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## CHAPTER 1

# Capital Formation, Saving, and Financing: Definitions and Relations

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### *Capital Formation*

IN modern society, capital is the stock of means, separable from human beings and legally disposable in economic transactions, intended for use in producing goods or income. These means must be separable from human beings because our society, unlike slave societies, does not permit ownership of or trade in persons and hence in the skills embodied in them. They must exclude means not legally disposable in economic transactions, that is, the many natural resources vital to the economy but not subject to ownership, and the most important resource of all—empirically tested knowledge. And if we distinguish production by economic units from ultimate consumption within households, the capital stock limited to means of production must exclude other stock often included in national wealth—for instance, consumer goods in households.

Capital in the hands of various units within a country—households, business firms, nonbusiness associations, governments—may take the form of goods (tangible assets) or claims (financial assets or intangibles). The claims may be domestic, against residents of the country, or foreign, against residents of other countries. In totaling the stock of capital of the country, domestic claims are exactly offset by domestic obligations, and only the net balance of foreign claims remains. Nationwide capital, by definition, therefore, consists of the stock of goods within the country and the net balance (positive or negative) of foreign claims.

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Capital formation, strictly speaking, denotes *additions* to the stock of tangible goods within the country or to foreign claims. These additions are usually taken on a net basis, which means that for some owner or user groups, for some periods, or for some types of goods or claims, there may be subtractions rather than additions, declines rather than rises. We should, then, speak of capital dissolution or reduction. But it has become customary to use the term capital formation for all changes in the stock of goods or claims, whether positive or negative, and to use the latter as qualifying adjectives. Thus, nationwide capital formation is a sum of the net changes in the stock of goods within the country and in the net balance of foreign claims. For some purposes, changes in the stock of durable (long-lived) capital goods are estimated on a gross basis: capital goods consumed are not subtracted from the total additions to stock. And gross capital formation is distinguished from net in that it, too, is gross of the allowance for current consumption.

Of the numerous questions of inclusion and exclusion that arise in defining capital and capital formation, two deserve note here. The first, already alluded to, is the treatment of goods within households. The measures used below exclude such goods (food, clothing, furniture, passenger cars, and so on, in the hands of individuals and families), but include dwellings, whether rented or owner occupied. The case for excluding the former rests upon the basic distinction between ultimate consumption and economic production, which defines the former as the disposal of goods by households and the latter as the use of goods to produce other goods, largely for the market—that is, for units other than the producing one. Since capital is conceived as a *productive* factor, the stock of consumer goods within households must be excluded. Otherwise the disposition of these goods within households would have to be classified as economic production. On the other hand, the wide choice between ownership and rental of dwellings, and the very magnitude of the outlays involve decisions that are akin to economic behavior in business capital investment; and in its disposition of the owned residence, a household can, in a sense, be viewed as an economic producer. We therefore treat all dwellings as capital goods, and include the yield of all, rented and owner occupied, in production and income.

The other question relates to the stock of goods in the hands of governments. In some estimates, those of the Department of Commerce for instance, the stock of goods in the hands of governments is not

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included in capital and additions to it are not included in capital formation, since governments are treated as ultimate consumers. This view does not seem acceptable. It is true that governments do not operate for the market as business firms do. However, they do yield both final services (health, education, recreation, etc.) and intermediate services (protection, administration, business information, etc.), which cannot be regarded as finished output but which do enter into the value of that output and are similar to the services rendered by legal and accounting firms to business and society. Like business firms, governments should be viewed as producers, since production is their economic reason for existence. The only ultimate consumers in society are the human beings who comprise it. For this reason, the concept of capital followed here includes the entire stock of goods in the hands of governments no matter how remote it may seem to be from embodiment in final product, although for statistical reasons the estimates of that stock are often incomplete.

### *Relation to Saving*

How does nationwide capital formation—changes in the stock of goods and in claims against the rest of the world—originate? Such changes may come from current production of the economy or from other sources. If some current product is not consumed, it must be added to the stock of goods within the country or exported to the rest of the world—positive capital formation. Conversely, if households, business firms, governments, and other units absorb more than the current net output, such overspending (more commonly called dissaving) necessitates a draft upon the existing stock of goods or upon the net claims against foreign countries—negative capital formation. To the extent that this is true, savings or dissavings, which may be defined as the difference, positive or negative, between current net output and consumption, are the source of capital formation; and on a nationwide scale, savings obviously equal capital formation.

But additions to or drafts upon the nationwide stock of goods, and net changes in claims against foreign countries may arise from sources that we hesitate to define as savings, because we hesitate to treat them as part of economic production and current net output. Two such sources may be suggested: (1) additions to the stock of natural resources by territorial expansion or scientific discovery, in which the rise in economic value far exceeds any calculable costs of exploration, or reduc-

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tions in such stock due to unforeseen natural calamities; and (2) political changes and war. The former is exemplified by the peaceful expansion of the territory of the United States, the discovery of its natural resources, and the appreciation in the value of the resources associated with the discovery of new uses (such as oil and uranium deposits); and on the calamitous side, by earthquakes, major epidemics of man, animals, and crops, by storms, floods, and forest fires. The latter is illustrated by additions to territory as a result of armed aggression, and by destruction or complete devastation in war. Should we include in economic production unforeseen and, in a sense, unearned results of exploration and discovery? Should we include in income the sudden appreciation in the value of possessions, and include in savings the monetary equivalent of that appreciation not spent by the lucky owners? Should we classify wars of aggression as economic ventures similar to rather risky business projects? Should we treat the ruin suffered from bombing as capital consumed in the process of economic production?

