notes "if the selling price of the product or ser-
vice is at least sufficient to cover all costs, including a proper
charge for depreciation - the cost of the capital consumed - the actual
sale of the product . . . does recover all costs . . . including the
costs of the capital consumed."\textsuperscript{33} The primary intent of the "funds
identification format" is to emphasize this retention and to call
management's attention specifically to this recovery of capital funds
before allowing them to become merged in the common assets funds;
there can be no quarrel with management's decision to allow such a
merger, time and subsequent events will render the value judgments about
such decisions, but such judgments are evaluations of decisions of a
preferred order if the object of such have proceeded from conscious
management actions.

The above, to a very large degree, is overly simplified. The
primary intent of the "funds identification format" stands.\textsuperscript{34} It is

\textsuperscript{31}Cf. ante the use of this expression, page 69 (specifically the
quotation from Canning as annotated by footnote 20).

\textsuperscript{32}Mason, loc. cit.

\textsuperscript{33}Graham, op. cit., p. 369, emphasis added.

\textsuperscript{34}Cf. preceding paragraph and ante, pp. 11-13.
to be emphasized that in most cases, with reference to the item "re-
couped depreciation funds," the analysis for management will have to
be carried further, and this can be best accomplished (in all proba-
bility) within the framework of fund flow statements. There are ex-
changes (expenditures), at some point(s) in time, of liquid funds for
the long-lived assets and some of these will have taken place in the
present, some to take place in the future as well as some having taken
place in the past. The answer to the question, of total recouped
depreciation funds how much shift in funds between common assets funds
and funds of the nature of long-lived assets has occurred? must be
given in the light of such considerations.

3. "The recording of depreciation . . . is not necessary as far
as the retention of assets in the business is concerned, providing the
amount of dividends is limited to the income in excess of the amount of
the depreciation." McLean, talking about corporate dividend policies
and depreciation, observes that "any factor [depreciation specifically]
which influences this policy [dividend policy] in such a manner as to
decrease dividend payout, is, at least indirectly, responsible for

35 This is treated more extensively in Chapter VII, vide post,
pp. 144-151.

36 Cf. William A. Paton, "The 'Cash-Flow' Illusion," The Account-
ing Review, Vol. XXXVIII, No. 2 (April, 1963), and his discussion of "the
problem of sorting current revenue deductions into two pools, (1) charges
reflecting current expenditures and (2) charges representing expenditures
of earlier or later periods . . ." pp. 247-251.

37 Mason, loc. cit., emphasis added.
retention of a larger supply of funds."\(^{38}\) Depreciation, as a definition of a part of the costs recouped, in reporting by accounting contributes actively to apprising management of the various natures of the funds inflows and hopefully helps avoid the paying out of capital funds under the guise of dividends as well as possible dilution of capital funds by deployment.

\(^{4}\) "The assets retained as a result of the recording of depreciation will not automatically be accumulated in a funds waiting to be invested. . . . The 'investment' of retained funds, then is usually an automatic rather than a conscious process; . . ."\(^{39}\) Graham is led to a similar conclusion, "that an appropriate depreciation charge tends to 'recover' the cost of the capital consumed and to make funds available for increases in . . . [given types of] assets, including the current 'equivalent' replacement of the capital consumed."\(^{40}\) Neither goes further, however, and makes any suggestions which, if implemented, would make management conscious of these "retained," these "currently available" funds. The individual firm, as conceived and as it grows (sometimes attaining a static state and sometimes, a declining state), must continuously be defined in terms of the purpose(s) of the firm and the form and quantity of assets necessary to attain such ends. It is implied in no way that a singularity of purpose, without diversification

\(^{38}\) McLean, op. cit., p. 76.

\(^{39}\) Mason, loc. cit.

\(^{40}\) Graham, op. cit., p. 370.
and without alteration is desirable.

It is suggested strongly, however, that as a firm continues to function and hopefully to expand within its own environments and other environments (markets), there is a certain body of assets which must be maintained intact even when considering the adaptive changes in purposes manifested by change in products and/or services. Accounting for and the direction and control of these basic (minimum) long-lived assets funds is of major importance to all segments of the economy, taken individually and collectively, commencing with the firm itself. It is further suggested that conscious management is more apt to function responsibly than automatic management in considering the re-employment by re-commitment of recouped depreciation funds to the nature of long-lived assets funds as one alternative in the resolving of the problem of maintaining capital intact. Management's consciousness, to a very great degree, is dependent upon enlightenment by accounting; accounting must de-emphasize net income for management so that management continuously recognizes it "must deal with assets, not with net income, an abstraction."

5. Mason's fifth conclusion is with reference to the manufacturing

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41 The major composition of this body of assets, for classification purposes, the accountant reduces to "working capital" and "long-lived assets."

42 Exception again is taken to statements that refer to the reinvestment of funds as "continuous and commonplace," Accountants' Handbook, pp. 748-749, or an "automatic rather than a conscious process," Mason, loc. cit. Cf. ante, pp. 4-6.

43 Horngren, loc. cit.
entity and the intermediate suspension of depreciation in inventories. This has been treated in this paper in footnote 13, page 64, as continued to page 66.

6. "If the gross income does not cover all of the expenses ... [or] if there is a net loss which is equal to or greater than the amount of depreciation charged off, the depreciation entry could be omitted without any effect upon the amount of available funds."\(^\text{44}\) Omission, however, has two effects on good accounting reporting, as well as a clear reflection in management's decisions:

(a) the fact that a part of whatever gross funds do flow in are partial recoveries of capital funds would be completely obscured,\(^\text{45}\) and

(b) in the event of loss, depreciation charges, over and above expressing a diminution of value embodied in long-lived assets, should be reported so that total definition of decrease in assets is made.\(^\text{46}\)

7. "The cumulative effect of recording depreciation is consistent with the effect upon any one period."\(^\text{47}\) Graham emphasizes the immediacy of Mason's "any one period" when observing "any effect of

\(^{\text{44}}\)Mason, loc. cit.


\(^{\text{46}}\)Cf. ante, p. 42.

\(^{\text{47}}\)Mason, loc. cit.
depreciation on funds for replacement is immediate - in the current year; these funds are available currently for the purchase of depreciable property.\textsuperscript{48} This is one of the main purposes in suggesting that, rather than is done in conventional accounting where both kinds of funds flows - cost and revenue - are described in the income statement, a much more utilitarian report for management's purposes (primarily) is obtained if the emphasis is on the inflow aspect of funds, gross inflows being redefined by the nature of their "ultimate source" as defined by the costs outflows charged in the conventional statement approach.\textsuperscript{49}

8. Mason's final conclusion is that "these financial aspects of depreciation accounting may be utilized in the administration of the financial budget."\textsuperscript{50} With respect to this statement observations are deferred to Chapter VI where the purpose is to delve into such utilization of these aspects, and to carry them beyond the "may be available" state, in conjunction with budgeting and also in further considerations of the conventional funds flow statements in Chapter VII.

\textbf{Summary.} The general attitude toward assets was defined in the Eisner v. Macomber opinion; when describing assets the succinct expression

\textsuperscript{48}Graham, op. cit., p. 369, emphasis added. Cf. ante, p. 1, the statement made by Graham which raised the primary question investigated in this paper.

\textsuperscript{49}Cf. ante, pp. 6ff.

\textsuperscript{50}Mason, op. cit., p. 246.
"common fund" was used.\textsuperscript{51} Referring to Figure 13, page 65, it is to be noted how much more effectively "common assets funds" describes the pool of assets, which cannot be defined either as long-lived assets or those other necessarily acquired assets to be used directly in procuring revenues, than the simple term "assets."

At the common assets funds stage of the flows of funds, the distinguishing natures of various assets funds are obscured by the allowed commonness of the pool. In their continuous flow toward liquidity\textsuperscript{52} all financial resources (funds) in traditional accounting reporting approach this commonness thus allowing the nature of different types of funds to become obscured. In tracing funds identified with long-lived assets this merging is the crucial point. If these funds are allowed to flow into the common pool without specific identification and direction a loss of identity is the result, rather than being committed and possessed of a specific nature they assume a common identity.

In this section, considering funds inflows proceeding from sales (sales may be either ordinary or extraordinary\textsuperscript{53}) the intent has been to emphasize that these gross inflows represent a recouping of specific costs flows and by the very nature of the different costs flows recouped

\textsuperscript{51}Eisner, Internal Revenue Collector v. Macomber, 252 U. S. 189 (1920).

\textsuperscript{52}Strictly speaking, there are concurrent flows - flows away from and flows toward liquidity. If an outflow is allowed, however, in reasonable anticipation of recouping such, then overall the flows are really one and is toward liquidity, the end intent.

\textsuperscript{53}Cf. ante to "regular" and "irregular" activity, p. 31
the inflows are definable as to possessing the sundry natures. As previously indicated, there is no intended quarrel with management if it decides that the recouped assets should assume the nature of common assets, but it is very strongly argued that such decision should be a conscious act of management. Only if management received enlightenment from accounting (primarily, via accounting reports) can this be a conscious and deliberate, rather than an unconscious and automatic, decision.
CHAPTER V

LEGAL INCENTIVES TO COMMIT FUNDS

TO IDENTITY OF LONG-LIVED ASSETS

"The prime function of accounting is to provide the informational basis for action."1 Approaching the point in funds inflows where management is confronted with determining the directives of deployment which will set the further course of these financial resources (as well as funds which already may be in the common assets funds), it is necessary to recognize that internal considerations (internal by orientation and resolution) are not the only types of considerations confronting management. Even if the many alternatives which must be weighted in issuing company-directives involved only two types of circumstances -

(1) those circumstances which are internal, and

(2) those circumstances which embrace external factors but which are controllable to the extent that the firm is always a party to the determining of the magnitude of their effects - the implementation of management's function and accounting's reporting in an advisory capacity would be relatively less complicated than is the case.

It would seem, however, by orientation and resolution the types of considerations of which management must be cognizant embrace a

three-fold classification of firm activity. The classifications of firm activity are not and cannot be construed as being mutually exclusive in any sense. These considerations are:

1. Considerations oriented to the firm's internal activity (all problems emanating from such activity are resolvable hopefully within this frame of reference, practically, however, only by reference also to the activity defined by the other two classifications are they resolvable),

2. Considerations oriented to the firm's external competitive activity (problems arising out of this area must be resolved not only within this frame of reference but also with reference to the activity defined by the other two classifications, however, the firm is always a party to the determination of the magnitude of final results), and

3. Considerations oriented to the politico-economic environments in which the firm's activity must be conducted (the politico-economic systems are the causes of effects to which the firm is subject). 2

2 By way of elaboration of this three-fold classification to form a framework of reference for considering the problems management must consider in its decision making processes, take a simple case of equipment presently owned. Economically it is feasible to operate and yet economic utilization can be improved by plant rearrangement. Orientation of the problem is to the firm's internal activity, yet in seeking a resolution of the problem the directions of analysis of the problem will have to be extended to the degree they will embrace all three of the firm's activity environments. Possible cost savings will be determinable by reference to the internal environment but not without giving due considerations, for example, to covenants of any existing labor union
It is the latter type of firm policy-making considerations that is the subject of the present chapter. Such considerations are of the nature that management will seek informational sources beyond accounting; but in that these considerations must be a part of management's thought processes, accountants need to be equally aware and knowledgeable in order to be of assistance to management. It also is to be noted, incorporation of considerations of this nature in management's decisions will find ultimate reflection in the several functions of accounting.

As observed, the revenue inflows either proceed into the pool of common assets funds or management by definition directs their flow once again into the course which has been traced thus far: physical agent of service, depreciation and outflow in the costs stream, and re-entry in the revenue inflows obtained through sales. Before specifically considering the accounting-management approaches to determining the subsequent nature of the inflows, the general or politico-economic environment is briefly considered. This is the environment from which agreements; the possible effect on sales and revenues will be oriented to the external competitive environment; and weighing of effects on revenues will necessarily be extended to an instrument which is the product of the politico-economic environment of the firm, the tax code. With a little thought, further ramifications would manifest themselves.


4The particular phase is indicated briefly as "budgeting" in the Schematic Diagram of Study, page 19, and forms the basis of considerations in Chapter VI.
emanate causes to which the firm is subject; among these causes are many which relate to long-lived assets. Considered briefly are: first, the general environment, and then, specifically the tax code as certain provisions contained therein relate to assets of a depreciable nature (as such, they are an outside influence which exerts pressures on problems relating to the subject of this study, long-lived assets).

The political-economic environment. Since the 1930's the economy has emerged as a spending economy, the biggest individual spender being the Federal government, which may be construed as an application of Keynes' general theory. It is to be borne in mind for a few paragraphs that present considerations are of an aggregate, a macroapproach and that which is valid for the individual firm may find no validity in application to the economy as a whole; however, looking at this from the opposite direction, the influences issuing forth from the economy as a whole are causes (in a cause-effect order) to which the individual firm finds itself subject.

The spending approach finds definition, in general, in Keynes' theory. As aggregate income increases and per capita income increases, the percentage of the latter consumed will decrease; savings will increase and the only way to cure unemployment is to control investment of savings in a way which will set labor in motion. Government is the force to exert this needed control effectively. The form the investment of savings has to assume to set labor in motion is in capital goods.

Long-lived assets are the medium through which the wealth-holders bridge the gap between the present and the future; inducement to invest
is influenced by two factors: (1) the marginal efficiency of capital assets, and (2) the rate of interest.\textsuperscript{5} The cause of the business cycle is marginal efficiency of capital assets because fluctuations in this factor have their effect on the liquidity preference of the economy; the volume of investment is determined by the interest rate. In turn these two things are each dependent further on two factors: marginal efficiency is dependent on profit-yield expectations and replacement costs of long-lived assets; investment volume, as determined by the interest rate, on the state of preference for liquidity (i.e., the demand for money) and the supply of money.\textsuperscript{6}

Figure 15, page 88, is a skeletal outline of the reasoning involved. It can be seen by reference to the Figure that the portion of total demand that finds expression in the investment in long-lived assets is determined by total income and the propensities to consume and to save. In application the focal point of the theory is employment and employment depends on capital goods and capital goods accumulations; the lag in investment occasioned by the propensity to save a portion of total demand in excess of the propensity to consume is the

\textsuperscript{5} The marginal efficiency of a capital asset is the highest rate of return over cost expected from producing one more unit (a marginal unit) of a particular type of capital asset," pp. 39-40; and "The interest rate is a price which fluctuates according to the supply and demand for money," p. 44, Dudley Dillard, The Economics of John Maynard Keynes (New York: Prentice-Hall, Inc., 1948).

\textsuperscript{6} In turn, Dillard points out another Keynesian thought which is related to the subject at hand, as well as current economic conditions, "By pursuing a policy of flexible money supply, the banking system can, within limits, control the rate of interest." \textit{Ibid.}, p. 45.
area for government intervention.  

Examination of the part "fiscal policy" plays in the theory, the three concepts of "propensity to consume," "investments as an important determinant of employment," and "liquidity preference," as related one  

7In arriving at the applied "spending" theory the "concept of expectations" and the "propensity to consume," further refined by the "concept of the marginal propensity to consume" and the "investment multiplier," are employed.
to the other, allow the making of certain statements which may be held as the premises forming the basis for the concluding observations of the present discussion:

Premise 1: Total employment depends on total effective demand.

Premise 2: Total effective demand is determined by the propensity to consume and the inducement to invest.

Premise 3: The propensity to consume is relatively stable in the short run and the average propensity to consume is less than 100 percent for all high levels of employment. Therefore, as income increases, the gap between total income and the propensity to consume widens.

Premise 4: Income and wealth exceeding the propensity to consume may be (a) stored in the barren form of money (savings) or (b) invested by lending or investing in long-lived assets. In a capitalistic economy, because of unequal distribution of income, a high propensity to save manifests itself. The maintenance of high levels of employment, therefore, falls on public expenditures.

That Keynes considered fiscal policy as the most important weapon against unemployment can be deduced from the foregoing premises. It seems that the inconsistencies of the proponents of "sound" finance, according to Keynes, may be traced to the divergencies between social and private accounting. Whereas labor is an overhead cost to the

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8Cf. final section of Edwards and Bell's exposition of the "core" of their theory. They seem to end this chapter with a plea that accounting expand its "range of collecting activities" because, through such,
economy as a whole, labor may be a variable cost to the particular enterprise. A resource has potentialities when it becomes of benefit through the medium of use; therefore, since the labor resource exists and its cost falls on the economy as a whole, it must be employed, if not through private enterprise, then through the expenditures of public works in order to justify its existence as a resource.

If government spending, designed to fill up that part of the gap left vacant by insufficient private spending, drives the existing spending out of this region, there will be a settling back toward the undesirable point of insufficient investment. There are at least three types of government expenditures based on spending, borrowing, and taxing:

(1) Increase in government expenditures with tax rates remaining unchanged,

(2) Tax-reduction approach to expansion which avoids the need for increased government activity (relies on the willingness of private segments of the economy to spend some of the increase in income as a result of lower taxes), and

(3) Increase in taxes so that government income always equals government outlay (carried to its ultimate end, full

a contribution to analyses that find expression in politico-economic environments, in which the individual firm must operate, can be made. Edgar O. Edwards and Philip W. Bell, The Theory and Measurement of Business Income (Berkeley and Los Angeles, University of California Press, 1961), particularly pp. 56-59.
employment would be attained because private saving would be reduced to zero).

Keynes dealt primarily with the first of the above types of government expenditure programs. As implemented in the 1930's this was primarily the type of government expenditures. With changes wrought, however, by a several times change-to-war-back-to-peace economy, "approach one" has been further implemented by incorporating some of the policy implied under the third type of government expenditures listed above, i.e., increasing tax scales. That there is flexibility in applying the theory is evidenced by the defining of the three types of government expenditures; taxes are involved and this warrants an examination of tax code provisions relating to long-lived assets.