In the concept followed here, such changes in the stock of capital goods are excluded from capital formation; and their underlying sources are excluded from economic production, income, and savings. The reason is obvious. Even if the meaning of economic processes were stretched to include acquisition of natural resources by geographic exploration or by scientific discovery, by war or other manipulations of political power, the resulting "economic product," "net income," "savings," and "capital formation" would be very different from those that occur under relatively peaceful and normal political conditions. To avoid confusion, it is perhaps best to treat only the latter as the results of economic processes, and to regard the other sources of change in the stock of capital as noneconomic.

Two important aspects of this decision should be stressed here. First, however one defines economic and noneconomic sources of change in the stock of capital, and whether one does or does not include both under capital formation, the identity of savings and capital formation on a nationwide scale is the result of defining both of them equally narrowly or widely. That uniformity in definition is insisted upon because the resulting identity is useful in both measurement and analysis. Yet capital formation can be defined broadly as the total change in the stock of goods and in claims, that is, the change in all national wealth whether due to economic or other processes, and savings and economic product can be defined more narrowly. Second,

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any limitation of the definition of economic product, income, savings, capital formation, and so on must be recognized for what it is—deliberate restriction of the field of measurement and analysis in the hope that better understanding and more tenable generalizations will thereby be attained. Even if the hope is justified, there is some loss in validity: for example, any generalization concerning economic processes from which wars and political changes are excluded will be useful only so long as wars and political changes do not dominate reality. And limitation of capital formation to changes in *reproducible* capital alone and exclusion of changes in the supply of natural resources is restrictive, in that it may mean neglect of the importance of those resources in a country's long-term past.<sup>1</sup>

## *The Problem of Financing*

Robinson Crusoe's decisions regarding capital formation were simply orders to himself (and to his man Friday) as to the number of hours of work to be devoted to producing consumer goods and to producing tools and housing. Disposition of income between consumption and savings coincided with distribution of the product between flow of goods to consumers and capital formation. There was no financing problem because there was no money, and no possible discrepancy in identity between the saver and the capital user. In a completely planned authoritarian economy, orders concerning saving—diversion of current product from consumption or of current income from expenditure on consumer goods—can be assumed to be matched by orders concerning capital formation; and here again there is no financing problem.

Modern economic society organizes its extensive division of labor by the use of money and other means of payment, and by the interlocking of hosts of legally independent and free economic units through the ties of the market place. In such a society, only in exceptional cases

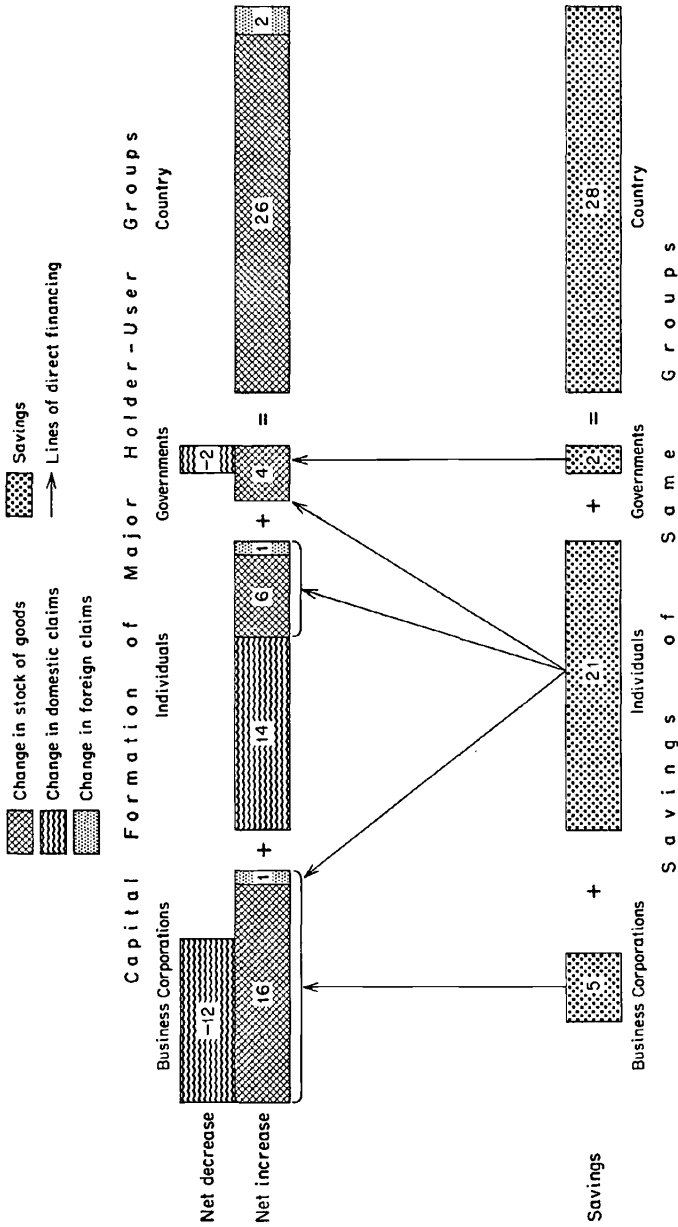
<sup>1</sup> The limitation of savings and capital formation to the difference between current product and ultimate consumption—product defined to exclude discovery, territorial expansion, and political gains—means the exclusion also of other changes in capital values (realized or unrealized capital gains or losses). Such changes have considerable effect on the structure of production and consumption processes, on the distribution of economic power, on the patterns of behavior of economic units. Their disregard here is due to a designed concentration upon the real side of production and capital formation and, as in the case of the exclusions discussed above, the limitation of coverage is attended by loss of some explanatory factors.

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(as a farmer using his free time to mend fences) does capital formation take place without the use of money. The overwhelming proportion of additions to the stock of capital goods is ordinarily purchased by their users from their producers, and would-be users of the capital goods face the problem of financing, the problem of securing the means of payment. The purchase may be made with the user's current or past savings (internal financing), or with somebody else's savings (external financing). Since, as a matter of course, there are disparities in time and place between the need for capital goods and the ability to save for them, external financing is common. For instance, it may be most advantageous to an individual to own a house in the early years of family life, when savings cannot be accumulated easily because raising children increases current consumption. Business units often have opportunities requiring capital investment much greater than the savings they can withhold from current profits. Governments may be under pressure for additions to capital equipment on a scale that far exceeds their ability to collect revenues by taxation or other means. Consequently, a fairly elaborate institutional machinery is needed to channel the savings generated among some units in the economy into the opportunities for capital formation elsewhere. For the would-be capital users, this is the problem of financing; for the savers, it is the problem of investing advantageously; and for the community, it is the problem of utilizing savings to enhance the prospects of economic growth and minimize the dangers of economic instability.

Because of the variety of capital users and savers, and because of the complexity of the institutional framework set up to facilitate solution of their problems, we present several graphical illustrations—at the risk of oversimplifying the picture. In Figure 1 we distinguish three groups of capital users—business corporations, individuals (including unincorporated firms), and governments—and we assume that savings are used to finance capital formation only. To each group we assign hypothetical net changes in the stock of goods and claims it holds. These changes are not actual figures for any given year, but their relative magnitudes have been chosen for their approximation to reality. By and large, barring the exceptional periods of major wars, business corporations not only add to their stock of goods but also increase their domestic obligations (in Figure 1 this increase appears as a net decrease in domestic claims). Governments operate similarly, although on a much smaller scale. Individuals, however, add to both their stock of capital goods and their domestic claims. As already in-

**FIGURE 1**  
**Capital Formation and Savings, No Financial Intermediaries, Savings Not Used for Current Expenditures**



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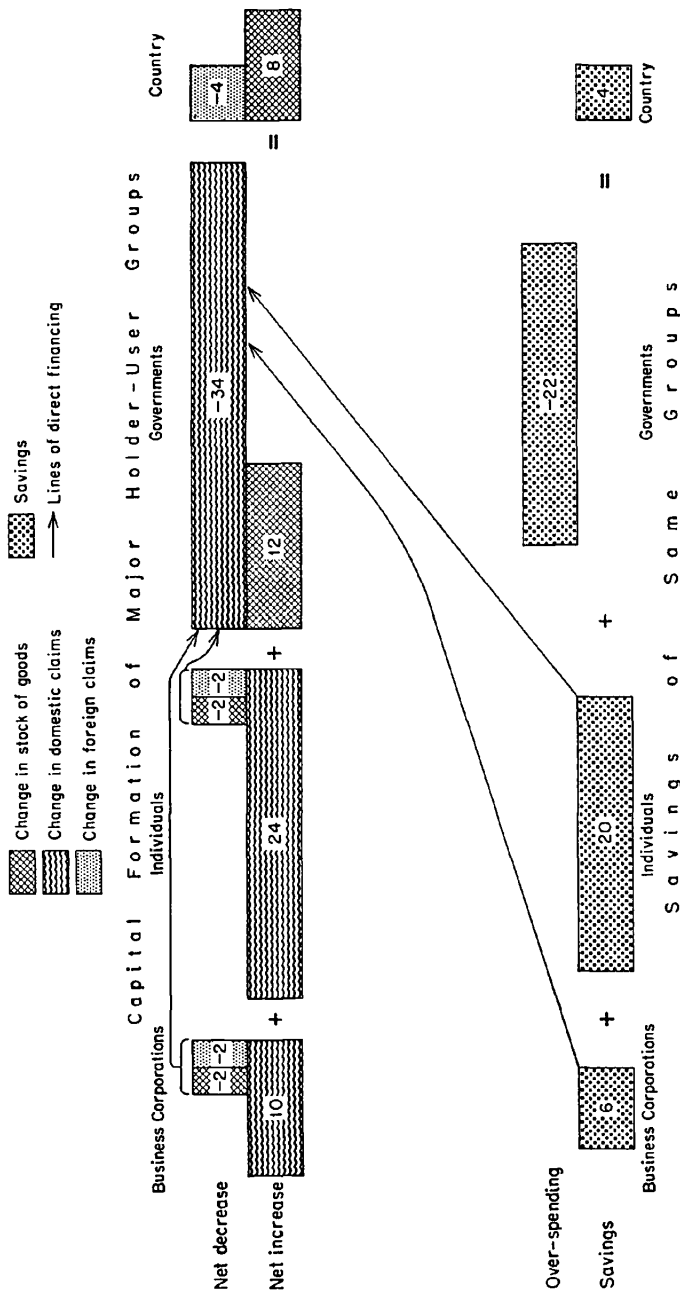
licated, changes in domestic claims among various groups within the country must offset each other (as they do in Figure 1); hence no changes in domestic claims appear under the capital formation total for the country.