Although on the part of government there is no evidence of any inclination either to hold the tax line or, much less, decrease it, there are provisions now in the tax code that can be construed as incentives designed to shift emphasis in the application of the theory and to induce more private investment in long-lived assets. The major investment incentives, contained therein, are the subject of the next two sections of this chapter. These incentives are a product of the present politico-economic environment in which the firm must operate.

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and being possessed of an incentive nature, they are outside influences exerting pressures on management in arriving at the decisions which direct the course of revenue inflows of the firm, a part of which are funds representing a recoupment of depreciating asset services values.

The investment credit. President Kennedy, in 1961 in a tax message to Congress, asked for an amendment to the Internal Revenue Code that would allow tax relief to the taxpayer in the year of purchasing of depreciable assets. Much interpreting (in accounting circles alone) was forthcoming as to the underlying intent of such an amendment, ranging from it was an effective way of reducing taxes without labeling it as such, to the idea that in the future it could become a tool of manipulation for economic control purposes.\(^\text{10}\) For purposes of this paper it is accepted at the complexion given it by the Senate Finance Committee.

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and the Conference Committee Report relating to the 1962 Revenue Act which strongly concurred in the Administration position - it is an incentive to invest.

... The investment credit, coupled with the liberalized depreciation, will provide a strong and lasting stimulus to a high rate of economic growth and will provide an incentive to invest ... 11

The technique of the profitability index, which incorporates the idea of a statement of present value through discounting of future inflows compared to the present cost outflows, is employed12 for present purposes in answering the following questions when considering the investment credit:13

(1) Does the investment credit affect the profitability index?
(2) Is the effect favorable?

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11 Report of the Senate Finance Committee on the Revenue Act of 1962, p. 11, as quoted in "The Investment Credit as an Economic Control Device," ibid., p. [2]. Cf. "... the purpose of the credit for investment in certain depreciable property, in the case of both regulated and nonregulated industries, is to encourage modernization and expansion of the Nation's productive facilities and to improve its economic potential thereby increasing the earnings of the new facilities over their productive lives," Exposure Draft (relating to "Accounting for the Investment Credit"), Issued by the Accounting Principles Board, American Institute of Certified Public Accountants, Nov. 1, 1962.

12 The underlying idea is that if future inflows discounted to the present and compared to the present cost outflows equals one, then the target rate of return used as the discount rate is equal to the rate of return (cf. the illustration presented in Figure 8, page 50). Further, a result of less than one indicates an unsatisfactory return in terms of the pre-determined target rate, greater than one, relative profitability is reflected.

13 HR 17607 suspended the investment credit until 1968 and provided that, when reactivated, the 25 percent excess would be increased to 50 percent. Present considerations proceed under the specifications of the 1962 Code as amended in 1964.
(3) Is the effect of a magnitude that it warrants prime consideration?

Figure 16, page 95, considers the following investment situation: cost, $500,000; economic contribution of the asset after all relevant operating costs other than depreciation per year, $100,000; salvage, $-0-; effective tax rate, 50%; and depreciation method, straight-line. The left column considers the asset's economic life equal to eight years and the right column, ten years. The profitability indices are computed under four conditions: (A) pre-tax profitability; (B) after-tax profitability; (C) after-investment credit and after-tax profitability; and (D) deductibility of depreciation is retimed and the investment credit is ignored. Certain conclusions may be drawn:

(1) Under conditions of after-tax profitability, the investment credit has a favorable effect on the profitability index. The effect is more perceptible the longer-lived the asset (compare "B" and "C" of the 10-year-lived asset to the 8-year-lived asset).

(2) The earlier depreciation is taken and the greater the amount of the early depreciation allowance, the closer the profitability index will approach pre-tax profitability (compare "D" and "A" for both the 8-year and 10-year-lived assets, including in the comparison the second profitability index under "D" wherein the investment credit is not ignored).

Some generalizations may be made in answering the three questions first posed above. Firstly, the shorter lived the asset the more imperceptible
### Figure 16

**Profitability Indices Computed Under Four Conditions**

<table>
<thead>
<tr>
<th>Condition Description</th>
<th>Eight Year Life</th>
<th>Ten Year Life</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(A) Pre-Tax Profitability</strong></td>
<td>Discounted at 10%</td>
<td></td>
</tr>
<tr>
<td>Cost outflow (beginning year 1)</td>
<td>$500,000</td>
<td>$500,000</td>
</tr>
<tr>
<td>Economic inflows per year before taxes, $100,000</td>
<td>$533,500</td>
<td>$614,500</td>
</tr>
<tr>
<td>Profitability index</td>
<td>1.067</td>
<td>1.229</td>
</tr>
<tr>
<td><strong>(B) After-Tax Profitability (Investment Cost Spread Over Asset Life)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost outflow (beginning year 1)</td>
<td>$500,000</td>
<td>$500,000</td>
</tr>
<tr>
<td>Economic inflows per year after taxes:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$81,250.</td>
<td>$133,469</td>
<td></td>
</tr>
<tr>
<td>$75,000.</td>
<td>$160,875</td>
<td></td>
</tr>
<tr>
<td>Profitability index</td>
<td>0.87</td>
<td>0.92</td>
</tr>
<tr>
<td><strong>(C) After-Investment Credit, After-Tax Profitability</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost outflow (beginning year 1), $500,000 - $25,000</td>
<td>$475,000</td>
<td>$475,000</td>
</tr>
<tr>
<td>Economic inflows per year after taxes:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$81,250.</td>
<td>$133,469</td>
<td></td>
</tr>
<tr>
<td>$75,000.</td>
<td>$160,875</td>
<td></td>
</tr>
<tr>
<td>Profitability index</td>
<td>0.91</td>
<td>0.97</td>
</tr>
<tr>
<td><strong>(D) Deductibility of Investment Cost Retimed (Investment Credit Ignored)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost outflow (beginning year 1), $500,000 - 50%</td>
<td>$250,000</td>
<td>$250,000</td>
</tr>
<tr>
<td>Economic inflows (now all taxable) per year after taxes, $50,000</td>
<td>$266,750</td>
<td>$307,250</td>
</tr>
<tr>
<td>Profitability index</td>
<td>1.067</td>
<td>1.229</td>
</tr>
<tr>
<td>Profitability index, if investment credit not ignored</td>
<td>1.185</td>
<td>1.365</td>
</tr>
</tbody>
</table>
the effect of the investment credit upon the profitability index. Secondly, there is not the flexibility allowed as regards the timing of the deduction of expensed investment cost through depreciation that "D" in Figure 16 would seem to indicate, although one of the accelerated methods of depreciation will allow a trend in this direction (more is observed regarding depreciation in the next section of this chapter). Thirdly, even though the profitability index is affected favorably by the investment credit there are other conditions, not introduced into these considerations, which can offset any favorable position thus obtained. Among these are: (1) the investment credit is mandatory and, therefore, (2) the costs of maintaining a degree of individual-item accounting are necessitated by the "recapture" and "carryover" provisions of the credit. Some of the more complex situations involving the investment credit have not been touched upon, but still the investment credit per se may in some instances stimulate capital expenditures which was the purported purpose of its incorporation into the Code. At the time of the reading of the investment credit into the Code, it was an academic exercise questioning its possible use as an economic control tool through manipulation. Its suspension by HR 17607 was an inflationary control move;¹¹ now much of the inflation was a reflection of its employment and how much the

¹¹Cf. to Evsey Domar theorizing in 1953 about the use of an initial allowance as a means of encouraging growth and reducing or suspending it as an anticyclical tool during inflation, "The Case for Accelerated Depreciation," Quarterly Journal of Economics, Vol. LXVII, No. 4 (November, 1953), p. 500. Cf. to current agitation, within the Nixon administration and in the Congress, not just to suspend but to do away with the investment credit.
result of artificially induced inflation by the Vietnam conflict is the present academic exercise. An objective testing of its capacity to induce investment in a "normal" period necessitates reserving judgment on this score to a future time.

Important to the smaller business entity, because of the $2,000 maximum allowed, relative to tangible personal property having at least a life of six years, the taxpayer (except trusts) may elect an additional first year depreciation deduction. It is to be noted, in contrast to the investment credit, this deduction does reduce the depreciable cost.

Depreciation - accelerated methods and reserve ratio test. The 1954 Revenue Code provided for accelerated methods of depreciation for qualified assets having economic lives of three years or more. The earlier the timing of depreciation the more favorable the effect produced on the profitability index of an investment has been observed in the preceding section (as illustrated in Figure 16 and the accompanying text).

Pertaining to the life of assets, Revenue Procedure 62-21 introduced broad guidelines to be used in determining useful life (for official position it supplanted the old Bulletin F). Generally speaking, these new guideline classes provide for shorter lives, which, in turn, has an accelerating effect on the accelerated depreciation provisions of the 1954 Code. Where appropriate, there also was introduced the reserve ratio test as the official approach in auditing depreciation deduction claims. The tables of the reserve-ratio are based on
the method of depreciation used and the rate of growth of the asset
category; the test itself purportedly is designed to determine if the
taxpayer is actually replacing as fast as the depreciation deductions
show. The effect on the reserve ratio test as between different
methods of depreciation can be seen through a quick perusal of any
reserve ratio table; the sum-of-the-years' digits and 200 percent
decreasing-balance are preferable to the straight-line or 150 percent
decreasing-balance. Greater income tax deferral is obtained through
higher allowances for depreciation expensed; the high allowances for
depreciation are permitted by meeting the applicable reserve ratio
test. For example, compare the difference between using straight-line
depreciation and sum-of-the-years' digits methods on a group of assets
all in a guideline class with a ten-year life and a zero growth rate:

<table>
<thead>
<tr>
<th></th>
<th>Straight-line</th>
<th>Sum-of-the-years' digits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asset cost</td>
<td>$ 500,000</td>
<td>$ 500,000</td>
</tr>
<tr>
<td>Reserve ratio</td>
<td>50%</td>
<td>65%</td>
</tr>
</tbody>
</table>
| Reserve
 permissible. | 250,000      | 325,000                  |

The sum-of-the-years' digits method gives the taxpayer the benefit of
$125,000 more in depreciation deductions; at a tax rate of 50% it pro-
vides the entity with the use of $62,500 tax-free funds that otherwise
would have been earned for and paid to the government in the form of
taxes. This may be equated to an interest-free loan\(^\text{15}\) which only will

have to be repaid if there is a cessation of policy of replacement based on an average life of ten years.

Whether this is a permanent benefit or, as many argue, merely a deferring of tax liability to future periods is still very much a matter of debate. There is no single side to such a problem because in most cases it will have to be resolved, qualified by the particular circumstances. Certain generalizations are in order. Davidson, with a simplified example, has demonstrated that extra depreciation (difference between accelerated depreciation for tax purposes and financial depreciation in the straight-line pattern) for dynamic (growing) firms continues to increase. Generalizing in terms of the tax depreciation allowances, this advantage will be present as long as the policy of replacement is maintained or increases. In that his illustration assumes replacement cost equal to original cost (economic costs are not interjected into the present considerations since taxes are levied on a strictly unitized monetary basis), a further observation is warranted. In a period of increasing costs the extra depreciation would increase more over a period of time than Davidson demonstrates because of the increasing depreciable base, the increase being equal to the ratio of replacement cost to original cost.

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Further qualifications need to be noted in generalizing about whether or not the tax benefits derived from the accelerated depreciations provisions of the Revenue Code are a permanent benefit or not. Among these are: (1) this benefit will continue or increase only so long as the provisions continue to be a part of the Code or are further liberalized; (2) the growth factor, in terms of annual investment in depreciable assets, is maintained or growing; (3) increases in tax rates could nullify in part or wholly these benefits; and most importantly, (4) these benefits only accrue to the firm if there are sufficient profits to cover the depreciation computed for tax purposes. In considering the use of funds so retained through reduced present tax liability, qualification (3) above infers another risk factor to be added to the list of calculated risks management must qualifiedly weigh, that is, the risk of increased taxes in the future on the benefits inflows from long-lived assets acquired with such funds. On the other hand, in the present this may be looked upon as a compensation for the fact that depreciation for tax purposes is allowed only on a strictly monetary unit basis rather than an economic (purchasing) power basis. If these retained funds are presently available and put to use in the nature of long-lived assets, it could mean that if the costs of acquiring these future benefits are adequately discounted to the present such contingencies could be covered and still leave the firm with an economic increment.

There is another aspect of the present considerations which should be observed. Regarding the reserve ratio test, there is within
its framework another potential economic control mechanism which if employed would emphasize the policing function of the test. This mechanism has been obscured, first because of the initial moratorium period and more recently the transitional allowance, first applicable in 1965, and the provision for invocation of the trending rule. If, however, these and other nullifying devices, which might be introduced in the future all disappear from the Code, assets' useful lives under RP 62-21 can be increased up to 10 percent if the reserve ratio test is not met, and the taxpayer in more extreme cases could have to "work off" (in part or in total) excessive depreciation previously deducted before being permitted to use again a shorter guideline life. This could be a very strong incentive to invest; management needs to be apprised of the nature of the funds made available currently through revenues and thus be allowed to make a conscious decision as to their use. The investment credit coupled with accelerated depreciation benefits can serve to make many an investment (which otherwise might be ignored) plausible as well as feasible. In a downward swing of the economy such incentives might be what is needed to keep investment from declining to levels detrimental to the economy as a whole.

Provisions for the investment credit and accelerated depreciation, in being offered as incentives to invest, must be appreciated also as legal ways of tax avoidance. Any dollar of outflow avoided means another dollar retained for employment by the entity. Cognizance of the avoidance aspect and employment by management as a result of being made aware of this aspect is a desirable aim for accounting functioning in
an advisory capacity toward management. It is a practical matter of bettering the control and use of funds.

... accelerated depreciation affords considerable tax relief to a... firm... but how effective this relief will be... in promoting growth in general is not easy to predict. Much will depend on the awareness of businessmen that the risk of investing in fixed capital is considerably reduced because no income tax need be paid until a substantial part of the cost has been recovered; also on their understanding that such investment offers a perfectly legitimate method of tax avoidance, and on their readiness to consider these facts in their investment decisions.17

Summary. In an economy with a built-in bias toward inflation18 there is a gap between the purchasing power recouped and the current purchasing power needed to replace functional capacities as long as depreciation is computed in terms of strictly unitized monetary units. There is an augmentation of the recouped depreciation funds through the tax avoidances which have been the subject of this Chapter. Management in making a decision to commit recouped depreciation funds full cycle to long-lived assets funds should be apprised that it has a source of augmentation in facing the increased cost of replacing functional capacities, that the augmentation thus noted in the incremental inflow19

17Domar, op. cit., pp. 508-509, emphasis added.


19Cf. ... tax depreciation allowances -- or more accurately, the funds they make available when earned ..." from an address by George Terbohrgh before the Tax Institute Symposium, Princeton, New Jersey, November 20, 1958, as reprinted in Capital Goods Review, No. 26 (November, 1958), p. 1, emphasis added.
has issued forth indirectly from long-lived assets funds depreciating and which are presently available in current funds inflows.

In the present Chapter, depreciation computed to the base of economic funds committed\textsuperscript{20} has not been allowed to enter into depreciation computed for tax purposes because it is not allowed under the Code. In the remainder of the paper, unless otherwise indicated or discussed, cost values and depreciation thereon is understood to be defined as in earlier chapters.\textsuperscript{21} When considerations of the present Chapter enter into the discussion at such subsequent points they are qualified by these prior definitions of cost values and depreciation.

The caution which should direct the approach to present material and its subsequent use is succinctly expressed by Horngren:

\begin{quote}
Income taxes are sometimes too influential in business decisions. Their effects may be overemphasised. The ogre of the income tax may reduce the emphasis on efficiency and may unduly hamper risk taking. The income tax is only one of a number of variables that bear on business administration.\textsuperscript{22}
\end{quote}

\begin{itemize}
\item \textsuperscript{20} Cf. ante, depreciation computed in Figure 6, page 41, and the accompanying discussion.
\item \textsuperscript{21} Cf. ante, "Summaries" to Chapters II and III, pp. 34-35 and 53-54, respectively.
\end{itemize}
CHAPTER VI

ACCOUNTING THROUGH BUDGETING AIDS IN AND GIVES EXPRESSION TO MANAGEMENT DECISIONS DEFINING LONG-LIVED ASSETS FUNDS

In the previous chapters emphasis on funds has been based primarily to the classification of funds by nature and the identification of inflows defined in terms of the natures of the outflows recouped within the revenue stream. Figure 17 below pictures these funds flows.

Figure 17

EMPHASIS ON FUNDS BY NATURE FLOWING WITHIN THE OPERATIONAL ACTIVITY OF THE FIRM

- Initially identified as cost values of the long-lived assets funds; in subsequent movement in funds flows, designated as depreciation funds in funds outflows (costs), as recouped depreciation funds in funds inflows (revenues), cf. ante, pp. 9ff.
The theory of analysis underlying the double-entry system of accounting lends itself very well to the observing and describing of such movement or flux of funds. Ordinary verbal description generally is less than adequate in capturing this essence of movement. Even pictorial representations do not capture completely this flux of financial resources within the firm. Although depicting this movement, Figure 17 to a degree loses the depth of the problem—the assets (things) and their continuance on the one hand within the dimension of time and their flux on the other hand as defined in terms of expenses and revenues within the dimension of activity. In the Figure, however, such is not completely lost if it is studied more closely. The eye must perceive that if the circles are extended they would not be concentric but rather spiraling outwardly, assuming dynamic conditions of growth and profitability.