The capital holder-user groups are assumed to account fully for all economic units and must, therefore, be the saver groups also. By definition, savings and capital formation for each are identical if the latter includes not only changes in the stock of goods and in foreign claims but also changes in domestic claims. But if we apportion the nationwide total of capital formation among the user groups and consider their shares in this total, it becomes apparent that, with identity of savings and capital formation for the country as a whole, the amounts of capital additions of the several groups and their shares in nationwide capital formation do not coincide with the amounts of their savings and their shares in nationwide savings. The shares of some user groups in nationwide capital formation are larger and the shares of other user groups smaller than their shares in savings.

If we assume, as we do here, that the savings of any group should be assigned first to its share in nationwide capital formation—that is, to the increase of its stock of goods or foreign claims—we can draw one line of financing between the savings and the capital formation of business corporations and of governments; but we must allow three lines to stem from the savings of individuals, which finance capital formation of all three groups of users.

Now let us consider what happens when savings are used to finance current expenditures, not capital formation (Figure 2). Total savings of business corporations and individuals in Figure 2 are 26 units, the amount assigned to the savings of these two groups in Figure 1. But here the governments are assumed to have added to their domestic obligations far more than was added to the stock of tangible goods in their possession—a situation that prevails during a major war when war outlay, classified by us as current expenditure, is financed by the sale of government bonds to corporations and individuals resident in the country. During the emergency, the purchasers not only refrain from making net additions to their stock of capital goods and foreign claims, but actually convert some of the existing stock and claims into money with which to purchase government bonds. The lines of financing in Figure 2 all run in one direction—toward the government sector—not in three directions, as in Figure 1; and they stem not only from the savings of business corporations and individuals, but from

**FIGURE 2**  
**Capital Formation and Savings, No Financial Intermediaries, Savings Used for Current Expenditures**



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their stock of goods and claims as well. If we were to replace net savings by gross—that is, add the money spent for government bonds representing the conversion of already existing capital goods and foreign claims—there would be just two lines of financing in Figure 2, one each from business corporations and individuals toward the government sector.

The pictures just presented are, of course, starkly oversimplified, and we can get a better approximation to reality by listing the major points affected by the oversimplification.

1. We do not show the changes within the stock of capital goods and domestic claims and are therefore ignoring these changes, differences in which might help us understand the processes of capital formation, saving, and financing. For example, no distinction is made within domestic claims between long-term and short-term claims, and within the former, between bonds and stocks. Thus, the increase of 12 units in domestic obligations of business corporations in Figure 1 (shown as a net decrease in domestic claims) may be a combination of an increase of 8 in short-term debt and of 6 in common stocks, and of a decline of 2 in bonds. Such a decline in bonds, which would be entered as a net increase in domestic claims of corporations, might mean a reduction in holdings by individuals and appear as a decrease in their domestic claims. The implied process of conversion and shifting of funds in the financial channels is completely concealed in Figure 1. We make this point to emphasize the fact that demand for long-term funds may arise not only out of nationwide capital formation but also out of shifts from the short-term to the long-term domestic claims category.

2. An even more obvious aspect of oversimplification in Figures 1 and 2 is the small number of groups of capital users and savers into which the millions of individuals, thousands of business corporations, and hundreds of government units have been aggregated. To understand the factors that account for the accumulation of capital goods, the origin of savings, and the channeling of savings into capital formation, each of the three groups would have to be subdivided. Various industrial categories among business corporations, and social and economic groups among individuals would certainly have to be distinguished; entrepreneurs would have to be segregated from other individuals, and some industrial distribution of the former given; non-profit, nongovernment associations would also have to be recognized;

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and governments would have to be subdivided in accordance with their different characteristics as capital users and potential savers.

If the number of groups were multiplied beyond the original three, there would be that many more boxes in Figures 1 and 2 and obviously many more lines of financing connecting shares of these groups in savings with their shares in nationwide capital formation. What may not be so obvious is that, even when we follow the principle that the savings of a group are used first to finance its own capital expenditures, any excess of savings over capital formation being used to finance an increase in foreign assets or in domestic claims, many of the lines cannot be drawn without additional information (or, for lack of information, additional assumptions). For example, if we distinguish three industries among business corporations, all of which increase their stock of capital goods but finance the increase by issuing bonds (i.e., by increasing their domestic obligations), and if we distinguish three groups of savers among individuals, all of whom add, in varying amounts, to their claims against business corporations, how do we connect the three individual-saver groups with the three industrial groups of business corporations? Do we draw a line from each of the three groups of savers to each of the three groups of business corporations? Or do we reduce the possible 9 lines of financing to a smaller number by additional assumptions? This difficulty was avoided in Figure 1 by having only one group whose share in savings exceeded its share in nationwide capital formation, and in Figure 2 by having only one group whose share in nationwide capital formation exceeded its share in savings.

3. No matter how detailed the classification of capital users and savers, there is no practical way of distinguishing and handling each economic unit in a country separately, and most groups in any classification would include many units.