The present Chapter, still continuing with the concept of funds flows identified with long-lived assets through commitment to such

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1 At the first step, the acquisition of long-lived assets, in terms of debits, is offset or counter-balanced by the displacement or decrease in other assets, in terms of credits. (It is to be recalled that debt financing in the acquisition of assets is not considered in this paper.) As these durable, yet consumable, assets decrease in value through utilization (as well as observable denigration through encroachments of time and technological advances), the debit of analysis serves as a diminution, or offset, of the equity in assets inflows represented by the revenue credits of analysis. The revenues are recognition of current inflows in assets resulting from the pain of decrements in assets expended for the purpose of recouping such plus an economic increment. Cf. Yuji Ijiri, The Foundations of Accounting Measurement (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1967), particularly Chapter 5, pp. 101-115; and Colin Park and John W. Gladson, Working Capital (New York: The Macmillan Company, 1963), pp. 21-22.
nature, is based primarily to the classification of funds by type of flow. The primary funds flows are funds outflows (costs) and funds inflows (revenues); Figure 18 below serves to emphasize these flows. The two movements occur concurrently and continuously through time within varying degrees of activity. The present focus shifts from the nature of funds flows to the defining of the costs outflows by

\[2\text{Cf. ante, footnote 52, page 81.}\]
management's actions formally expressed within the framework of a functional output of accounting, budgeting. Present purposes necessitate the consideration of both capital budgeting and operational budgeting. The emphasis on definition of inflows by nature necessarily will be basic to present considerations of the directives issuing from management. The inner circle of funds of the firm in Figure 18 above, i.e., funds by nature, is the same as illustrated in Figure 17 and is contained within the circle defining them by flow. This graphic presentation is intended to:

(1) re-emphasize that accounting deals with total flows (assets) and, therefore, management through accounting should be kept cognizant that it too deals with assets in total, and

(2) re-emphasize that the techniques commonly employed in capital and operational budgeting do encompass the total assets flows and also assets flows by nature.

Since budgets prepared by accounting give expression to and a basis of evaluation of management's decisive actions, there are certain factors to be noted which underlie all of management's decisions; varying degrees of cognizance and control of these factors affect such actions. These factors are basic to the present exposition and,

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3 Cf. ante, page 11 and page 63.

4 The general de-emphasis of the total assets flows by nature through passive acknowledgment has been noted previously. Cf. ante, pp. 4-6 and point 4, pp. 77-78.
therefore, should be enumerated. The approaching of such a listing of factors is well accomplished, first, by reference to the sources of funds:

1. **Owners** - their interests and influences lie within the spheres of profitability, stability, growth and market positions.

2. **Creditors** - their interests and influences approach the same spheres of interest as those of owners but from a different direction; stability and maintenance of capital - these provide a margin of safety; earnings - these secure the debt commitments made; growth and market positions - these find reflection in renewed and extended applications for credit.

3. and (4) **Actions of managers and operations** - the actions of management and operations producing the results of such actions are direct reflections of the objects of interest and influence of the owners and creditors. Here accounting should be directed to aid in the attainment of these goals.

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5In a previous discussion, see pages 83-84, the environments of firm activity were outlined: internal, external-competitive, and external-politico-economic. These environments of firm activity encompass the factors to be elaborated upon in the present discussion; it was noted, and comes to bear in present considerations, that the degree of definition the firm's management has over these environments varies from one to the other.

6Cf. ante, pp. 58ff.
A second approach expands the present enumeration of factors basic to management's actions and decisions to include the interest of employees and customers, who, it can be claimed reasonably, ultimately share the same interests as those who provide the primary sources of funds for the firm. Always deserving of special attention and note is the all-pervading interest and influence of government; at different times and under various conditions, government assumes all faces, from customer, to manager, to creditor, to a sharer in the profits of the firm.

The above factors, as such, do not need to be belabored — they are offered as background to the continued tracing of one segment of total funds, long-lived assets funds and their cycle. The present point of assets funds flows being examined is management's decisions and actions as they affect the course of these long-lived assets funds subsequent to being recouped. First, management's deliberations necessary to arrive at the decisions to issue specific directives finds expression through capital budgeting techniques of accounting. Second, these directives are incorporated into a working plan for the firm known as operational (financial) budgeting.

**Decisional capital budgeting.** A conscious management makes selectively

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7* Cf. ante, point "D" in funds flows, Figure 1, page 19.

rational decisions.\textsuperscript{9} The underlying premise of this chapter, therefore, is that selective rationality in capital budgeting stems from a conscious, knowledgeable appreciation of the pertinent facts, in their ramifications, about capital as informed and aided by accounting. The problem involving the maintenance, expansion and contraction of capital is a two-sided coin. The two sides of the present coin are: (1) the evolving of the investment decision, and (2) the financing decision.\textsuperscript{10} Deliberations in this study are with reference to the investment decision aspect, to which, within the last decade and a half, accountants have been contributing much within the framework of what generally is referred to as capital budgeting.

The techniques of capital budgeting - some of them old and some, new - encompass the committed funds traced to this point. For present considerations the point of interest is shifted from the re-entry of these funds into the firm in the revenue stream to the committing and

\textsuperscript{9}Cf. the use of "selectively rational decisions" to Anton in discussing the emphatic emerging of professional management as a result of the divorce between ownership and control when he lists as one of the effects from this development "... a greater proclivity for rationality..." Hector R. Anton, Accounting for the Flow of Funds (New York: Houghton Mifflin Company, 1962), p. 3; to Ritzmann, who discusses the trend in investment decision-making problems toward a "framework of rational, systematic analysis... of rational decisions." F. Ritzmann, "Investment Decision-making Problems," Journal UBC, Issue No. 3 (Düsseldorf, 1st July, 1967), p. 164; and to Chambers' "rationality of action" qualified by his footnote, Raymond J. Chambers, Accounting, Evaluation and Economic Behavior (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1966), p. 46 and footnote 9, page 46.

re-committing of the funds and creating the source-head of the long-lived assets funds flows. In most discourses on the present topic the techniques most commonly covered are:

(1) Payback period (frequently referred to as turnover or payout period);

(2) Profitability index (known also as excess present value index);

(3) Rate of return; and

(4) Discounted cash flow approaches. ¹¹

All deal basically with funds flows; the primary goal is the maximization of net, long-run, liquid funds inflows. In a capitalistic economy there is no quarrel with the goal; from time to time, however, certain aspects of the achieving of the goal need to be re-emphasized so that the goal itself is better understood and perhaps more easily achieved as a result of such understanding. A funds identification approach is being taken because net inflows most generally are overemphasized to the extent that the principal employed loses its identity ultimately, its recoupment in total inflows is implied rather than explicitly emphasized for management.

Payback periods and the profitability index. Two measures long used to answer the owners' question addressed to management, and the management's question addressed to accountants, "how will the firm fare with such and such a capital investment?" are the payback computation and the profitability index. The question is really a two-faceted question: (1) "Can economic (purchasing) power be maintained?" and (2) "Can such power be augmented or will any of it be lost?"

The payback computation answers this question from the aspect of how long it takes to recoup the committed funds. From a funds flows point of view the computation tries to define the span of time from commitment of liquid funds to a long-lived asset identity to the recoupment of such funds in a liquid inflow, i.e., the length of the risk period. As an answer it is inadequate in that it addresses itself to only the first facet of the question. From a funds flows tracing and analysis course the payout period does emphasize commitment of funds to the particular identity of long-lived assets. The payback computation also raises the related question, upon recoupment should subsequent commitment be to the same functional capacity? If maintaining capital implies the maintaining of purchasing power capable of recouping itself plus an increment, then there is more than just a hint in this computation of the physical plant the firm has and is using in such economic endeavor. The payback computation, with its emphasis on the time maintenance of purchasing power, does not expand to include the economic increment facet of the above question; its emphasis is not on total funds inflows but only on the recoupment of
long-lived assets funds within their time dimension without any consideration of economic increments. The answer the payback computation gives alone is not conducive to managers, much less owners and creditors wanting to commence or to continue the investment being analyzed.

A familiar ratio is the profitability or excess present value index. As generally used this index addresses itself to the other facet of the above posed question while, in fact, answering both facets. Underlying this technique is the concept of future funds inflows, comprised of original cost value plus the earned increment expected, discounted into terms of present value. The index computed compares the discounted future funds inflows expected to the original cost values. The profitability index was used as the basis of the presentation in Figure 16, page 95. The rule of thumb for interpreting such index in a "consider-don't consider" investing decision is if the index is equal to one the rate of return is the target rate of return, or if greater than one, the rate of return is greater than the target rate (and, relatively speaking, by how much the expected return exceeds the target rate). On the other hand, consider the 10-year lived asset, under Conditions "C" of Figure 16, with a profitability index of 0.97. This index says that the investment commitment of $175,000 of outflows after the investment credit will not return inflows after taxes equal to the sum of original investment (outflows) plus a minimum ten percent increment. Interpolation will answer the question as to what the increment is, represented by the index - it equals approximately a 9.31% return. For the tracer of long-lived assets funds the results are
better stated: committed funds recouped, 100%, plus an over-all increment of 9.31%. Even under conditions where the profitability index exceeds one, the purposes of the tracer of long-lived assets funds are better served if the magnitude of the over-all increment is voiced.

For example, referring to Figure 16 again, under conditions "D," for the 10-year lived asset, through interpolation, the profitability index of 1.229 is revealed to be an indirect statement of expectations that committed funds will be recouped 100% plus an over-all increment of approximately 15.9%.

The emphasis intended here is that this technique of the profitability index inherently includes considerations of the original funds committed since they are the base to which the inflows are compared. In tracing funds flows and attempting to emphasize for management that

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Both Shillinglaw and Fremgen employ the technique of interpolation in their discussions of discounted rates of return and present values, both of which are basic to a statement of the profitability index. Vide Shillinglaw, ibid., pp. 614-616, and Fremgen, ibid., pp. 367-370.

Regarding the above two examples of interpolation—they are examples of interpolating in individual, exclusive situations and in no way is any comparison between the two intended. It is to be borne in mind that all discussions in this paper, including present discussion, do not deal with alternatives (cf. ante, pages 16-17) but could conceivably be an alternative technique in investment and/or re-investment decisions. In such situations for present suggestions to be incorporated as an alternative it is to be emphasized strongly that when comparing profitability indices between alternatives, the relative lives of the alternatives should be approximately the same. To emphasize this point, consider again the conditions of "C" of Figure 16— it has been noted that the profitability index for an 8-year life is 0.91 and for a 10-year life, 0.97. Indices for a 5-year, a 15-year and a 20-year life would be 0.80, 1.07 and 1.12, respectively. Profitability index comparisons should be only between alternatives having relatively the same life.
it (management) deals not with net flows but with total assets flows, accountants employing the profitability index in capital budgeting should clarify that this technique does deal with the two facets of the question, "how will the firm fare with such and such a capital investment?" - it considers maintenance of the original economic quantum plus an economic increment.

Rate of return. One of the oldest and most familiar ratios used in measuring profitability is the rate of return and which, under several guises (variations), has been adapted to capital budgeting procedures. In the previous discussion on the profitability index a discount rate was employed to discount expected future funds inflows to the present for purposes of comparison to present funds outflows; interpolation enabled a statement of approximate rate of return. In the following paragraphs the rate of return is discovered to be adapted to a role in the discounted cash flows approaches. Bierman's three interpretations of the rate of return in capital budgeting are:

1. "... is that rate of discount (interest) which ... results in the algebraic sum of the present value of cash outlays and the present value of cash proceeds coming to zero."

2. "... is the rate of growth of the investment."

3. "... is the highest rate of interest that we could pay for borrowed funds to finance the investment being considered and be no worse off than if we did not undertake the investment."

Interpretations one and three above are most utilitarian in replacement

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13 Bierman, op. cit., p. 120.
decisions where an indication of the maintenance of functional capacity for continuance of the status quo in the external-competitive environment is needed. Interpretation two allows analysis of expansion investment for rigorous competing and advancement in the external-competitive environment, when the general intent is larger economic increment margins, generally under conditions of higher investment risk. Once again, for emphasis, the principal amount of funds committed is the pivot of the analysis, regardless of which of the above points of view is most applicable in the particular analysis, and implies the desired intent of recoupment of principal, of safety of principal. Referring to Figure 14, page 67, it is suggested that the funds identification format, providing for identification of the type of funds inflows in total inflows, is a reporting of this intent of recoupment realized.

Discounted cash flow approaches. The contents of Figure 8, page 50, can be used to illustrate the two most common approaches to discounted cash flows as a technique used in capital budgeting. As originally presented and discussed, the net present value approach was employed in evolving the illustration; by way of elaboration consider:

<table>
<thead>
<tr>
<th>Year</th>
<th>Estimated net revenue contributions</th>
<th>Present value of $1 discounted at 10%</th>
<th>Total present value of inflows</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$3,000</td>
<td>0.9091</td>
<td>$2,727</td>
</tr>
<tr>
<td>2</td>
<td>2,800</td>
<td>0.8264</td>
<td>2,374</td>
</tr>
<tr>
<td>3</td>
<td>2,600</td>
<td>0.7513</td>
<td>1,954</td>
</tr>
<tr>
<td>4</td>
<td>2,400</td>
<td>0.6830</td>
<td>1,639</td>
</tr>
<tr>
<td>5</td>
<td>2,200</td>
<td>0.6209</td>
<td>1,166</td>
</tr>
</tbody>
</table>

$10,000

In other words, the present value of future inflows discounted to the
present equates to the cost of the investment - *recoupment of principal* plus an increment of 10% on funds invested is indicated.

The other common approach, generally referred to as the *discounted rate of return*,\(^\text{11}\) in the circumstances underlying the above illustration would have confronted the analyst with the following equation: 

\[ \$10,000 = \$3,000(F_1) + \$2,800(F_2) + \$2,600(F_3) + \$2,400(F_4) + \$2,200(F_5) \]

where \( F \) equals the factors of the present value of one for the successive periods (indicated by the subscripts) of estimated economic life of the investment. This would have meant references to present value tables and the substitution by trial and error of factors in the formula and, most probably, the need for interpolations before satisfactory solution of the equation could be obtained. The first approach assumes an acceptable cut-off rate; in the latter, the rate is unknown and must be computed for comparison to what is construed as an acceptable rate. Once again, for present purposes of emphasis, the bases of comparison are initial commitments of funds to the identity of the investments. This desired emphasis in this paper is succinctly expressed by Horngren when he says:

\[ \ldots \text{[a] major aspect of the [discounted] cash-flow method is its focus on cash inflows and outflows rather than net income as computed in the conventional accounting sense.}^{15} \]

In these assets inflows are recouped depreciation funds,\(^\text{16}\) funds which

\(^{11}\) Also referred to as the *time adjusted rate of return*.

\(^{15}\) Horngren, *op. cit.*., p. 1142.

\(^{16}\) Cf. *ante*, page 70 and particularly, footnote 21.
had been committed by management, in the past, to an identity as long-lived assets. At this point, accounting by its emphasis should make management aware that it (management) must decide whether or not such identity is to be continued (maintained).

**Tax effects.** In the previous Chapter, "Legal Incentives to Commit Funds to Identity of Long-lived Assets," some of the major Internal Revenue Code provisions as affecting long-lived assets funds were discussed with the intent of showing that they do have a very definite effect on the firm's funds flows. As was demonstrated in Figure 16, page 95, just with reference to the investment credit and depreciation, they have an effect on the amount of the inflows and outflows and on the timing of these flows. More specifically, they:

1. Augment available funds in the present,
2. Make these augmented incremental inflows available as employable funds to the firm,
3. Enhance the credit rating of the firm through making possible early debt retirement, and
4. Reduce the risk period of committed investment through faster recovery.

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17 Cf. "Current decisions with respect to depreciation methods can influence future profits through the timing of depreciation charges. Profits are affected by the time when funds from depreciation charges become available, by the postponement of cash outlays for taxes, and by reducing losses from failure to recover full cost of assets. Consequently, these considerations are important in financial management of a business." Current Practice in Accounting for Depreciation, Research Series No. 33 (New York: National Association of Accountants, April 1, 1958), pp 14-15.
These rank high as effects of the Tax Code provisions on inflows and outflows of long-lived assets funds. Consideration of these effects, as well as considerations of salvage values, additional first-year depreciation, recapture provisions and trade-ins, are (should be) incorporated into the sum of the deliberations of capital budgeting. Further, subsequent to the commitment of funds to investment in long-lived assets, the contributions of these effects should be recognized and emphasized in operational reporting and analyses.

Summary. A broad outline of accounting serving management with reference to long-lived assets funds would be:

<table>
<thead>
<tr>
<th>Management</th>
<th>Accounting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Deciding &quot;what&quot; and &quot;how&quot;</td>
<td>1. The initial and continuing investment decisions expressed through capital budgeting techniques</td>
</tr>
<tr>
<td>2. Planning and the timing of the &quot;what&quot; and &quot;how&quot; of step 1</td>
<td>2. The operational plan defined and expressed through operational budgets</td>
</tr>
<tr>
<td>3. Firm activity</td>
<td>3. Reporting of firm activity and providing the bases for evaluating such activity through records, reports, comparative analyses</td>
</tr>
</tbody>
</table>

The contents of Chapters II through V were oriented to step 3 above. Present considerations, in a cursory fashion, have had to do with the
"what" phase of step 1, or decision making. The emphasis intended is that accounting, through its techniques and reports, should make management very conscious that it (management) must continue to be concerned first with the maintenance of purchasing power committed to long-lived assets funds as well as what that purchasing power can command over and above the preservation of itself.

The "how" phase of step 1 above is defined generally as a finance problem, a problem of financing management's decisions. The timing of reinvestment, with emphasis primarily upon the use of internally generated funds, is the theme of the next section of this chapter, "operational capital budgeting."

Operational capital budgeting. In the U. S., accountants conventionally have sought to allocate costs as essential to measuring income. There seems to be no controversy that if these costs outflows are incurred then income as measured is:

(1) at a minimum a recouping of these costs outflows if the status quo is maintained,

(2) a recouping of these costs outflows plus an increment if the endeavor is "profitable," and

(3) deficient if these costs outflows are not covered by funds inflows, revenues.

Reporting in terms of monetary units varying in their value magnitude

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18It is to be borne in mind the present paper imputes "economic" to the expression "cost," cf. ante, pp. 20-21 and pp. 34-35.
(their power to command goods and services) more than strongly suggests a need that costs outflows statement be couched in terms of current command magnitudes of the monetary unit of the revenue inflows.

Since valuation of long-lived assets may have a substantial effect on measurements [reported net income and financial position] contained in these reports, its importance is unquestioned.

... the conceptual need for current-cost depreciation in the determination of income from ordinary operations cannot be denied.19

A statement of costs outflows in current monetary equivalents is the more automatically accomplished in the recording and reporting processes of accounting the more narrow the time span between incurrence of the shift in funds between common assets funds and long-lived assets funds and the consumption of the benefits therefrom as reported in measuring income. For the tracer of funds this statement of current command magnitudes is particularly necessary in order that total recoupment of costs outflows be clearly distinguishable in the revenue inflows.

There seems to be no argument in reporting working capital items that these must be recouped in the inflows so that they are available for reuse. For example, labor costs need to be recouped so that they may be expended again in the next period(s) and for the same service benefits as long as such are determined to be necessary for the continued well being of the firm. Further, if labor is successful at the

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bargaining table and in the subsequent period(s) commands a larger outflow, then this increased outflow must come either from economic incremental inflows and/or the reduction of other costs outflows thus raising this cost outflow to the commanded level. This example is indicative of the cyclical flows of funds from costs outflows to revenue inflows repeatedly. It also illustrates that this recouping of costs outflows must be in expanded magnitudes in monetary unit terms in order to assure continuance of the functioning of the firm. Generally speaking, such agreement can be obtained with reference to the other necessarily incurred costs of firm activity, whether they be strictly cash outflows or whether they be detoured through a pre-payment phase.

That is, such agreement can be obtained generally until the operational cost of depreciation is broached, then something seems to prompt a balking at this line of reasoning applied with reference to this particular item of costs outflows. An answer to the problem of ascertaining the command magnitude of the monetary units of expression of depreciation is left begging, particularly in the practical situation.\(^{20}\) As a defense on every side, some of the statements repeatedly heard and read are: "depreciation charges do not provide funds," "even if depreciation charges are not made this does not affect the total magnitude of revenue

\(^{20}\) Contrast to the directive: "... in order to continue operations without contracting the level of operating capacity, exhausted services must be restored; the relevant cost of expired services is the current cost of restoration. ... Depreciation attributable to the current period should be based on the current (end of period) value." \textit{Ibid.}, p. 696.
inflows," "depreciation charges are only an essential element in measuring net income." It respectfully is submitted that the same statements are applicable to all the other necessarily incurred costs outflows. There is no difference in saying, for example, "labor cost charges do not provide funds," "even if labor costs charges are not made this does not affect the total magnitude of revenue inflows," "labor costs charges are only an essential element in measuring net income." All these costs have a time dimension and a contributory effect in their activity dimension, either all at once or over a period(s) of time. Variations in the time and/or activity dimensions of the individual cost do not alter their basic nature, the nature of a cost of doing business - of being committed funds in transition between loss of liquidity and the flow toward the point where liquidity is regained. This nature is common, only varying in the dimensions of time and/or activity, one cost to the other.

There may be merit in reasoning that the persistence in the thought that "depreciation provides funds," even though repeatedly refuted in convincing paper after paper, has a germ of truth in it if put into its proper perspective. The confusion, and therefore the accusation of being false, lies in the wording of the expression rather than the situation which it seeks to define. Change the expression "depreciation provides funds" to "depreciation defines recouped funds" and an entirely new light is thrown on the total problem. In such light frequently encountered observations, as the following, assume new meaning and perspective:
Hatfield observed -

The presence of an Allowance for Depreciation account signifies . . . the substitution of some new, presumably some floating asset in place of part of the value of one of the fixed assets. Whether this implies the presence of means to replace the old asset, or not, depends on the interpretation of the terms used. . . . Constructively there is power to replace because of the equivalence of assets.21

Avery, although expending his efforts primarily in considering the effects of inflation upon depreciation, observed -

Depreciation is recognized . . . and becomes a part of the current funds to be used as the management sees fit. However it is logical to presume that since depreciation is an allocation of fixed asset cost once the cost of the asset has been recovered, the funds should play a part in helping to finance the replacement of any capital item if the firm is to remain a going concern.22

Trumbull, also concerned with inflation, still emphatically observed that in the relationship between depreciation and the maintenance of capital -

. . . there is not income (net) until capital has been maintained out of the revenue yielded by the same capital . . . .23

Jones, in studying the effects of price level changes, observed -

Financing replacements is an important function and current revenues ordinarily are the major source of funds. Moreover, it is only fitting that the portion of revenue receipts which constitute a recovery of expired plant costs should be reinvested in plant assets. In budgeting plant expenditures, therefore, the relationship between


depreciation recoveries and necessary expenditures for replacements is not only interesting but vital.21

The above group of quotations emphasizes that "depreciation defines recouped funds" and that these funds, if emphatically recognized and reported as available can be consciously managed and directed to maintain the integrity of the long-lived assets funds. The function of operational budgeting is to give expression to the directing of this traffic of funds flows.

In practice it is not too difficult to find long-range, long-lived assets plans (five-year and ten-year plans), but any type of operational budgeting to give these long-range plans (even if subsequently modified) any degree of concreteness is not found as readily. On the one hand there is the long-range plan and on the other hand there is the current budgeting encompassing the current decisions made with reference to current investment and reinvestment in long-lived assets. The latter is incorporated into the operational budget in the segment known as the capital expenditures budget. There appears to be need of a further link, a plan (a budget plan) that would link present budgets and operations to the future, to the long-range capital plans. Such would serve also as a basis for evaluating progress toward the future. This link could be called operational capital budgeting.

The master budget has many segments which could supplement operational capital budgeting. Four of the components of the master budget,

for present purposes, are reviewed briefly and examined as potential contributors to the supports in the bridge, operational capital budgeting, between the conception of the long-range plans and their implementation and ultimate realization. These components of the master budget examined are the sales budget, the capacity budget, the capital expenditures budget and parts of the financial budget.

Sales budget. The pivotal point of budgeting is the sales budget (unless constrained as noted under the capacity budget discussed below). Herein is contained the estimate of the primary revenue inflows which will recoup the costs outflows planned in relation to these inflows in the other segments of the budget. This is also an expression of the demand on the functional capacities of the firm.

Capacity budget. The capacity budget, or the level of activity estimate, is an integral part of the production budget for the manufacturing concern. Of necessity, it surveys the functional capacity of existing facilities in order to ascertain the ability to meet the demand expressed in the sales budget. This survey can prove to be the present constraint, mentioned above, on the sales budget.

Capital expenditures budget. Relative to a formulation of functional capacity requirements, including the maintenance and replacement of this capacity, and expansion, the long-lived assets funds commitments

\textsuperscript{25}Cf. "Replacement of existing equipment which is obsolete or deteriorated, improving existing equipment to keep ahead of competition, purchasing new equipment which is essential for the continuation of
to be made within the time span of the master budget evolve in the capital expenditures budget.

Financial budget. The above segments (along with the other segments) of the master operational budget must find re-expression within the financial budget. The financial budget is primarily a projection of liquid funds flows coordinated to meet the costs outflows requirements as expressed in the total operational master budget.

Summary. Take the indicated points of emphasis from the above segments of the operational budget as regards long-lived assets funds (qualified and quantified); these are the framework of an operational capital budget. To emphasize, these points are:

1. the functional capacity needs expressed in the demand of the sales budget and defined by the capacity budget;
2. the portion of the capital budget to be activated currently as expressed in the capital expenditures budget, and
3. the source and timing of the financing of these facilities as outlined in the financial budget.

Further, the capacity budget indicates the plant to be maintained and the necessary expansions of functional capacity. Based in part on prior existing facilities, are all profit-maintaining investments," and "A profit-adding investment is made for the purpose of bettering the profit position of a company. These investments include purchases which provide new business and expansion into new fields." Paul A. Laederach, "Applying Sound Principles to Equipment Replacement Practice," M.A.A. Bulletin, Vol. XL (April, 1959), p. 75, emphasis added.
experience, the "funds identification format" applied to the present sales budget gives reasonable approximations of funds which will currently be provided for maintenance of functional capacity as well as potential augmentation from the economic incremental inflows resulting from the benefits available through tax depreciation allowances, the investment credit, additional first-year depreciation, recapture provisions and trade-ins. Financing of expansion beyond maintenance of functional capacity is a financial management, not an accounting-management, problem.

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CHAPTER VII

"THE FIRM" - AN ILLUSTRATIVE PROBLEM

Hinging on the Reinvestment of Recouped Depreciation Funds

The direction and control of funds is the pivotal point, the crux, of the vast majority of problems with which management must concern itself. In the resolving of these problems management seeks the most pertinent alternatives in order to have a choice. With reference to the physical plant providing the environment for the internal activity of the firm, the direction and control of the physical plant is of major importance and concern. The major facets of the problem are: the tendency of the physical plant toward deterioration (i.e., depreciation through utilization, and denigration through encroachments of time and technological advances); maintenance of the real value of the funds so deployed; and the recovery and reemployment of such values.

In the pursuit of solutions to this problem one alternative is the reinvestment of recouped depreciation funds. Once again, the following are to be borne in mind:

(1) Value is a power to command other goods and services;

(2) Equating cost to this concept of value implies the purchasing of the proceeds of future periods encompassed by the economic life of the asset(s) for which the cost has been expended,^{1} and

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^{1} Cf. Harold Bierman, Jr., "Depreciable Assets - Timing of Expense Recognition," The Accounting Review, Vol. XXXVI, No. 4 (October,
(3) Maintenance and replacement of long-lived assets "includes substitution of new facilities" as well as "improving existing equipment to keep ahead of competition, and purchasing new equipment which is essential for the continuation of existing facilities, ...".

The initial investigation of "The Firm" problem, evolved and examined in the ensuing paragraphs, is based to:

(1) Replacement of functional capacity only upon expiration of economic life,

(2) Recouped depreciation funds of the initial years are not reinvested in long-lived assets, and

(3) Subsequent to the initial years comprising the economic life, only replacement is the directive of management.

Following the initial investigation, alternate possibilities of utilizing the recouped depreciation funds are examined:

(1) Continuous reinvestment of recouped depreciation funds with new investment contributions of owners;

(2) Continuous reinvestment of recouped depreciation funds without any new investment contributions by owners; and


(3) Recouped depreciation funds are not reinvested continuously and no new investment contributions by owners.

The transfer of funds flows between assets (i.e., classes of assets—working capital and long-lived assets) receives particular emphasis.

"The Firm" problem. Consider the following: The Firm was established with a minimum investment in long-lived assets of $10,000 plus $10,000 working capital and a guaranteed additional investment of $10,000 in long-lived assets in each of the four subsequent years of operation. It was desired that by the fifth year capacity utilized would be at least 85%; at the end of the fifth year 95% of capacity was being utilized. At the end of the fifth year the interest vested was left to the direction of management, which decided for two years to operate the then present functional capacity, such functional capacity to be maintained. The long-lived assets have demonstrated an economic life of five years and a functional contributory capacity approximating the carrying value pattern of the sum-of-the-years' digits method (which is also the depreciation method the company has elected to use for tax purposes). Before proceeding further, the condensed statements of revenues and recouped costs are presented in Figure 19, page 132, and condensed statements of position, Figure 20, page 134, for The Firm.

The following points are assumptions underlying these statements (other than already noted):

(1) Each year sales have increased approximately in proportion

\[ \text{Cf. ante, pp. 48-50.} \]
## Figure 19

"THE FIRM"

**Statements of Revenues and Recouped Costs**

<table>
<thead>
<tr>
<th></th>
<th>For years</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Total &quot;activity&quot; funds inflows</td>
<td>$16,000</td>
<td>$30,700</td>
<td>$43,500</td>
<td>$53,800</td>
<td></td>
</tr>
<tr>
<td>Types of &quot;activity&quot; funds inflows:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working capital funds -</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of goods manufactured and sold</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other necessarily incurred operating costs</td>
<td>$2,170</td>
<td>$2,390</td>
<td>$2,630</td>
<td>$2,890</td>
<td></td>
</tr>
<tr>
<td>Recouped depreciation funds</td>
<td>3,330</td>
<td>6,000</td>
<td>8,000</td>
<td>9,333</td>
<td></td>
</tr>
<tr>
<td>Funds earned for government -</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taxes (22%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less investment credit</td>
<td>lost (233)</td>
<td>(233)</td>
<td>(233)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incremental activity inflows</td>
<td>-0-</td>
<td>1,957</td>
<td>3,642</td>
<td>5,129</td>
<td></td>
</tr>
<tr>
<td>Total &quot;activity&quot; funds inflows</td>
<td>$16,000</td>
<td>$30,700</td>
<td>$43,500</td>
<td>$53,800</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total &quot;activity&quot; funds inflows</td>
<td></td>
<td>$60,800</td>
<td>$64,000</td>
<td>$64,000</td>
<td></td>
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<tr>
<td>Types of &quot;activity&quot; funds inflows:</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Working capital funds -</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Cost of goods manufactured and sold</td>
<td></td>
<td>$39,900</td>
<td>$42,000</td>
<td>$42,000</td>
<td></td>
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<tr>
<td>Other necessarily incurred operating costs</td>
<td></td>
<td>3,180</td>
<td>3,500</td>
<td>3,500</td>
<td></td>
</tr>
<tr>
<td>Recouped depreciation funds</td>
<td>10,000</td>
<td>10,000</td>
<td>15,800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Funds earned for government -</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taxes (22%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less investment credit</td>
<td></td>
<td>(233)</td>
<td>(233)</td>
<td>(233)</td>
<td></td>
</tr>
<tr>
<td>Incremental activity inflows</td>
<td></td>
<td>6,255</td>
<td>6,863</td>
<td>1,063</td>
<td></td>
</tr>
<tr>
<td>Total &quot;activity&quot; funds inflows</td>
<td>$60,800</td>
<td>$64,000</td>
<td>$64,000</td>
<td>$64,000</td>
<td></td>
</tr>
<tr>
<td>&quot;Time&quot; changes in funds - holding gains realized</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$2,900</td>
</tr>
<tr>
<td>Re-cap of changes in funds:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incremental activity inflows</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$1,063</td>
</tr>
<tr>
<td>Holding gains realized</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2,900</td>
</tr>
<tr>
<td>Changes in retained earnings wrought through activity and time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$3,963</td>
</tr>
</tbody>
</table>

---

*aExcludes depreciation.

*bEconomic depreciation as defined, vide pages 32-33 and 50-51.
to the increase in investment of $10,000 made in each of the ensuing four years (years two through five) by the ownership equity but qualified by the utilization of available capacity. Utilization has increased by 5% per year beginning with a 75% utilization in the first year (100% capacity utilization is the operation level attained for the sixth and seventh years).

(2) Cost of goods manufactured and sold, in the light of relatively stable economic conditions (see the general and specific indices in Figure 21, page 136), have remained in the ratio to sales of approximately 21:32.

(3) Depreciation, as reported in the statements, is economic depreciation as defined in Chapter III. Cost values are construed as current cost of long-lived assets funds encompassing any changes in purchasing power as well as changes in specific demand for comparable functional capacity (held stable in the initial years of operation in "The Firm" problem, vide Figure 21, page 136, cf. post, Figure 25, page 156). Depreciation accounting defines the quantity of these current costs as expended per current period reflected in the statements of revenues and recouped costs; realistically, income taxes have been computed after depreciation based on historical cost.

\[5\text{Cf. ante, Figure 6, p. 41, illustrates the computation of depreciation thus used.}\]
Figure 20

"THE FIRM"
Condensed Statements of Position

<table>
<thead>
<tr>
<th>End of respective years</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common assets funds</td>
<td>$10,000</td>
<td>$13,330</td>
<td>$21,290</td>
<td>$32,932</td>
</tr>
<tr>
<td>Committed long-lived</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>assets funds:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost values</td>
<td>$10,000</td>
<td>$10,000</td>
<td>$20,000</td>
<td>$30,000</td>
</tr>
<tr>
<td>Accumulated depreciation</td>
<td>$(3,330)</td>
<td>$(9,333)</td>
<td>$(17,333)</td>
<td></td>
</tr>
<tr>
<td>Total assets funds</td>
<td>$20,000</td>
<td>$20,000</td>
<td>$32,957</td>
<td>$45,599</td>
</tr>
</tbody>
</table>

Sources of funds - owners' equity:
- Capital stock          | $20,000 | $20,000 | $30,000 | $40,000 |
- Retained earnings      | $0      | $0      | $1,957  | $5,599  |
| Total of sources of funds | $20,000 | $20,000 | $31,957 | $45,599 |

End of respective years

<table>
<thead>
<tr>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common assets funds</td>
<td>$47,394</td>
<td>$63,649</td>
<td>$70,512</td>
</tr>
<tr>
<td>Committed long-lived</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>assets funds:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost values</td>
<td>$40,000</td>
<td>$50,000</td>
<td>$50,000</td>
</tr>
<tr>
<td>Accumulated depreciation</td>
<td>$(26,666)</td>
<td>$(36,666)</td>
<td>$(36,666)</td>
</tr>
<tr>
<td>Total assets funds</td>
<td>$60,728</td>
<td>$76,983</td>
<td>$83,846</td>
</tr>
</tbody>
</table>

Sources of funds - owners' equity:
- Capital stock          | $50,000 | $60,000 | $60,000 | $60,000 |
- Adjustment of owners' investment because of changes in purchasing power of funds committed to long-lived assets |     |     |     | 2,900 |
- Realizable purchasing power changes in funds committed to long-lived assets |     |     |     | 2,100 |
- Realizable changes, through holding, in funds committed to long-lived assets |     |     |     | 2,100 |
- Retained earnings      | 10,728  | 16,983  | 23,846  | 27,809  |
| Total of sources of funds | $60,728 | $76,983 | $83,846 | $94,909 |
(l) Total output of product is assumed sold each year so that recouped depreciation funds equals economic depreciation for the year, i.e., no depreciation charges are deferred for recoupment in subsequent periods within inventories carried over to these periods.