Consequently, the net change in the stock of capital goods of any one group is the sum of changes of different magnitude and sign. Thus, one industrial group of business corporations may—and most probably will—include some corporations with an increase in the stock of capital goods financed out of current undistributed profits; some with an increase in stock financed by net borrowing; some with a decline in stock but with an increase in domestic claims; and even some with a decline in both stock of capital goods and domestic claims.

Such possible variety of behavior concealed by a single net change figure for a group emphasizes the artificiality of the assumption followed in Figure 1: that savings of a group are the primary source of

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financing of its share in nationwide capital formation. For a single economic unit (such as a firm or an individual) this assumption is quite plausible. But it is unrealistic to assume that any firm would use its savings to finance the capital formation of another firm in the same industry; indeed, it might prefer to invest its money in a firm in another industry. Hence, even if the share of a group in nationwide capital formation exceeds its share in savings, we have no right to assume that none of its savings finances capital formation of another group in the economy. It is more realistic to assume in Figure 1 that lines of financing run from every group of savers to every group of capital users. Even governments may and do (if sometimes only indirectly) finance the capital formation of other groups in the economy.

The need to alter our assumption, combined with the need for a more detailed grouping of capital users and savers (point 2), obviously means a vast multiplication of the lines of financing if we are to analyze the country's economy effectively. With three groups, there should be 9 lines of financing, not 5 as shown in Figure 1. In general, the number of lines should equal the square of the number of groups of capital users-savers distinguished. If one were to take account also of the possible distinctions within the stock of capital goods and among various types of claims the picture would indeed become complex.

4. Figures 1 and 2 depict net changes that have occurred over some period—say, a month, a year, a decade. Within that period there may have been, and probably were, flows and counterflows. Even for a single economic unit, say an individual, a net increase in claims against business corporations during a year may result from the reduction of one batch of claims held and a more than offsetting increase in another (for example, the use of proceeds from redeemed bonds and net savings to buy another block of bonds). This is all the more likely for *groups* of units in any practical classification of savers and capital users, unless the net changes are for an infinitesimally short period. Thus an industrial group of business corporations is likely to have, during a year, both retirements of claims and additions to them, regardless of type of claim—even long-term. Hence the net increase may be the result of a large inflow and a smaller outflow in the way of repayment. In studying the whole process of channeling savings into capital formation, the connection between *net* changes and the combinations of gross inflows and outflows that underlie them would have some importance. Therefore, 3 lines should replace each of those now shown in Figure 1: a gross flow line, with an arrow pointed upward; a re-

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payment line, with an arrow pointed downward; and a net flow line, with an arrow pointed in whatever direction the net balance lies. Of these 3 lines, only the last is now shown. Thus, the number of net financing lines suggested at the end of point 3 must be multiplied by 3 to yield the number of lines of financial flow, and to reveal how net changes are derived from gross.

5. We have been assuming so far that savings flow directly from the saver to the capital user; and this assumption was reflected in Figure 1 by a line (or lines) drawn directly from a box at the lower level to a box (or boxes) at the upper level. But the preceding discussion, suggesting the complexity of the process, also indicates that direct connection between each group of savers and each group of would-be capital users is next to impossible, and, if attempted, would result not only in pools of savings failing to flow into adequate investment opportunities, but also in vast areas of unsatisfied demand for funds. In reality, a large and constantly evolving body of financial intermediaries has grown up, essentially to facilitate the channeling of savings into capital formation. Once these financial intermediaries come into existence, savings can flow not only directly from saver to user, as in Figures 1 and 2, but also through the financial intermediaries.

### *Role of Financial Intermediaries*

Figures 3 and 4 follow the pattern of Figures 1 and 2 but introduce financial intermediaries, and provide a convenient way of considering their role in the processes of saving and capital formation.

We did not increase the number of lines of direct flow of savings, which should be 9; nor did we allow for gross flows and repayments. But provision had to be made for savings flowing indirectly, via the financial intermediaries. To the solid lines representing direct net flows of savings into capital formation, we assigned arbitrary numbers that indicate the amount of net savings channeled directly. For example, in Figure 3, the left-hand solid line drawn from the box of 21 savings units of individuals is marked 3, meaning that individuals' net direct investment in business corporations (say in the form of net acquisition of stocks and bonds) amounted to 3 units. The same procedure was followed in Figure 4, and, in addition, numbers were attached to the solid lines at the upper level that represent conversion of goods and foreign claims of business corporations and individuals into claims against governments.