(5) Other necessarily incurred costs, operating expenses, are assumed to have increased approximately 10% per annum.

(6) Since the owners' equity during the initial five years is assumed to have been making investments in the company, and since The Firm may be considered relatively young, no dividends have been paid.

(7) Commencing in year six, a reinvestment program at the direction of management is assumed to be in effect with reference to the blocks or lots of long-lived assets funds fully depreciated at the end of their five-year economic life.

(8) The investments in long-lived assets possess a five-year economic life, therefore, only one-third of each investment block qualifies for the investment credit and is not eligible for the additional first-year depreciation deduction.

(9) Figure 21, page 136, summarizes other pertinent data for these initial years of operation (further information revolving around replacement costs and economic depreciation thereon, for years 8 through 12, are summarized in Figure 25, page 156).

Several comments are in order. First, for the sake of argument,
### Figure 21

**SUMMARY OF PERTINENT ECONOMIC AND ACCOUNTING DATA**

**For First Seven Years of Operations of "The Firm"**

<table>
<thead>
<tr>
<th>Years</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Rate of growth in investment in long-lived assets</td>
<td>100%</td>
<td>50%</td>
<td>33 1/3%</td>
<td>25%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2) Capacity utilized</td>
<td>75%</td>
<td>80%</td>
<td>85%</td>
<td>90%</td>
<td>95%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>(3) Rate of return on average investment</td>
<td>-0-</td>
<td>7.5%</td>
<td>9.4%</td>
<td>9.6%</td>
<td>9.1%</td>
<td>8.5%</td>
<td>4.4%</td>
</tr>
<tr>
<td>(4) Commitment of funds to long-lived assets:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New investment</td>
<td>$10,000</td>
<td>$10,000</td>
<td>$10,000</td>
<td>$10,000</td>
<td>$10,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reinvestment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retirement (fully depreciated)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cumulative investment (beg. yr.) - original cost</td>
<td>$10,000</td>
<td>$20,000</td>
<td>$30,000</td>
<td>$40,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$50,000</td>
</tr>
<tr>
<td>(5) Indices (year end):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General price</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>110%</td>
</tr>
<tr>
<td>Long-lived asset specific</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>120%</td>
</tr>
<tr>
<td>(6) Tax bracket</td>
<td>22%</td>
<td>22%</td>
<td>22%</td>
<td>22%</td>
<td>22%</td>
<td>22%</td>
<td>22%</td>
</tr>
<tr>
<td>(7) Depreciation:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tax depreciation</td>
<td>$3,330</td>
<td>$6,000</td>
<td>$8,000</td>
<td>$9,333</td>
<td>$10,000</td>
<td>$10,000</td>
<td>$10,000</td>
</tr>
<tr>
<td>Economic depreciation</td>
<td>$3,330</td>
<td>$6,000</td>
<td>$8,000</td>
<td>$9,333</td>
<td>$10,000</td>
<td>$10,000</td>
<td>$15,000</td>
</tr>
<tr>
<td>(8) Purchasing power change in economic depreciation charge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tax thereon (at 22%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purch. power change after tax</td>
<td>$2,900</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(9) Long-lived assets funds retained:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tax depreciation</td>
<td>$3,330</td>
<td>$6,000</td>
<td>$8,000</td>
<td>$9,333</td>
<td>$10,000</td>
<td>$10,000</td>
<td>$10,000</td>
</tr>
<tr>
<td>Purch. power change after tax</td>
<td>$2,900</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Invest. credit augmentation lost</td>
<td>233</td>
<td>233</td>
<td>233</td>
<td>233</td>
<td>233</td>
<td>233</td>
<td>233</td>
</tr>
<tr>
<td>Purch. power charge after tax</td>
<td>2,262</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Total Purch. power charge after tax | 2,262 | 2,262 | 2,262 | 2,262 | 2,262 | 2,262 | 2,262 |

Total Purch. power change after tax: $12,475
it is assumed that The Firm is in a relatively unique position in that it has operated in the "black" since inception (the first year being a break-even situation). Years 2 through 6 have produced above the minimum desired rate of return on investment of 7%. The rate of return in the seventh year (see Figure 21) is 4.4%, but if the economic inflows of $3,963 (i.e., incremental "activity" inflows, $1,063, plus "time" inflows realized through holding, $2,900) are adjusted by the purchasing power retained through the depreciation charge, $2,900, then the rate of return is 7.6%. However, it is to be noted that the latter is the result of computation based strictly on a unitized monetary basis and for reporting to management (the primary aim of this paper) is misleading if unqualified. Attention should be directed to how much original purchasing power has been taxed. Had depreciation based on purchasing power been allowed for tax purposes, the tax would have been $1,232, based on economic depreciation, $594.

At the start of the sixth year of operations, management is confronted with the first reinvestment in long-lived functional capacity. This represents commitment to the identity of long-lived assets funds of funds not newly contributed by the ownership equity. It is assumed in the illustration that management decides at the beginning of the sixth

---

6 The income of the first year of $16,000 = 75% utilization X 5/15 total revenue contribution; therefore, $16,000 = .75 X 5/15Z (where Z = maximum revenue contribution expected), or Z = $64,000, and for the first year, 5/15($64,000) is $21,333. In the first year, $20,000 investment + r($20,000) = $21,333, or 6.665% return (r); the 6.665% is assumed to be modified by the owners' expectations to 7%.
year to operate the then present functional capacity for two year, such functional capacity to be maintained because it is needed for operations. Management should have no difficulty with this reinvestment because recouped depreciation funds from the year completed are currently available, and alone are $10,000. It can be reasoned that these funds possess the nature of availability in the light of data already presented. To that date recouped depreciation funds allowed to become a part of common assets funds, because of no policy of continuous investment of recouped depreciation funds, sum to $36,666 (which are equal to 366.66% of gross cost of an investment block in long-lived assets). Looking at the following ratios for the several years:

<table>
<thead>
<tr>
<th>Years:</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working capital outflows</td>
<td>1.09</td>
<td>1.30</td>
<td>1.15</td>
<td>0.95</td>
<td>0.78</td>
<td>0.68</td>
<td>0.62</td>
</tr>
<tr>
<td>Average common assets funds</td>
<td>1.27</td>
<td>2.05</td>
<td>2.26</td>
<td>2.10</td>
<td>1.81</td>
<td>1.50</td>
<td>1.27</td>
</tr>
</tbody>
</table>

OR

\[
\frac{\text{Working capital outflows}}{\text{Average common assets funds}} = \begin{cases} 
1.27 & \text{excluding recouped depreciation funds} \\
2.05 & \text{year 2} \\
2.26 & \text{year 3} \\
2.10 & \text{year 4} \\
1.81 & \text{year 5} \\
1.50 & \text{year 6} \\
1.27 & \text{year 7}
\end{cases}
\]

It is readily discernible that even without the recouped depreciation funds being allowed to enter the common assets funds (working capital funds), that working capital is sluggish. This sluggishness is defined in the light of a majority of business credit being conducted on a 30, 60, 90-day basis, or as an average, on a 60-day basis or turnover of 6 times per year. Looking at the second series of ratios above, the common assets funds (not extended to include depreciation funds recouped to date) turned over only two and a quarter times in year 3 and then declined steadily in their turnover. There seems little doubt that
funds are available at the start of year 6, when in the preceding year average common assets funds turned over only 0.78 times; even if the recouped depreciation funds to date had not been construed available as working capital, the remaining common assets funds only turned over 1.8 times. Had the initial investment made by the owners for the purpose of use as working capital not been as liberal, had the initial investment been £2,000 working capital and £10,000 in long-lived assets, the above ratios would have been:

<table>
<thead>
<tr>
<th>Years</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working capital outflows</td>
<td>3.46</td>
<td>2.42</td>
<td>1.63</td>
<td>1.19</td>
<td>0.91</td>
<td>0.77</td>
<td>0.69</td>
</tr>
<tr>
<td>Average common assets funds</td>
<td>OR</td>
<td>6.34</td>
<td>7.55</td>
<td>5.39</td>
<td>3.76</td>
<td>2.72</td>
<td>2.03</td>
</tr>
<tr>
<td>Working capital outflows</td>
<td>(Average common assets funds)</td>
<td>(excluding)</td>
<td>(recouped depreciation funds)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There is a growth factor in the common assets funds (working capital as defined by current accounting conventions), the source of which is recouped depreciation funds. If the recouped depreciation funds are allowed unconsciously to enter into the common assets funds, they can slow down the working capital turnover under given conditions, can cause it to grow sluggish. In times of profit it is an augmentation of working capital funds - a shift in funds from the nature of long-lived assets to working capital - and it is a situation to which management easily can become accustomed. In current times when prime interest rates are soaring, it becomes even more reasonable to seek lines of credit for financing working capital for short intermittent periods of time rather than financing large, long-lived, more costly projects at
prevailing high rates such as 8 to 10%. It becomes better management to seek to reinvest recouped depreciation funds in long-lived assets and thereby reduce the large amounts which must be financed for relatively long periods of time.

In earlier accounting literature there were specific arguments and statements implying (at least) funding of depreciation reserves; references and their implications still persist in this direction—it is an idea, a feeling that persists in spite of arguments, strong arguments, against such. It is suggested that the feeling persists because it is present—the funding—but undefined by accounting procedures (practical and theoretical). In Chapter VI it was sought to emphasize that "depreciation defines recouped funds" and that these funds, if emphatically recognized and reported as available can be consciously managed and directed to maintain the integrity of the long-lived assets funds. It is conceded that funding per se of the balance

---


9 Cf. ante, particularly pp. 123-125.
of the "accumulated depreciation" would weaken the effectiveness of financial management and conceivably could be a costly policy in the long run. On the other hand, it is suggested that the portion of such balances defined and originating from the current depreciation charges, economically stated, are "funded" to the extent that they are currently covered by revenues. Management therefrom has available to it a source of funds currently available for maintaining, at least a portion of, the functional capacity of the long-lived assets. For the new firm these currently available funds, if recognized and so committed can contribute to expansion of employable functional capacity without additional investment; for the matured firm, maintain the integrity, i.e., the purchasing power, committed to the long-lived assets funds identity without new investment. Under the controlled assumptions underlying The Firm problem being examined where unrecoupable outflows per se have not been allowed (such as dividends and debt rentals, and taxes are treated as an income distribution), the recouped depreciation funds are quite discernible. The latter statement, beyond the ratios presented above, can be approached and made more clear either through one further simple analysis or through some recommendations regarding accounting reporting to management.


\[11\] Vide p. 138 and p. 139.
If funds of the various natures, which comprise the total funds flow which is the firm entity (regardless of point in flow, i.e., outflow, inflow, or intermittent passivity), are traceable, then the working capital\(^{12}\) for The Firm less retained depreciation funds accounted for as recouped to date is equal to original working capital plus retained earnings. Using the previous data, this observation may be quantified for selected years:

<table>
<thead>
<tr>
<th>End of year</th>
<th>1</th>
<th>3</th>
<th>5</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working capital per statement of position</td>
<td>$13,330</td>
<td>$32,932</td>
<td>$63,649</td>
<td>$77,375</td>
</tr>
<tr>
<td>Recouped depreciation funds, in terms of original monetary quantum</td>
<td>(3,330)</td>
<td>(17,333)</td>
<td>(36,666)</td>
<td>(36,666)</td>
</tr>
<tr>
<td>Retained monetary units to compensate for purchasing power changes</td>
<td>(2,900)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Original working capital</td>
<td>$10,000</td>
<td>$10,000</td>
<td>$10,000</td>
<td>$10,000</td>
</tr>
<tr>
<td>Retained earnings per statement of position</td>
<td>-0-</td>
<td>5,599</td>
<td>16,983</td>
<td>27,809</td>
</tr>
<tr>
<td></td>
<td>$10,000</td>
<td>$15,599</td>
<td>$26,983</td>
<td>$37,809</td>
</tr>
</tbody>
</table>

The above is intended to emphasize:

(1) Even though this paper is concerned primarily with depreciation when considering the recouping of cost, for purposes of emphasis, it should be observed that for there to be an incremental inflow of funds, all expenditures

\(^{12}\)In general, would be the common assets funds as defined in Figure 13, page 65, and comprised of what is construed as working capital assets plus depreciation funds recouped, as defined in this paper, and, in more extended circumstances, embracing all assets other than long-lived assets funds still unrecouped.
including working capital expenditures must be recouped.

This observation is made to continue the shift of emphasis from the net figures of accounting to the gross amounts involved. 13

(2) Working capital (common assets funds) grows through the retention of earnings.

(3) Further working capital growth, beyond retention of earnings, is directly traceable to charges made for depreciation when deriving the net increment, from activity, accruing to the firm. 14

The simplified conditions and the controlled assumptions of The Firm problem make these observations readily discernible.

Regarding recommendations pertaining to accounting reporting for management, these pertinent facts might be made more evident by extending

13 Cf. ante, pp. 68ff.

14 It is not that the legitimacy of the depreciation charge is doubted generally; it is the emphasis on "net" revenues to the exclusion of the consideration that it is "gross" revenues (inflows) that should be the first object of management's attention which contributes much ambiguity to the accounting-management problem of maintaining the integrity of long-lived assets funds. "Net" implies "after something." In the continuous straining for profit maximization and, therefore, the studied concentration on the "net" results, as reported, the "something" which the "net is after" becomes passively accepted as being there only as a determinant of the "net." An object of study of this paper - depreciation among the "recouped costs" - is among these passively accepted determinants. Depreciation funds do not receive due emphasis in terms of being recouped and available and, therefore, a specific consideration among alternatives in decision making affecting maintenance of the integrity of the long-lived assets funds as well as a source of working capital.
the application of the "funds identification format" so when planning (budgeting) is engaged in and the reports to date are pulled to be considered, analyses as above do not have to be made. Recasting the asset portion of the condensed statements of position of Figure 20, page 134, for the sixth and seventh years and superimposing a "funds identification format," they would appear as in Figure 22, page 145.

If management has decided that, even though undeployed to date in re-investment in long-lived assets, recouped depreciation funds should continue such identity, part (A) of Figure 22 reflects this decision. If management directs recouped depreciation funds shall enter into the common assets funds, then accounting should continue to keep management conscious of the magnitude of such previous decisions through annotation as well as directing attention to currently recouped and available depreciation funds (see part "B" of Figure 22). This also should keep management aware of the growth factor in working capital funds attributable to the depreciation charges made in computing net inflows from operations; as a possible source of working capital funds management should not be dependent upon such if the integrity of the long-lived assets funds suffers.

With reference to another statement which is held to be supplemental to the statements of revenue and recouped costs and of position, as well as forming a part of good reporting, the statement of sources and applications of funds may be modified also by the "funds identification format." A possible modification is illustrated in Figure 23, page 147; a partial outline of a statement of sources and applications
Figure 22

"THE FIRM"

PARTIAL CONDENSED STATEMENTS OF POSITION
AS RECAST EMPLOYING FUNDS IDENTIFICATION FORMAT

(A) Reflecting under "common assets funds" management's decision that recouped depreciation funds should retain their separate identity according to nature.

End of year

Common assets funds:
  Working capital funds ........ $ 33,846
  Depreciation funds:
    Recouped to present year . . . 26,666 $ 26,666
    Recouped in present year . . . 10,000 10,000
    Retained monetary units to compensate for purchasing power changes . . . $ 70,512

  Committed long-lived assets funds:
    Historic cost . . . . . . . $ 50,000
    Purchasing power changes in funds committed .......... 5,000
    Realizable asset appreciation through holding . . . . . . . $ 50,000

    Less accumulated depreciation of:
      Historic cost . . . . . . . $ 36,666
      Purchasing power changes of funds committed . . . . 2,900

    Committed current costs . . . . $ 13,336

(B) Reflecting under "common assets funds" management's decision that recouped depreciation funds of prior years not reinvested in long-lived assets should become a part of working capital funds.

End of year

Common assets funds:
  Working capital funds (embracing $26,666 of depreciation funds recouped in prior years) $ 60,512
  Depreciation funds -
    Recouped in present year . . . 10,000 $ 10,000
    Retained monetary units to compensate for purchasing power changes . . . . $ 70,512

*Will remain constant for the matured firm under conditions, as posited, where reinvestment of fully depreciated assets funds is the policy.
of funds (renamed a "statement of funds inflows and funds outflows"), with data for The Firm for year seven filled in where applicable, is presented therein.

In paper after paper on the statement of sources and applications of funds wherein there is a seeking of an explanation, for the users of the statement, for adding back the depreciation charge to the net income figure, the obvious explanation generally seems to be overlooked. The figure sought in such mathematical manipulation is a statement of gross inflows; in seeking to describe the funds flows it is necessary to commence with a statement of gross inflows before outflows and shifts in funds by nature can be defined. The depreciation charge is a reasonable earmarking of a portion of the "gross" in accounting for all necessarily incurred and recognizable costs recouped in this gross inflow of funds (but "recouped" does not inherently define continuation of these funds as long-lived assets funds). Further refinements in analysis are necessary, encompassing an appreciation of:

(1) a distinction between what should be implied by "cash flows" and what should be implied by "funds flows," and

(2) the timing of cash outflows in relation to the timing of revenue charges indicative of long-lived assets funds outflows.\(^\)\(^1\)

The crux of the matter is an analysis penetrating enough to

Figure 23

"THE FIRM"

Statement of Funds Inflows and Funds Outflows
(employing funds identification format)

Funds inflows:
- Net income from operations .................. $1,063
- Less: Investment credit (see footnote "a" below) (233)
- Initial depreciation allowance (see "a" below) (XXX) $850
  OR
  - Long-lived assets funds not reinvested and currently available subject to managerial decision...
  - Funds from sources other than operations:
    - Assets liquidated - sale of long-lived assets. $XXX,XXXa

[Statement continued as per usual]

Total funds from all sources .................. $XXX,XXX

Funds outflows as directed by management:
- Long-lived assets funds increased by contributions
  from common assets funds ........................... $X,XXXc

[Statement continued as per usual]

Total funds flows as directed by management...

Net increase (decrease) in common assets funds per decisions of management...

Changes in long-lived assets funds:
- Economic depreciation recouped (see statement of revenues and recouped costs) ............... $15,800
- Less holding gains realized .................. (2,900)
- Committed purchasing power recouped .......... $12,900
- Augmentation of:
  - Investment credit .............................. 233
  - Initial depreciation allowance ........... XXX
- Long-lived assets funds recouped, augmentations, and currently available through operations...
- Long-lived assets funds made available through asset liquidation .......................... XXX
- Currently available long-lived assets funds ...

<table>
<thead>
<tr>
<th>项</th>
<th>$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reinvestment in functional capacity</td>
<td>$10,000</td>
</tr>
<tr>
<td>Expansion of functional capacity</td>
<td>XXX</td>
</tr>
<tr>
<td>Long-lived assets funds not reinvested and currently available subject to managerial decision</td>
<td>3,133</td>
</tr>
</tbody>
</table>

Changes in long-lived assets funds might best be presented as a supplemental schedule.

Further funds identification by source is possible here.

*If in "a" above commitments to long-lived assets funds exceed currently available long-lived assets funds, then the difference would appear in body of statement in this position.
determine the "shift" in funds between the long-lived assets and the working capital.\textsuperscript{16} For the same period as covered by the funds statement, if commitment of funds (including liquid funds from irregular activity, i.e., sale of long-lived assets, less amounts financed by debt equity) to the nature of long-lived assets equals such revenue charges for depreciation (so stated as to have current economic significance), then the economic integrity of the long-lived assets funds has been maintained.\textsuperscript{17} If these commitments exceed such charges there has been an expansion of the economic power committed to the long-lived assets funds, but if these commitments are less, then there has been a shift in the nature of funds from a committed nature of long-lived assets funds to a circulating nature of the common assets funds. The latter, which as a result of current de-emphasis (or lack of emphasis) of funds flows, allows fixed assets funds to circulate unconsciously into working capital funds, an occurrence with which this paper takes exception. In other words, if accountancy does not emphasize such shifts, then in the latter case a "by the board" decision to release these funds from

\textsuperscript{16}Paton discusses the problem as one "of sorting current revenue deductions into two pools, (1) charges reflecting current expenditures and (2) charges representing expenditures of earlier or later periods. Ibid., p. 247.

\textsuperscript{17}That is, equal to Hicksian economic well-being at the beginning of the period. There is one qualification of the statement of well-being, a settling (reduction) of such induced by extraordinary (capital) losses, which this paper has not delved into, but which would receive its proper accounting, in the application of the method implied in this paper in accounting for depreciation, both in the accounts and in the statements. In other words, the accounting and reporting is extendable to cover holding gains, therefore, it can be extended to cover holding losses.
commitment to a nature of long-lived functional capacity can have occurred. Accounting rather should make management aware that these funds have completed their cycle and are available once more for such deployment in the course of making current decisions, if such continuance of functional capacity is needed in the attainment of presently defined objectives.

The primary intent of the modifications of the statement of funds, as seen in Figure 23, is to emphasize current shifts in funds as between long-lived assets and common (working capital) assets. Mason observes "the most characteristic feature of a funds statement for a business enterprise is the elimination of the effect upon net income of 'non-fund' transactions, of which depreciation is the most common example."\(^{18}\)

As an underlying theme, this paper has sought to emphasize that funds are all financial resources composed of several (many) strata of assets characterized by varying degrees of liquidity, and that the economic values represented by the assets are in a constant state of flux through the dimensions of time and of activity. Because of this flux of assets values, the specific assets which are the object of this study and are long-lived by nature cannot be isolated for consideration from all strata of assets of the firm.\(^{19}\) To start with, cash assets representing an economic value to command are exchanged for assets of a long-lived

---


\(^{19}\) Cf. ante, pp. 8-13, 62-63, 66, and 104-107.
nature, the exchange taking place only if the exchanger is satisfied that the economic value to command is still present as now represented by assets of a long-lived nature. Subsequently these funds represented by the physical long-lived assets command, are exchanged for, revenues through activity of the firm. The economic values have come full cycle through investment, disinvestment and are available for reinvestment. Contrary to Mason's statement, therefore, there cannot be such a thing as a "non-fund" transaction internally or externally. As Smith has succinctly observed, "Capital in transition becomes a flow of funds."\textsuperscript{20}

Although taking exception to the statement that depreciation is a non-fund transaction\textsuperscript{21} in view of the definition of funds and the use of the term in this paper, the effect of the depreciation charge upon net income is not opened to questioning by adding it back to net income in the format advanced in Figure 22. Net income is left as defined in the statement of revenues and recouped costs; the net "shift" between long-lived assets funds and the more liquid assets commonly referred to as working capital is determined and shown separately and apart from the "incremental 'activity' inflows." In footnote "a" of the Figure, the economic value originally committed to the nature of long-lived assets is accounted for as recouped and of this amount available how much has been reinvested.\textsuperscript{22} The balance is emphasized as waiting for

\textsuperscript{20}Smith, op. cit., p. 170.


\textsuperscript{22}Paton, "The 'Cash-Flow' Illusion," loc. cit.
management's directives. This illustration is overly simplified; Paton has delved into the analyses which evolve a statement of the "shift" between working capital funds and long-lived assets funds. Indicated augmentation of the recouped depreciation funds in footnote "a" of Figure 23 are discussed in the following paragraphs.

In Chapter V augmentation of the currently available depreciation funds recouped was discussed. Reflected in the earlier illustrations of statements of The Firm, the management decisions with reference to the $3,133 of long-lived assets funds not reinvested and currently available (Figure 23, computations in footnote "a") were:

1. The $2,900 of retained monetary units to compensate for purchasing power changes in funds committed to long-lived assets were merged in the common assets funds in Figure 20, page 134, and received a separate accounting, although under the general classification of common assets funds, in Figure 22, page 145; and,

2. The $233 investment credit, in both presentations of statements of position (Figures 20 and 22), was allowed to enter the common assets funds because of it being used as an offset to taxes in the statement of revenues and recouped costs in Figure 19, page 132, rather than as an augmentation of

---


recouped depreciation funds.

Figure 24 below would be the statement of position at the end of the seventh year for The Firm had the decision reflected in the statements been that the investment credit is an augmentation of recouped depreciation funds. This presentation would parallel the reasoning underlying

![Table](image)

Figure 24

THE FIRM
Partial Condensed Statement of Position
As of end of seventh year

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common assets funds:</td>
<td></td>
</tr>
<tr>
<td>Working capital funds</td>
<td>$ 36,411</td>
</tr>
<tr>
<td>Depreciation funds:</td>
<td></td>
</tr>
<tr>
<td>Recouped and not reinvested to present year</td>
<td>$ 26,666</td>
</tr>
<tr>
<td>Recouped in present year</td>
<td>10,000</td>
</tr>
<tr>
<td>Retained monetary units to compensate for purchasing power changes</td>
<td>2,900</td>
</tr>
<tr>
<td>Augmentation by investment credits:</td>
<td></td>
</tr>
<tr>
<td>To present year</td>
<td>$ 1,165</td>
</tr>
<tr>
<td>In present year</td>
<td>233</td>
</tr>
<tr>
<td>Sources of funds - owners' equity:</td>
<td></td>
</tr>
<tr>
<td>Capital stock</td>
<td>$ 60,000</td>
</tr>
<tr>
<td>Adjustment of owners' investment because of changes in purchasing power of funds committed to long-lived assets</td>
<td>2,900</td>
</tr>
<tr>
<td>Augmentation of funds committed to long-lived assets</td>
<td>1,398</td>
</tr>
<tr>
<td>Realizable purchasing power changes in funds committed to long-lived assets</td>
<td>2,100</td>
</tr>
<tr>
<td>Realizable changes, through holding, in funds committed to long-lived assets</td>
<td>2,100</td>
</tr>
<tr>
<td>Retained earnings</td>
<td>$ 68,498</td>
</tr>
<tr>
<td></td>
<td>26,411</td>
</tr>
</tbody>
</table>

*Also the "initial depreciation allowance" when available.*
the computations of footnote "a" of Figure 23.

There is one further variation which might be interjected before leaving the train of thought that Internal Revenue Code provisions, such as the investment credit, augment currently available recouped depreciation funds. Referring to sections (7) and (6) of Figure 21, note the taxation on the purchasing power adjustment of owners' investment in long-lived assets. This $638 is contained in the $1,870 of taxes earned for the government in the seventh year; it is levied because depreciation based only on the unitized monetary concept of cost is allowed for tax purposes. The investment credit might be construed just as logically a partial alleviation of this tax on purchasing power invested rather than as above wherein the implication has been a larger distribution of income in taxes. If this line of thought were to be pursued, the further modifications in the material, thus far presented, it is felt are self-evident. For example, taxes in the income statement would be broken down into two parts so that the tax on the purchasing power could be used to adjust the "purchasing power adjustment of owners' equity" in the statement of position. In defense of this line of reasoning, such reporting would call continued attention to taxation of invested economic values rather than being levied only on income. Contrariwise, it could defeat one of the purposes of adjusting for fluctuations in the purchasing power of economic investment, avoidance of dilutions of invested capital of given economic quanta, e.g., through dividend payments.

The above considerations have been presented as a basis for
considering the budgeting of recouped depreciation funds - it is accepted that a good part of budgeting plans are evolved on the basis of history to date; an understanding of the various natures of the items being dealt with should be very helpful in this respect. Regarding The Firm, there is a definite sluggishness in turnover of working capital; the same might be noted strongly with reference to capital turnover:

<table>
<thead>
<tr>
<th>Years</th>
<th>Sales</th>
<th>Average Invested Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.0</td>
<td>0.80</td>
</tr>
<tr>
<td>2</td>
<td>1.1</td>
<td>1.18</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>1.12</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>1.01</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>0.88</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>0.79</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>0.72</td>
</tr>
</tbody>
</table>

Horn gren has advanced an analysis setting forth the components of the rate of return as:

\[(\text{Capital turnover}) \times (\text{Marginal percentage on sales}) = \text{Return on investment}.\]

This paper is concerned, primarily, with the investment in long-lived assets and their ability to generate their own continuance. At present The Firm (end of seventh year) is over-invested and sales increases cannot be obtained since capacity utilization is 100% and all product is selling. Using Horn gren's analysis, the concern is either with the denominator of the capital turnover or the denominator of the return on investment, i.e., invested capital (these denominators are defined in

\(^{25}\text{Cf. ante, pp. 138-139.}\)

footnote 20). The most apparent alternatives are either a reduction in investment (for example, reduction of investment through large dividends) or expansion in functional capacity so that sales can be expanded. As of the beginning of the eighth year in the situation which the paper has posited (see part "A" of Figure 22, page 145), there is little doubt that the retained recouped depreciation funds are available and could allow for an expansion of functional capacity of approximately 93.33% (i.e., $39,566 total retained recouped depreciation funds minus $12,000 for present programmed reinvestment/$17,534 total net investment in functional capacity plus $12,000 present programmed reinvestment).

Management should be apprised of this by accounting.

If the change in the indices (general and specific) are assumed to be the emerging pattern for the next five years, present investment can generate currently available funds approximately equal to amounts needed to maintain itself (see Figure 25, page 156). Even if the taxes on purchasing power were to be treated in the alternate fashion (cf. Figures 21, parts 8 and 9), currently available funds from depreciation recouped as projected for the next five years would be:

<table>
<thead>
<tr>
<th>Year</th>
<th>Company A</th>
<th>Company B</th>
<th>Company C</th>
<th>Company D</th>
<th>Company E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$10,000</td>
<td>$15,000</td>
<td>$20,000</td>
<td>$25,000</td>
<td>$30,000</td>
</tr>
<tr>
<td>2</td>
<td>$12,000</td>
<td>$18,000</td>
<td>$24,000</td>
<td>$30,000</td>
<td>$36,000</td>
</tr>
<tr>
<td>3</td>
<td>$14,000</td>
<td>$21,000</td>
<td>$27,000</td>
<td>$33,000</td>
<td>$42,000</td>
</tr>
<tr>
<td>4</td>
<td>$16,000</td>
<td>$24,000</td>
<td>$30,000</td>
<td>$36,000</td>
<td>$48,000</td>
</tr>
<tr>
<td>5</td>
<td>$18,000</td>
<td>$30,000</td>
<td>$40,000</td>
<td>$48,000</td>
<td>$60,000</td>
</tr>
</tbody>
</table>

Depending on whether currently recouped depreciation funds are budgeted to be invested in the period of recouping or in the period immediately following would define whether or not the $17,906 of the tenth year...
<table>
<thead>
<tr>
<th>Year</th>
<th>General price</th>
<th>Assets' specific</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>120</td>
<td>140</td>
</tr>
<tr>
<td>9</td>
<td>130</td>
<td>160</td>
</tr>
<tr>
<td>10</td>
<td>140</td>
<td>180</td>
</tr>
<tr>
<td>11</td>
<td>150</td>
<td>200</td>
</tr>
<tr>
<td>12</td>
<td>160</td>
<td>220</td>
</tr>
</tbody>
</table>

(2) Replacement costs (beginning of year)  
- $12,000
- $14,000
- $16,000
- $18,000
- $20,000

(3) Economic depreciation on:

<table>
<thead>
<tr>
<th>Year</th>
<th>Investment lot no.</th>
<th>Economic depreciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>1</td>
<td>$3,333</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>$3,667</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>$3,933</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>$4,206</td>
</tr>
<tr>
<td>12</td>
<td>1</td>
<td>$4,485</td>
</tr>
</tbody>
</table>

Total economic depreciation: $18,931

Holding gains: $100

Purchasing power depreciation:

<table>
<thead>
<tr>
<th>Year</th>
<th>Cost Change in Economic Depreciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>$11,831</td>
</tr>
<tr>
<td>9</td>
<td>$13,681</td>
</tr>
<tr>
<td>10</td>
<td>$18,678</td>
</tr>
<tr>
<td>11</td>
<td>$20,872</td>
</tr>
<tr>
<td>12</td>
<td>$23,210</td>
</tr>
</tbody>
</table>

Total: $89,422

(4) Tax depreciation:

<table>
<thead>
<tr>
<th>Year</th>
<th>Tax depreciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>$10,667</td>
</tr>
<tr>
<td>9</td>
<td>$11,867</td>
</tr>
<tr>
<td>10</td>
<td>$13,167</td>
</tr>
<tr>
<td>11</td>
<td>$15,331</td>
</tr>
<tr>
<td>12</td>
<td>$17,331</td>
</tr>
</tbody>
</table>

Total: $65,422

(5) Long-lived assets funds retained:

<table>
<thead>
<tr>
<th>Year</th>
<th>Tax depreciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>$10,667</td>
</tr>
<tr>
<td>9</td>
<td>$11,867</td>
</tr>
<tr>
<td>10</td>
<td>$13,167</td>
</tr>
<tr>
<td>11</td>
<td>$15,331</td>
</tr>
<tr>
<td>12</td>
<td>$17,331</td>
</tr>
</tbody>
</table>

Total: $65,422
are short by $96 (the inference to this point has been that currently recouped funds are budgeted for use in the subsequent period). The very nominal substance of this amount is to be noted, approximating only $3/100 of one percent.

Variations of "The Firm" problem. "The Firm" problem is now recast, varying the initial problem as posited, by superimposing varying conditions with reference to the managing of recouped depreciation funds, as well as owner investments varying.

(1) The problem, as originally considered above, provided that depreciation funds recouped would not be reinvested continuously in functional capacity - that reinvestment would be made only upon expiration of the economic life of the long-lived assets; new owner investments for the purpose of acquiring additional functional capacity would be made in years 2 through 5.

These conditions are now varied as follows:

(2) In addition to new owner investment in each of the initial five years there is a program of reinvesting recouped depreciation funds in functional capacity each year.

(3) There is a program of reinvesting recouped depreciation funds in functional capacity each year but there will be no new owners' investments in years 2 through 5.

(4) The program as originally considered providing that recouped depreciation funds will not be reinvested continuously but rather functional capacity will be replaced only upon
expiration of its economic life and there will be no new owners' investments in years 2 through 5.

Leaving all the other conditions of The Firm problem relatively as stated originally, the results of recasting the problem, as well as under the original conditions, are summarized through statements presented in Figure 26, pages 159-161.