**FIGURE 3**  
**Figure 1, but with the Introduction of Financial Intermediaries**

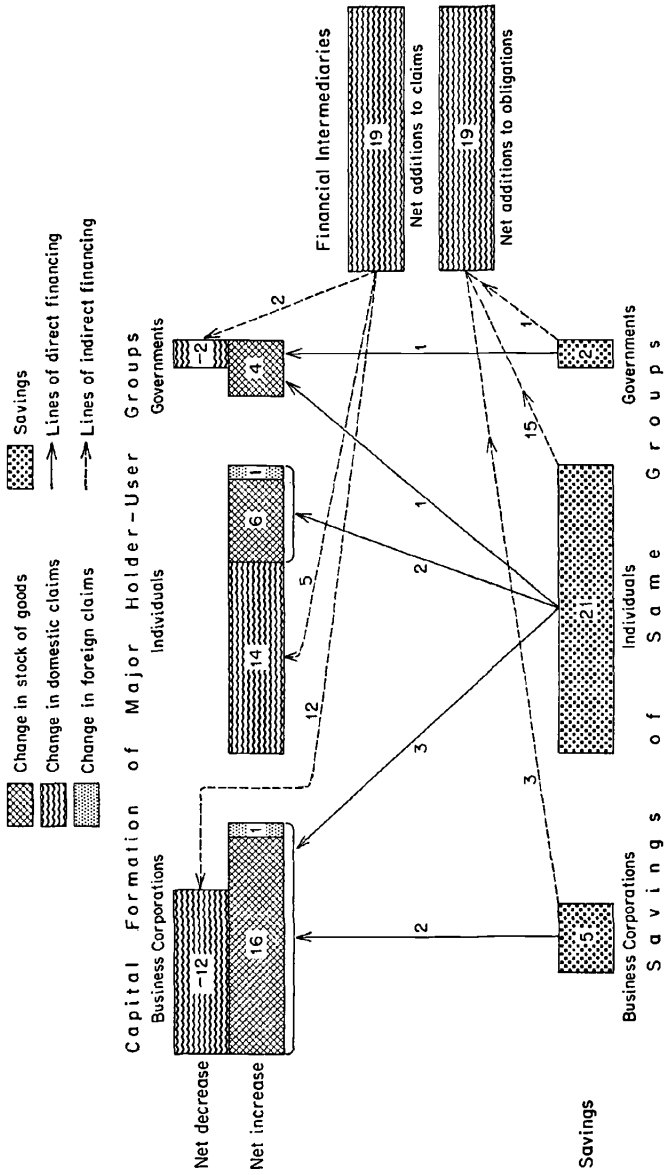
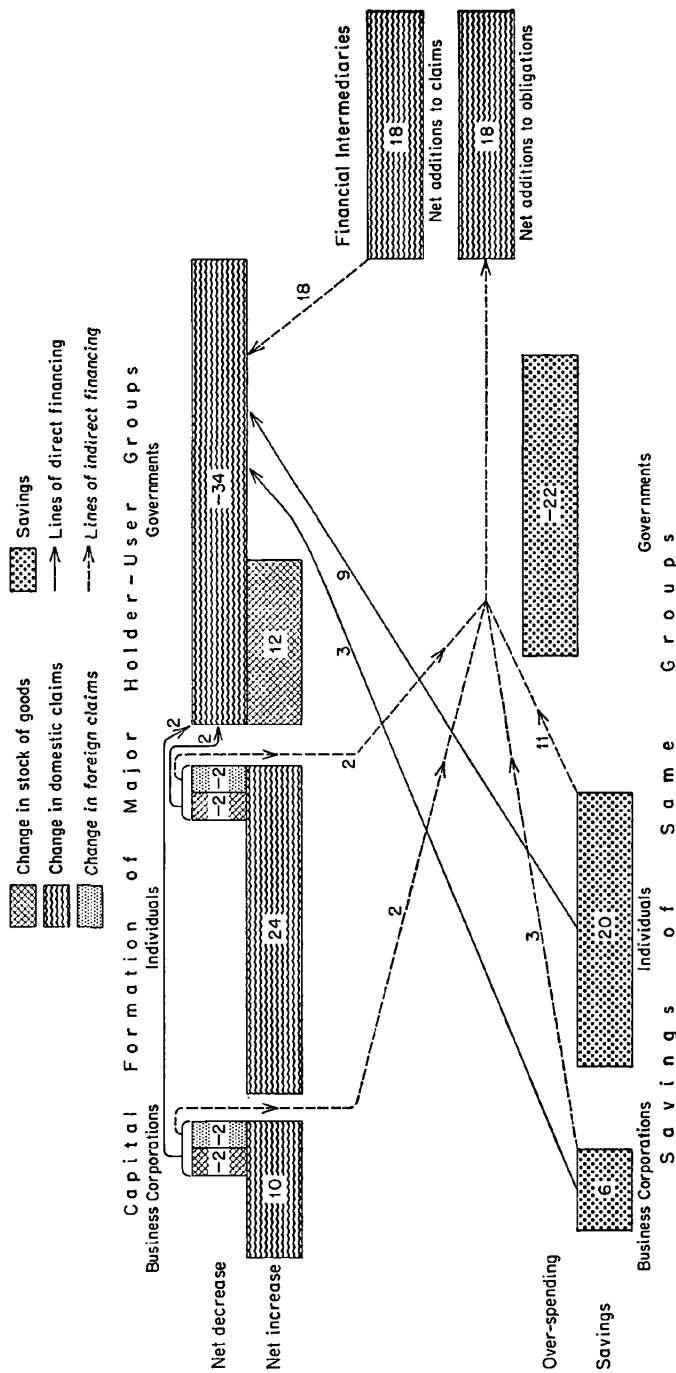


FIGURE 4

Figure 2, but with the Introduction of Financial Intermediaries



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Whatever savings are not channeled directly into capital formation must flow through the financial intermediaries. For simplicity's sake, we treat these intermediaries in Figures 3 and 4 as one body that operates without any stock of goods (buildings, equipment, etc.) and provides a completely fluid passage of savings from the ultimate savers to the capital users. On these assumptions we transfer all the numbers assigned to savings and capital formation in Figures 1 and 2 to Figures 3 and 4, respectively, and using the numbers assigned to direct flows in Figures 3 and 4, we derive for each group the flow of savings through the financial intermediaries. These flows to and from financial intermediaries are depicted by broken lines. Given the numbers representing savings and capital formation by type in each of the three groups, we can also derive as residuals the units of savings flowing from each group of savers to the financial intermediaries (see numbers attached to the broken lines at the lower level of Figure 3); and the units of savings flowing from the financial intermediaries to each of the three groups of capital users (numbers attached to the broken lines at the upper level). In Figure 3 the total residual is a flow of 19 units of savings *to* the financial intermediaries, a net addition to their domestic obligations, and an identical flow *from* the intermediaries to capital users, a net addition to the former's claims (the corresponding number of units in Figure 4 is 18).