Regarding maintenance and replacement of long-lived assets, one connotation that may be attached to this aspect of capital accumulation is "improving existing equipment to keep ahead of competition, purchasing new equipment which is essential for the continuation of existing facilities." Incorporating this idea, the first five years have been recast as provided under conditions (2) above, the source of funds for such maintenance, replacement and purchasing of new equipment being new owners' investments and reinvestment of recouped depreciation funds. By the end of the fifth year the working capital turnover (the base net of recouped depreciation funds) has improved to 2.42 as compared to 1.81 under the original conditions, the rate of return, 17.8% compared to 9.1%, and capital turnover, 1.53 to 0.88. At the start of the sixth year the first investment block of $10,000 is due for replacement and the depreciation funds currently available from the operations of the fifth year sum to $20,081, whereas under the original conditions they summed to $10,000. If the owners' equity had made only the initial

27 Vide po. 131, 133 and 135.
28 Laederach, loc. cit.
Figure 26
"THE FIRM"
Financial Statements under Varying Conditions for Five Years

<table>
<thead>
<tr>
<th>STATEMENTS OF REVENUES AND</th>
<th>Year I (75% capacity)</th>
<th>Year II (80% capacity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RECOUPED COSTS</td>
<td>(1)*</td>
<td>(2)*</td>
</tr>
<tr>
<td>Total &quot;activity&quot; funds inflows</td>
<td>$16,000</td>
<td>$16,000</td>
</tr>
<tr>
<td>Types of &quot;activity&quot; funds inflows:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working capital funds -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of goods manufactured and sold</td>
<td>$10,500</td>
<td>$10,500</td>
</tr>
<tr>
<td>Other necessarily incurred operating costs</td>
<td>2,170</td>
<td>2,170</td>
</tr>
<tr>
<td>Recouped depreciation funds</td>
<td>3,330</td>
<td>3,330</td>
</tr>
<tr>
<td>Funds earned for government -</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taxes (22%)</td>
<td>-0-</td>
<td>-0-</td>
</tr>
<tr>
<td>Less investment credit</td>
<td>lost</td>
<td>lost</td>
</tr>
<tr>
<td>Incremental &quot;activity&quot; inflows</td>
<td>-0-</td>
<td>-0-</td>
</tr>
<tr>
<td>Total &quot;activity&quot; funds inflows</td>
<td>$16,000</td>
<td>$16,000</td>
</tr>
</tbody>
</table>

| CONDENSED STATEMENTS OF POSITION - | | | | | | | | |
| Common assets funds | $13,330 | $13,330 | $13,330 | $13,330 | $21,290 | $19,699 | $14,104 | $16,213 |
| Committed long-lived assets funds: | | | | | | | | |
| Cost values | 10,000 | 10,000 | 10,000 | 10,000 | 20,000 | 23,333 | 13,333 | 10,000 |
| Accumulated depreciation | (3,330) | (3,330) | (3,330) | (3,330) | (9,333) | (10,000) | (7,111) | (6,000) |
| Total assets funds | $20,000 | $20,000 | $20,000 | $20,000 | $31,957 | $32,588 | $20,626 | $20,213 |
| Sources of funds - owners' equity: | | | | | | | | |
| Capital stock | $20,000 | $20,000 | $20,000 | $20,000 | $30,000 | $30,000 | $20,000 | $20,000 |
| Retained earnings | -0- | -0- | -0- | -0- | -0- | 1,957 | 2,588 | 626 | 213 |
| Total of sources of funds | $20,000 | $20,000 | $20,000 | $20,000 | $31,957 | $32,588 | $20,626 | $20,213 |

*Conditions (1), (2), (3), and (4) are defined in last column of this Figure, see page 119.
*Excludes depreciation.
*bEconomic depreciation as defined in this paper, vide pages 32-33 and 50-51.
Figure 26 (continued)
"THE FIRM"

Financial Statements under Varying Conditions for Five Years

<table>
<thead>
<tr>
<th>Year III (65% capacity)</th>
<th>Year IV (90% capacity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)*</td>
<td>(2)*</td>
</tr>
<tr>
<td>Total &quot;activity&quot; funds inflows</td>
<td>$43,500</td>
</tr>
<tr>
<td>Types of &quot;activity&quot; funds inflows:</td>
<td></td>
</tr>
<tr>
<td>Working capital funds -</td>
<td></td>
</tr>
<tr>
<td>Cost of goods manufactured and sold</td>
<td>$28,500</td>
</tr>
<tr>
<td>Other necessarily incurred operating costs</td>
<td>2,630</td>
</tr>
<tr>
<td>Recouped depreciation funds</td>
<td>8,000</td>
</tr>
<tr>
<td>Funds earned for government -</td>
<td></td>
</tr>
<tr>
<td>Taxes (22%)</td>
<td>961</td>
</tr>
<tr>
<td>Less investment credit</td>
<td>(233)</td>
</tr>
<tr>
<td>Incremental &quot;activity&quot; inflows</td>
<td>3,642</td>
</tr>
<tr>
<td>Total &quot;activity&quot; funds inflows</td>
<td>$43,500</td>
</tr>
</tbody>
</table>

CONDENSED STATEMENTS OF POSITION -

| | Year III (65% capacity) | Year IV (90% capacity) |
|-------------------------|------------------------|
| Common assets funds | $32,932 | $29,510 | $15,909 | $18,385 | $47,394 | $43,570 | $17,722 | $19,895 |
| Committed long-lived assets funds: | | | | | | | | |
| Cost values | 30,000 | 40,000 | 17,111 | 10,000 | 40,000 | 61,703 | 21,259 | 10,000 |
| Accumulated depreciation | (17,333) | (21,703) | (11,259) | (6,000) | (26,666) | (37,352) | (15,649) | (9,333) |
| Total assets funds | $45,599 | $48,251 | $21,761 | $20,385 | $60,728 | $67,921 | $23,332 | $20,562 |
| Sources of funds - owners' equity: | | | | | | | | |
| Capital stock | $40,000 | $40,000 | $20,000 | $20,000 | $50,000 | $50,000 | $20,000 | $20,000 |
| Retained earnings | 5,599 | 6,251 | 1,761 | 385 | 10,728 | 17,921 | 3,332 | 562 |
| Total of sources of funds | $45,599 | $48,251 | $21,761 | $20,385 | $60,728 | $67,921 | $23,332 | $20,562 |

*Conditions (1), (2), (3), and (4) are defined in last column of this Figure, see page

*Excludes depreciation.

Economic depreciation as defined in this paper, vide pages 32-33 and 50-51.
## Financial Statements under Varying Conditions for Five Years

### Statements of Revenues and Recouped Costs - Year V (95% capacity)

<table>
<thead>
<tr>
<th></th>
<th>(1)*</th>
<th>(2)*</th>
<th>(3)*</th>
<th>(4)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total &quot;activity&quot; funds inflows</td>
<td>$60,800</td>
<td>$122,500</td>
<td>$27,000</td>
<td>$4,100</td>
</tr>
<tr>
<td>Types of &quot;activity&quot; funds inflows:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working capital funds -</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of goods manufactured and sold</td>
<td>$39,900</td>
<td>$80,400</td>
<td>$17,700</td>
<td>$2,700</td>
</tr>
<tr>
<td>Other essentially incurred operating costs</td>
<td>3,180</td>
<td>4,400</td>
<td>2,550</td>
<td>560</td>
</tr>
<tr>
<td>Recouped depreciation funds</td>
<td>10,000</td>
<td>20,084</td>
<td>4,136</td>
<td>667</td>
</tr>
<tr>
<td>Funds earned for government -</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taxes (22%)</td>
<td>1,698</td>
<td>4,007</td>
<td>509</td>
<td>38</td>
</tr>
<tr>
<td>Less investment credit</td>
<td>(233)</td>
<td>(598)</td>
<td>(102)</td>
<td>0</td>
</tr>
<tr>
<td>Incremental &quot;activity&quot; inflows</td>
<td>6,255</td>
<td>11,207</td>
<td>1,907</td>
<td>135</td>
</tr>
<tr>
<td>Total &quot;activity&quot; funds inflows</td>
<td>$60,800</td>
<td>$122,500</td>
<td>$27,000</td>
<td>$4,100</td>
</tr>
</tbody>
</table>

### Condensed Statements of Position - Year V (95% capacity)

<table>
<thead>
<tr>
<th></th>
<th>(1)*</th>
<th>(2)*</th>
<th>(3)*</th>
<th>(4)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common assets funds</td>
<td>$63,649</td>
<td>$62,212</td>
<td>$19,675</td>
<td>$20,697</td>
</tr>
<tr>
<td>Committed long-lived assets funds:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost values</td>
<td>50,000</td>
<td>87,352</td>
<td>25,619</td>
<td>10,000</td>
</tr>
<tr>
<td>Accumulated depreciation</td>
<td>(36,666)</td>
<td>(57,436)</td>
<td>(20,085)</td>
<td>(10,000)</td>
</tr>
<tr>
<td>Total assets funds</td>
<td>$76,983</td>
<td>$92,128</td>
<td>$25,239</td>
<td>$20,697</td>
</tr>
<tr>
<td>Sources of funds - owners' equity:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital stock</td>
<td>$60,000</td>
<td>$60,000</td>
<td>$20,000</td>
<td>$20,000</td>
</tr>
<tr>
<td>Retained earnings</td>
<td>16,983</td>
<td>32,128</td>
<td>5,239</td>
<td>697</td>
</tr>
<tr>
<td>Total of sources of funds</td>
<td>$76,983</td>
<td>$92,128</td>
<td>$25,239</td>
<td>$20,697</td>
</tr>
</tbody>
</table>

### Definitions of Conditions

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)*</td>
<td>Recouped depreciation funds of the initial years not reinvested in functional capacity (reinvestment only upon expiration of economic life) but new owner investment in functional capacity in each of the initial five (5) years.</td>
</tr>
<tr>
<td>(2)*</td>
<td>Program of reinvesting recouped depreciation funds each year plus new owner investment in each of the initial five (5) years.</td>
</tr>
<tr>
<td>(3)*</td>
<td>Same as conditions (2) above except no new owner investment in years 2 through 5.</td>
</tr>
<tr>
<td>(4)*</td>
<td>Same as conditions (1) above except no new owner investment in years 2 through 5.</td>
</tr>
</tbody>
</table>

*Conditions (1), (2), (3), and (4) are defined in last column of this Figure, see above.

*Excludes depreciation.

*Economic depreciation as defined in this paper, vide pages 32-33 and 50-51.
investment (no additional investment in the four years subsequent to the year of inception of the business) and had management budgeted and invested the depreciation funds recouped each year, the amount of depreciation funds recouped in the fifth year would have been $14,436 to apply against the $10,000 reinvestment to be made at the start of the sixth year. Without the budgeting and reinvesting of recouped depreciation funds each year (new owners' investment subsequent to initial investment still not a condition), only $667 would have been currently recouped and available. The latter statements are not made to negate the original observations of amounts, other than currently recouped, probably being available because of the disproportionate growth factor in working capital (common assets) funds traceable to recouped depreciation funds entering into this class of assets.  

Under the last conditions this disproportionate growth factor is even more pronounced, having reduced the working capital turnover (recouped depreciation funds to date excluded from the denominator) to 0.31 as compared to the 1.81 turnover under the original conditions of The Firm problem. Figure 27, page 163, is a summary of the ratios under the four sets of condition, and for the initial five years, which have been emphasized in the discussion of The Firm problem.

The problem of The Firm encompasses the investment decision and the financing decision.  

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29 Cf. ante, pp. 138-139.  
30 Vide ante, p. 110.
Figure 27
SUMMARY OF PERTINENT RATIOS EVOLVED FROM "THE FIRM" PROBLEM
UNDER THE VARYING PRESCRIBED CONDITIONS

<table>
<thead>
<tr>
<th></th>
<th>Year I</th>
<th>Year II</th>
<th>Year III</th>
<th>Year IV</th>
<th>Year V</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WORKING CAPITAL TURNOVER</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- equals -</td>
<td>(1)*</td>
<td>(2)*</td>
<td>(3)*</td>
<td>(4)*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.09</td>
<td>1.09</td>
<td>1.09</td>
<td>1.30</td>
<td>1.60</td>
</tr>
<tr>
<td><strong>Working capital outflows</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.27</td>
<td>1.27</td>
<td>1.27</td>
<td>2.05</td>
<td>2.33</td>
</tr>
<tr>
<td><strong>Average common assets funds</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1)*</td>
<td>(2)*</td>
</tr>
<tr>
<td></td>
<td>0.95</td>
<td>1.71</td>
<td>1.13</td>
<td>0.32</td>
<td>0.78</td>
</tr>
<tr>
<td><strong>(ACID)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>WORKING CAPITAL TURNOVER</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- equals -</td>
<td>(1)*</td>
<td>(2)*</td>
<td>(3)*</td>
<td>(4)*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.27</td>
<td>1.27</td>
<td>1.27</td>
<td>2.05</td>
<td>2.33</td>
</tr>
<tr>
<td><strong>Working capital outflows</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.10</td>
<td>2.71</td>
<td>1.52</td>
<td>0.59</td>
<td>1.61</td>
</tr>
<tr>
<td><strong>Average common assets funds excluding recouped depreciation funds</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9.6%</td>
<td>16.6%</td>
<td>7.0%</td>
<td>2.7%</td>
<td>9.1%</td>
</tr>
<tr>
<td><strong>RETURN ON AVERAGE INVESTMENT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- equals -</td>
<td>(1)*</td>
<td>(2)*</td>
<td>(3)*</td>
<td>(4)*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7.5%</td>
<td>9.8%</td>
<td>3.1%</td>
<td>1.1%</td>
<td>9.1%</td>
</tr>
<tr>
<td><strong>Incremental &quot;activity&quot; inflows</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1)*</td>
<td>(2)*</td>
<td>(3)*</td>
<td>(4)*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.80</td>
<td>0.80</td>
<td>0.80</td>
<td>1.18</td>
<td>1.38</td>
</tr>
<tr>
<td><strong>Average invested capital</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.01</td>
<td>1.55</td>
<td>1.12</td>
<td>0.38</td>
<td>0.88</td>
</tr>
</tbody>
</table>

*Conditions are the same as defined in Figure 26, vide page*
cognizant of the ramifications of such decisions as well as aiding management in arriving at such decisions. "Accounting has identified itself with the measurement of corporate net profit, to the virtual exclusion of other aspects of business activity." Accountants must delve further and deeper into the analysis and expression of the items that comprise the "totals" which produce the "nets." With reference to recouped depreciation funds, it is for management to decide whether they should be so deployed again, committed to the nature of long-lived assets, or be allowed to enter the common assets funds; but it is for accountants to

... by following the flow of funds more closely ... there is not possibility of dividends therefrom [i.e., assets in which surplus resides] unless and until the funds involved are liberated, or unless and until other funds - such as the portion of gross revenue charged for the purpose of recognizing depreciation - are arrested in their normal flow and made to assume the role of net earnings.

As noted earlier, the cost of capital is primarily a financial management problem. For present purposes in surveying the treatment of the problem in current literature, it suffices to note that the cost of capital is accepted more and more as being definable not only by reference to borrowing rates but rather approaching it as a composite rate. It then is a rate that reflects not only the appraisal of the

---


lending market of the cost of funds but also in part is an owners' appraisal of the cost in light of returns on investment.

That there must be a minimum owner investment has long been a premise which lending institutions, such as banks, have acted upon in deciding whether to make funds available to loan applicants. On the one hand, the problem of The Firm, as first posited, attained a strong equity position (even stronger under the second set of conditions) which would be favorable in a borrowing situation were it decided expansion beyond currently available funds should be obtained and employed.

On the other hand, the problem demonstrates to a degree the internal costliness of the funds. Over and above the demonstration of self-induced sluggishness there is another aspect which it is felt adds to the costliness of the funds employed. Management's investment decisions (owners', too) are evidence of "expectations." Accounting gives expression to such "expectations" in recording and reporting these investments and their subsequent utilization. Accounting also should report to management "lost expectations," a factor which should be weighed in arriving at decisions concerning the commitment of funds to the identity of long-lived assets. "Why were such expectations lost?" is a question which needs to be answered before management, in considering recouped depreciation funds, directs their reinvestment in long-lived functional capacity. As between the sales budget and the capacity budget, as a part of operational capital budgeting, accounting should currently be appraising management of lost expectations. In The Firm problem there were gross lost revenue expectations in each of the first
five years of approximately:

<table>
<thead>
<tr>
<th>Conditions (1)</th>
<th>Years</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>5,300</td>
<td>7,700</td>
<td>7,700</td>
<td>5,900</td>
<td>3,200</td>
</tr>
<tr>
<td>Conditions (2)</td>
<td></td>
<td>5,300</td>
<td>9,100</td>
<td>10,600</td>
<td>10,100</td>
<td>6,500</td>
</tr>
<tr>
<td>Conditions (3)</td>
<td></td>
<td>5,300</td>
<td>4,800</td>
<td>3,900</td>
<td>2,800</td>
<td>1,400</td>
</tr>
<tr>
<td>Conditions (4)</td>
<td></td>
<td>5,300</td>
<td>3,400</td>
<td>1,900</td>
<td>833</td>
<td>167</td>
</tr>
</tbody>
</table>

Recapping the total inflows of The Firm as compared to the possible maximum expected contribution of revenues, there was lost 13% of expected revenues under the original conditions. With the second set of conditions, under which a program of reinvestment of currently available recouped depreciation funds supplemented new owner investment, this loss was reduced to 11%. Under conditions (3) and (4) the loss was 14% and 19%, respectively.

Summary. New owner investment and reinvestment of recouped depreciation funds were considered separately and in combination as possible sources of funds available for investment in functional capacity. These were the only variable sources of funds considered as far as funds for the purpose of commitment to long-lived assets. With two variable considered, the four possible combinations of these variables were observed through the medium of The Firm problem; between these four combinations there are six possible comparisons which can be made and can lend themselves to some generalizations.

(1) If both new investment funds and retained recouped depreciation funds are available, the use of both sources of

\[33\text{Cf. ante, footnote 6, p. 137.}\]
funds is preferable to the choice to employ either one or the other.

(2) If a selection is to be made between the two sources, new investment is the preferable choice because it increases total functional capacity at a greater rate than the capability of internally produced funds to generate their own continuance.

(3) Either source can supplement and improve the results of the other source.

(4) Even though internally generated funds affect their own continuation, and produce, therefore, revenues, but at a lesser rate than "new" funds, they still should be considered as one alternative in planning for maintenance and replacement of long-lived assets.\(^{34}\)

Any flow is comprised of elements; to control and direct the flow most effectively the natures of the elements comprising the total flow must be understood. Initially in the problem of The Firm, using conventional accounting procedures, working capital was summed with no definition of its sources by nature (cf. Figure 20, page 134), therefore, there was an assimilation of long-lived assets funds into this class of assets without definition or as the direct result of decisions of management. Even in the more detailed analyses, such as are found in

\[^{34}\text{Cf. ante, the connotation attached to this aspect of capital accumulation, page 158.}\]
statements of sources and applications of funds, such definition of
funds flows and shifts in funds are lost because of techniques employ-
ed.35 This de-emphasis (or lack of emphasis) of funds flows allows
fixed assets to circulate into working capital funds without management
being conscious of such shifts, without management specifically direct-
ing that this shall be the course of recouped depreciation funds. This
does not allow management to exercise its responsibility to make such
decisions. Modifications of analyzing and reporting suggested in the
presentation of The Firm problem have been presented, their intended
purpose being to put on management's shoulders the responsibility of
such decisions rather than these shifts between funds by nature being
the result of accounting procedures. The Firm problem demonstrates the
shift in funds between assets of a long-lived nature and of a common
assets or working capital funds nature. Accounting must trace and re-
port these funds flows to management; management must direct and control
these funds flows.

35For example, in the techniques employed in the preparation and
presentation of the statement of sources and applications of funds,
depreciation charges are added back to net income and then an expla-
nation for such mathematical operation is sought. (This is a procedure
which in itself has led to no end of misconceptions.) It is left to the
user of the statement, if so inclined, to compare these charges report-
ing consumed and recouped functional capacity to replacement of such
functional capacity under the "funds applied" section of the statement.
Such comparisons do not impart the important information as to how much
"shift," if any, in funds has occurred and in which direction - it would
very definitely be the exception rather than the rule for the two items
not to encompass some shifting of funds between assets of the nature of
long-lived and of the nature of circulating. The quantity of the shift
is not evident without detailed analysis, it is not provided by the
simple act of comparison between the figure reporting recouped depreci-
ation funds and the figure reporting investment in long-lived assets.
CHAPTER VIII

SUMMARY AND CONCLUDING OBSERVATIONS

A physical body is observed and to the senses, such as sight and touch, it is a solid, stable mass. Science has observed, however, that these bodies are a composite of a multitude of smaller bodies which are in constant motion. In the economic world, the firm, as an object of observation and analysis, reveals itself as a composite body of many parts in constant movement, some parts moving very rapidly and some, very slowly. There is the physical body of assets which is manifest of the identity of the firm but this physical body is composed of financial resources, funds, economic values, which are in a constant state of flux.

These funds or financial resources may be defined according to their source, their nature and/or their flow (movement). In this paper, the term "funds" unqualified has been employed to encompass all financial resources. The primary object of the study has been to observe and trace the funds identified through commitment to long-lived assets through their various stages of flux, the various spans of flow being investment, disinvestment and reinvestment. The term "funds" qualified variously as long-lived assets funds, depreciation funds and recouped depreciation funds has been used to define the resources of a physical, depreciable nature (long-lived assets funds) and their transformation from this committed, embodied state to a state of liquidity (recouped depreciation funds) through utilization (depreciation funds).
In observing, defining and reporting this transformation, the accountant is confronted with a two-dimensional problem, the movement or activity dimension of funds flows and the time dimension thereof. Neither dimension is mutually exclusive; the time dimension encompasses the activity dimension, but whereas time is continuous, activity is not necessarily continuous or uniform. Activity utilizing the services of the assets may be irregular and/or discrete. Commencing with the commitment of financial resources to the acquisition of physical agents of future service, the two dimensions of the problem manifest to accountants a parallel to the two dimensional considerations confronting the owners-investors and the managers of these funds. These parallels are:

(1) Economic sacrifice or deferral of use of economic values in expectation of recoupment plus increments (i.e., time defines the forbearance in the light of expectations of the future); and

(2) Expending of the economic values at a subsequent time(s) (i.e., activity defines the utilization and, hopefully, the fruition of the expectations of sacrifice in the produced subsequent revenues).

Initially commitment of liquid funds to the nature of long-lived assets funds is expressed in terms of cost couched in the monetary unit of the economy. Subsequently these costs values are expended and through an accounting convention matched against revenues to give statement to economic increments or losses. Through these subsequent times another aspect of the time dimension of the problem manifests itself - a
questioning of the accounting convention regarding the stability of the monetary unit as a unit of measure. The time dimension, encompassing general and specific activity, emphasizes the lack of stability of the monetary unit. The greater the lag between commitment and recoupment of the funds identified with long-lived assets the more evident the change in the magnitude of command of the monetary unit used as a means of expression of the long-lived assets funds and their economic value of command.

In considering this one stratum of total funds or financial resources, i.e., funds identified by commitment as long-lived assets funds, there seem to be several major facets of the accounting problem which accountants must consider and resolve:

(1) What is the magnitude of the economic value of liquid funds initially committed by management to an identity of long-lived assets funds?

(2) Periodically (if not continuously) give management a statement as to:
   a. What funds values are still embodied within the physical agents of service (asset accounting aspect of the problem)?
   b. How much of the funds values have been adequately identified and are chargeable as a proper measure of expenditures of the deferred economic values to produce current revenues (depreciation accounting aspect of the problem)?
   c. Are the monetary units used as a means of expressing
answers to these and other questions all of the same magnitude in terms of purchasing power or economic power to command other goods and services (financial aspect of the accounting problem)?

(3) If the funds values identified with long-lived assets (or a portion thereof) have been logically and defensibly accounted for as having been expended in the production of current revenues, have such been recouped and are they available for re-employment?

In other words, the facets of the problem of accounting for long-lived assets funds are their value, continuation, utilization and recoupment, and the planning therefor. These facets bespeak of a continuous flux of funds; these funds are of a transient economic nature.

A dynamic approach to the asset accounting aspect of the problem seems very attainable if a statement of existence of long-lived assets funds can be produced and defended as having current economic significance. The first step in producing such a statement having current economic significance is based to the concept that cost incurrence in the acquisition of long-lived assets is a commitment of purchasing power, the revenue producing effects of which are deferred. Further,

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1 In this direction, the one accounting convention which seems to need to be abandoned is the convention of the stable monetary unit. There can be no argument that stability of the magnitude of the purchasing power of the monetary unit does not exist — the housewife, the man on the street is cognizant of this economic fact of life. The measuring of this vacillation of purchasing power is not an accounting problem alone but accounting should take a very active part in its definition and resolution.
cost is an evaluation of future benefits discounted to date of acquisition (consciously or unconsciously) and equated to acquisition cost, otherwise such cost incurrence would be foregone because it would not be worthwhile (profitable) to make the acquisition commitment. The purchasing power of the funds committed to the long-lived assets identity varies within the two dimensions observed, i.e., the time dimension and the activity dimension. Asset accounting and depreciation accounting, subsequent to acquisition of the long-lived asset(s), jointly can qualify this committed purchasing power through the time and activity dimensions of the lives of the long-lived assets funds.

This paper has taken the general-specific index approach to such qualification.²

Time encompasses the change in both the general and the specific index. The index of general purchasing power qualifies the monetary statement of the purchasing power committed to the long-lived assets funds stream and the index of specific demand, the value of the input costs currently to the firm. Asset accounting, qualified through the employment of a specific index within the time dimension, defines the

²Consideration of the problems inherent in the construction of an acceptable general index and specific index were not an object of investigation in this paper. It is felt that the construction of such is not outside the realm of possibility. For present purposes it suffices to enumerate only one qualification and that is with reference to the specific index. An internally evaluated and constructed index is desirable since it is held there is, in most actual situations, a decided difference between owner value and external value, e.g., market values, the economists say, are pivotal points determined marginally as the result of the activities of the least efficient pairs of participants, buyers and sellers, in the market.
appreciation or depreciation of value to the firm; this change is a function of regular activity (holding and ultimate use or holding and ultimate loss) and/or irregular activity (liquidation sale of assets). Depreciation accounting defines the quantity of purchasing power (here-tofore committed to the long-lived asset identity) reasonably determined as currently expended in the production of revenues within the activity dimension; this quantity is a function of the factors affecting the functional capacity of the asset. The latter statements evidence the co-existent considerations regarding the long-lived assets funds and their remaining service potentials (the balance sheet position of the flow of long-lived assets funds) and the amount of the services which have been expended (the income statement position of the flow of long-lived assets funds).

In other words, the depreciation funds\(^3\) are a function of the course of the service benefits of the asset rendered to the firm, monetary statements of which are qualified jointly by the changes in the purchasing power of the monetary unit and by changes in the specific demand for the agents of function capacity to which the funds were committed. The monetary statement of depreciation funds qualified by the employment of a specific index of demand for like functional capacity allows the statement of economic funds outflow (an economic cost). Through the qualification of depreciation funds by employing a general

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\(^3\) "Depreciation funds," the identification of the activity phase of the flow of long-lived assets funds, the specific span of flow being funds outflows (costs) as accounted for through depreciation accounting and employed by application of the matching convention in income accounting.
index of purchasing power, the difference in the results thus obtained and the qualification of the original purchasing power by a specific index of demand for like functional capacity (see preceding statement) allows a refined statement of the composition of the net increment (or decrement) earned by the firm. The net increment thus is defined as to the portion resulting from changes in asset values which have passively accrued through time and which are identifiable as having been currently realized\(^4\) and the portion resulting from normal activity.\(^5\)

The following premises are assumed to be true:

(1) There is a certain body of funds which must be committed to the nature of long-lived assets, the integrity of which must be maintained intact (i.e., the power to command other goods and services) in order for the firm to be able to attain specific ends.

(2) It is possible for accountants to define these long-lived assets funds at various points in their flow in terms having economic significance.

Management, emphatically apprised of such through accounting, can proceed to direct the employment of these funds in a significantly rational and conscious manner, cognizant that a portion of the revenues\(^6\) represent

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\(^4\) In terms of the asset accounting, and as reflected in the equity accounts, it allows a statement of remaining appreciation (or loss) yet to be realized (not infrequently referred to as "holding" gains and losses), cf. ante, Figure 20, page 134.

\(^5\) A verbal summary drawn from Figures 3, 4, 5 and 6, pages 28, 30, 31 and 41, respectively.

\(^6\) "Revenues" define the inflow of assets replacing the assets
recouped long-lived assets funds which have completed their cyclical flow through commitment, utilization and recoupment. For management, the emphasis should be shifted repeatedly and emphatically from net inflows to gross inflows and to the nature of the outflows which it may be reasoned and defended logically are recouped in these funds inflows.

The "funds identification format" has been introduced with the above emphases as its primary purpose in reporting to and aiding in the "direction of funds" processes of management. Emphasis intended in the statement of position is that long-lived assets are committed funds of economic significance. This emphasis of economic significance of these long-lived assets (committed) funds is obtained when the reporting techniques are expanded and allowed to encompass the varying magnitudes of command of the monetary unit used as the medium of expression of the existence of the specifically committed funds. Further emphasis proceeds from reporting the varying, intrinsic command power of the asset forms which these funds have assumed. This format in the statement of revenues and recouped costs emphasizes that funds sacrificed (costs) first must be recouped before any economic increment is obtained. Here management's attentions should be arrested by confrontation with the consideration that earlier commitments to a particular identity (nature) have been expended and that the shift from such committed form to a form

expended to produce such inflows and these assets inflows aspire to possessing the characteristic of liquidity.
more closely approximating liquid funds is being completed. In present managerial decisions relative to the future, therefore, one of the alternatives to be considered is reinvestment of the recouped depreciation funds in functional capacity thereby maintaining the integrity of the long-lived assets funds. 7

This specific emphasis is continued within the framework of a funds statement (funds defined as all financial resources) where there is opportunity in continuing the use of the "funds identification format" to emphasize specifically the characteristic of continuous flux of funds committed to the nature of long-lived assets as well as the continuous flux of the economic values of all funds. Herein there is a reconciling from one report to the next as to whether or not a shift in funds has occurred from a circulating to a committed form, or vice versa, as a result of management's implemented decisions affected in the period covered by the statement. The basis of comparison for such continued reporting is the economically stated recouped depreciation funds in the "statement of revenues and recouped costs" to the current, economically significant long-lived assets funds in the statement of position. The total intent is to emphasize the flow of economic values from one asset to another.

In the illustrative problem in Chapter VII of this paper, the shift in funds, under closely controlled conditions, from the nature of

7"Integrity of long-lived assets funds" - the power to command other goods and services.
long-lived assets to the more liquid nature of the common assets funds is clearly discernible. At the point of recoupment of the long-lived assets funds currently expended the most emphasis by accountants is needed so that management will engage in conscious, deliberate policies regarding the deployment of the recouped depreciation funds. It is statements, such as noted initially in this paper, to the effect that recouped depreciation funds may be available for reinvestment, which have led to the very conscious effort in this paper to trace the flows of funds identified with long-lived assets. As a result of such effort it is concluded that it is a matter of (1) being cognizant of when the committed funds have attained a degree of liquidity which makes them available once again for commitment, and (2) planning (budgeting) for this subsequent commitment.

The investigation also has led to the conclusion that generally accountants recognize the flux or shift between long-lived assets funds and funds approximating a more liquid state. Accountants, however, do not emphasize this flux for management, particularly that span of flow where these committed funds have attained once again relative liquidity and are currently available for a variety of uses including reinvestment or re-commitment to the nature of long-lived assets funds. Emphasis on "net" revenues, to the exclusion of the consideration that it is "gross" revenues (assets inflows) that should be the first object of management's

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8 Cf. ante, footnote 17, page 66.
9 Cf. ante, point 7, pp. 79-80.
attention, contributes much to the ambiguity of the accounting-management problem of maintaining capital intact. Depreciation funds do not receive due emphasis in terms of being recouped and available and, therefore, a specific consideration among alternatives in decision making affecting maintenance of the integrity of the long-lived assets funds.

Continued concern with the expression to the effect that recouped depreciation funds "may be" rather than "will be" available for reinvestment underlies the exposition of The Firm problem. The flux of economic values between long-lived assets funds and common assets funds had to be demonstrated. The specific flow between the two strata of funds which needed to be traced was recouped depreciation funds. As far as sources of funds for investment in long-lived assets were concerned, only two sources were considered: (1) additional owner investment, and (2) recouped depreciation funds. With two variables, the four possible combinations of these variables were observed. In two cases recouped depreciation funds were proposed for reinvestment, in the other two, were allowed to enter into the common assets funds. The effects on the activity of the common assets (working capital) funds have been observed. Under the conditions where reinvestment of recouped depreciation funds is not the plan, working capital reflects this contribution to growth by recouped depreciation funds over and above its ability to generate its own continuance plus the growth factor contributed by incremental economic inflows. The common assets funds reflect this growth by exhibiting an early proneness to sluggishness. Conclusion: recouped depreciation funds can be a growth factor in working capital funds.
For the growing and the matured firm this growth in working capital funds could become a factor leading to laxity in exercising due control over working capital funds. If such working capital growth is needed, two questions which need to be weighed are:

(1) Will using these funds as working capital adversely affect the maintenance of the integrity of the long-lived assets funds? and

(2) Which will be less expensive to finance, intermittent working capital needs for relatively short periods of time, or long-lived functional capacity for relatively long periods of time?

In the case where reinvestment of recouped depreciation funds is the plan, working capital funds, supplemented by incremental economic inflows, appeared to continued to be more than adequate, even to becoming sluggish in their turnover. This observation leads to the general conclusion that depreciation funds covered by current revenues reasonably can be expected to be currently available for management's specific directives.

Effects on the long-lived assets funds of reinvesting vs. not reinvesting recouped depreciation funds have been observed to ascertain whether these committed funds possess enough capability to generate their own continuance. In the two cases where no "new" owner investments were interjected, continuous reinvestment of recouped depreciation funds

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10Cf. *ante*, Figure 27, page 163.
was held to be the program in one case, no reinvestment until lapse of the economic life of the assets, the program in the other case. In the first of these two cases, the currently recouped depreciation funds marking the end of the economic life of the original investment were found to be more than six and a half times those at this same point in time in the second case. In both cases the rate of return has continued to increase but when either the working capital turnovers or the invested capital turnovers are considered, it is discovered that both are declining (in the first case, after peaking in the fourth year, in the second case declining steadily from inception). It can be concluded that reinvestment of recouped depreciation funds is preferable (i.e., if the functional capacity thus obtained is needed and will be utilized). Sluggishness in the working capital turnovers indicates that funds beyond currently recouped depreciation funds reasonably may be assumed to be available. Under the other two sets of conditions, "new" funds reveal a greater proclivity to contribute to the growth of functional capacity, the greatest contribution being affected when "new" investment plus reinvestment of currently recouped depreciation funds are the program of management for long-lived assets funds.

Depreciation defines recouped funds. These recouped depreciation funds, if emphatically recognized and reported as available can be consciously managed and directed to maintain the integrity of the long-lived assets funds. It is conceded that funding of the balance of the "accumulated depreciation" balance would weaken the effectiveness of financial management and conceivably could be a costly policy in the long
run. On the other hand, it is suggested that the portion of such balances defined and originating from the current depreciation charges, economically stated, are "funded" to the extent that they are covered by revenues. Management has available to it a source of funds currently available for maintaining, at least a portion of, the functional capacity of the firm's long-lived assets. For the new firm these currently available funds, if recognized and recommitted, can contribute to the expansion of employable functional capacity without additional investment; for the matured firm, maintain the integrity of its long-lived assets funds without new investment.
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VITA
Mary Barbara Beeler, the eldest daughter of Florence and Edward Beeler, was born and raised in Amarillo, Texas. She was educated in the parochial schools of Amarillo and was graduated from St. Mary's Academy after completing a college preparatory curriculum.

She entered Texas Technological College, from which she was graduated with the degree of Bachelor of Business Administration, with a major in accounting, in the spring of 1950. In September, 1950, she entered Louisiana State University as a graduate assistant in the Division of Research, College of Business Administration (in 1950, it was the College of Commerce). In the summer of 1951, she was graduated with the degree of Master of Business Administration, with a major in accounting.

During the academic year of 1951-1952, she served as an Instructor in Business Administration at West Texas State University, Canyon, Texas, and at the Amarillo Adult Center of West Texas State University. She resigned and returned to Louisiana State University to pursue further graduate studies, once again serving as a graduate assistant in the Division of Research. For the academic years of 1955-1956 and 1956-1957, she was an Instructor of Accounting at the University. Seeking practical experience, she worked for fourteen months in the Comptroller's office of The Dow Chemical Company, Louisiana Division, in Baton Rouge and Plaquemine, Louisiana. In January, 1959, she accepted an assistant professorship at Oklahoma City University. Oklahoma City was home until
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