The introduction of financial intermediaries further complicates the picture. In addition to the direct lines of financing, we now have the indirect. Thus, in Figure 3, we have, in addition to the 9 possible (5 shown) solid lines of *net* financing (one from each group of savers to each group of capital users), 6 broken lines representing 3 flows to and 3 flows from intermediaries. We have 6 rather than 3 broken lines, because the lines of inflow and outflow cannot be paired: the savings of various groups channeled into the financial intermediaries form a common pool and it is impossible to tell which group's savings flow to which group of capital users.

Actually, there is not one body of financial intermediaries, but a host of them—banks, life insurance companies, investment houses, building and loan associations, and so on, and among them there are primary and secondary intermediaries, the latter borrowing from the former. If we distinguish the various financial intermediaries, we increase the number of lines of financial flows. Thus, allowing for another set of intermediaries in Figure 3 would mean an additional set of 6 broken lines, plus still another line to connect the two groups of finan-

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cial intermediaries. The possible number of lines of net financial flows in a hypothetical chart allowing for several groups of financial intermediaries is the sum of: (1) the square of the number of groups of savers-capital users (lines of *direct* financing); (2) double the number of groups of savers-capital users, multiplied by the number of intermediaries distinguished; (3) the number of combinations of financial intermediaries taken two at a time. Thus, if we distinguish ten groups of savers-capital users, and five groups of financial intermediaries, the potential number of lines of net flow is: <sup>2</sup>

$$(10)^2 + [(10 \times 2) \times 5] + \frac{5!}{2!(5-2)!}, \text{ or } 210.$$

If we distinguish gross flows and repayments, the number of lines has to be further multiplied by 3, yielding 630. Of course, many of these lines will in fact not be important because direct financing of some groups of capital users by some groups of savers is negligible. Since intermediaries specialize, some would be tapping only selected groups of savers and supplying only selected groups of capital users. Nevertheless, the picture of financial flows is complex, and much information would obviously be required to select and trace the most important channels. A certain amount of aggregation is indispensable if one is not to get completely lost in the maze.

But while the introduction of financial intermediaries complicates the picture by multiplying the number of financial flows to be considered, it also simplifies the problem. For financial intermediaries obviate the need for each group of savers to seek out and choose among the wide variety of capital users, and conversely, for each group of capital users to seek out and choose among the wide variety of savers. As already indicated, attempts at such direct connections would often fail and cause inefficiency in the use of savings. By eliminating the need for direct financing, by allowing savings from various sources to flow into a common pool and by channeling funds from this common pool to various groups of capital users, the whole system of financial intermediaries makes it not only impossible but also unnecessary for the analyst to determine which groups of savers finance which groups of capital users. Financial intermediaries reduce significantly the number of important lines of direct financing. In terms of Figure 3, of a possible 100 lines (for ten groups of savers-capital users distinguished)

<sup>2</sup> A figure followed by ! is a *factorial*, defined by the equation

$$n! = n(n-1)(n-2) \cdots 1.$$

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only 10 may be important. By mobilizing and effectively channeling savings, financial intermediaries also reduce drastically the number of important lines of connection between ultimate savings and capital formation. However, the distinctive characteristics of savers, reflected in the type and form of their savings, may still impose limits upon the type of capital use into which these savings can be channeled. In such cases, the structure and direction of specialization among financial intermediaries are revealing.

Another major effect of the introduction of financial intermediaries has not been touched upon and is not reflected in the oversimplified schemata in Figures 3 and 4. Some intermediaries—for example, commercial banks—have the power to “create” credit, i.e., to extend credit to an amount greater than that of claims deposited with them in the form of capital shares or of deposits originating outside the banking system proper. Insofar as credit thus created can finance capital formation, it may be viewed as “forced” saving, which does not stem from decisions of individuals, business corporations, or governments. Likewise, under certain conditions, governments can issue money claims that can be used to finance capital formation, in which case the latter is financed not out of taxes collected from individuals and corporations but out of new money creation.

This complication is omitted from Figures 3 and 4 because they are designed to describe an observable *ex post facto* situation, rather than some imagined *ex ante* one; and correspondingly, we have assumed that net additions to obligations of financial intermediaries (including governments) equal the net additions to claims by them. In a strictly formal sense, this is true *ex post facto* under any circumstances: if the financial intermediaries make additions to their credit advances greater than the claims that originate in savings of stockholders or depositors, such assets are assignable, in the final count, to the stockholders and depositors in those institutions. Likewise, an addition to money issue by the federal government means, in its further use, an addition to claims on the part of the corporations, individuals, and government agencies which appear at the lower level of Figures 3 and 4. Were we to try to represent the imaginary *ex ante* situation, we would have to split the savings assigned at the lower level of Figures 3 and 4 between voluntary—those that cannot be associated with credit creation or nonneutral money issue policy (on the part of the government)—and forced—those that can be associated with the latter. It would also mean that we would have to allow room at the lower level of the savings

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groups for the financial intermediaries themselves, alongside the business corporations, and that for governments we would allow savings not only out of taxes and fees but also out of money creation. The difficulty is that our observable records of savings and of capital formation do not permit us to make that distinction. Insofar as credit creation or financing through new money issues takes place, voluntary and forced savings are intermixed. And voluntary savings under conditions of credit creation or new money inflation can never be assumed to be the same as voluntary savings under conditions of no credit creation or of neutral money issue policy. Yet in discussion of the factors determining the supply of savings and their flow into capital formation, the existence and development of the power of credit and money creation represent an important complex that has to be borne in mind. We shall return to this point in Chapter 3.

## *The Guiding Thread*

In our preceding comments we have defined the commonly used terms *capital formation*, *saving*, *financing*—which stand for fundamental processes in the economy—and have pointed to the lines of relation among them in a situation similar to the complex institutional network of a modern economic society. The past performance of this country's economy with respect to capital formation and financing cannot be studied in adequate detail, because of lack of data. The limited data now available or obtainable by practicable effort make it imperative that an inquiry like the present have a guiding thread that will direct us to rational relations among past trends. Since we are interested in determining the factors that have affected past use of capital funds as a basis for more intelligent consideration of their future use, should we try to trace the origin and flow of such funds in the hundreds of channels through which savings move into capital formation? It must be remembered that the labyrinth is even more intricate than was suggested above because the flow of capital may involve shifts among types and forms of savings and among various levels of financial intermediaries only hinted at in the comments above. Clearly, we need some guide to give direction to the inquiry and set up priorities for the choices that inevitably have to be made.

The basic assumptions that provide the guiding thread can only be indicated, not elaborated. To avoid misunderstanding, it should be said in advance that these are assumptions designedly accepted here

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to provide criteria by which analysis can be guided. Thus, when we refer below to purposes served by the complex economic system under study, they are the broad social purposes *as we see them*. This is not as arbitrary as it may seem; and it is far more illuminating than if we were to interpret economic processes in the light of the individual goals of each of the various economic units—entrepreneurs, employees, capital owners, and so on—in the thousands of sectors that can be distinguished. For a country's economy is a system of interrelated parts, which can be understood only if some broad set of purposes is assigned to it. Its functioning in the short and long run makes sense only if related to such broad goals as can be discerned; and they can be discerned if only because failure to meet them (for example, failure to provide enough for subsistence and growth) will be seen to set up a chain of policy reactions and adjustments to overcome such failure. Granted the existence of such broad purposes and the lack of any overt record of them (we have no economic charter or constitution that specifies them), it is the task of the investigator to formulate them as best he can—that is, with the closest approximation to what, from his preliminary observation and study, is suggested by the operation of the economy.

1. The fundamental purpose of the complex economic system of modern society is to increase the economic welfare of the country's inhabitants—that is, to provide more goods to satisfy their material wants, present and future. This purpose is pursued within a given social and legal framework which society maintains.

2. The pursuit of the basic purpose requires an increasing stock of capital goods within the country for the extension of the volume of production by the application of technological knowledge or even without any technical changes. Such nationwide capital formation is indispensable for economic growth—that is, for increased economic production, total and per capita, and, hence, economic welfare.

3. To a given economic unit, savings may be essentially a provision for economic security. But unless such savings are channeled into capital formation and serve to increase production, that unit's security will be at the expense of another unit's economic welfare. From the nationwide standpoint the rationale for saving is capital formation; and that rationale, if realized, contributes to the economic security of the given unit, at no cost to others.

4. The main social purpose of the complicated and elaborate structure of financial institutions, practices, and so forth, is to facilitate

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greater production. Its more immediate purpose is the channeling of savings into nationwide capital formation to ensure an effective use of savings. This complex and ramified structure of claims and counter-claims, of gross and net flows—discussed only briefly in the comments above—originated as a means of increasing economic production through additions to the stock of capital goods.

5. The institutional practices developed in various sectors of a country's economy, even though originating in response to basic needs and purposes, have a momentum of their own which may make them persist after the needs have passed or may deflect them from the very needs they were meant to satisfy. But it seems best, as a working hypothesis for the study of long-term trends, to assume that a rough concilience prevails between the major economic institutions and practices and the basic purposes of the economy. Guided by this hypothesis, we try to interpret the major changes that have come about as adaptations to changing needs and forms within the basic purpose.

It follows from the premises just stated that, since our interest is in the uses of and demand for capital funds, we should begin with nationwide capital formation, inasmuch as it is the immediate major purpose for which savings are generated and the major use to which capital funds are put. For this reason, both in this report and in the inquiry as a whole, our foremost consideration is the trends in nationwide capital formation and the factors that may have affected them. From this the thread leads on to consideration of uses of capital funds other than nationwide capital formation—for example, capital formation for distinct groups of capital users in the major productive sectors of the economy, or the extension and acquisition of natural resources, or financing current expenditures of such institutions as governments. It leads next to the distinction between internal and external financing, then to the distinction among various types within external financing, and finally, to the structure of financial intermediaries in their holdings of claims. In short, the direction of analysis is from the use to the source, from the purpose to the means, from the operation to the mechanism by which it is performed.