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FINANCIAL STRUCTURE AND ECONOMIC GROWTH IN ADVANCED COUNTRIES

An Experiment in Comparative Financial Morphology

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1. *What This Paper Is Not About*

THE TITLE of this conference brackets "capital formation" with "economic growth" presumably because there is a causal or functional relationship between the two concepts, more specifically because differences in levels, trends, and structure of capital formation influence the speed and character of economic growth. Similarly, the selection of "sources and channels of finance in capitalist countries" as the topic of the first group of papers presumably reflects the belief that the nature of these sources and channels has a bearing on economic growth. This paper, therefore, should deal with the effect of sources and channels of finance on the rapidity and nature of economic growth in "advanced" capitalist countries, defined as countries with a high value of real national product per head and a fully developed financial system. In particular, the paper should examine how and to what extent differences in financial structure have been responsible for differences in the rate and character of economic growth. This examination, naturally, should run in quantitative terms, i.e. it should relate certain measurable characteristics of financial structure to a quantitative expression of economic growth such as real national product per head.

The paper does not follow this straight path. Some of the reasons are accidental, such as the extreme pressure of time under which it was written. Others are more basic. First, there is no accepted and tried kit of concepts for measuring financial structure and thus distinguishing clearly and quantitatively changes in structure over time or differences in structure between countries or regions. Second, even if we hastily fashion some new tools—as will be done in section 2—there is great difficulty in finding data for different dates and different countries that are sufficiently comprehensive, detailed, and comparable to justify their application. Third, our measures of economic growth are still so crude, particularly if we go back more than a few decades, that differences—e.g. in the rate of increase of

real product per head—must be pronounced and persistent to be regarded as significant. Fourth, the number of "cases" from which our generalizations would have to be drawn is woefully small—there are less than a dozen countries that can be classified as "advanced," using the two criteria of high real income per head (high by international comparison) and a well-developed financial structure; and most of these have been in this category for less than a century. Fifth—and this will be the decisive consideration for theorists—economic growth is so complex a phenomenon, obviously determined or influenced by basic factors of a physical, technological, and mass-psychological nature, that an attempt to isolate the effects of apparently secondary forces such as the character of financial institutions and the nature of credit practices does not promise success. Indeed, if differences in financial structure affect economic growth, such effects have a better chance of being identified and measured by contrasting "advanced" and "retarded," or capitalist and socialist, countries as of today; or in comparing economic growth in the now "advanced" countries before and after the industrial revolution—both subjects excluded from the assigned scope of this paper, even if I had felt bold enough to attack them. For an explanation of the differences in the speed and character of economic growth of "advanced" countries, financial factors will be, I am afraid, too weak and blunt a tool until our knowledge of both the economic growth and the financial structure of different countries is much further advanced than it is now.

This pessimistic attitude is due in part to the absence of any prima-facie evidence of a clear connection between the financial structure and the rate of economic growth in "advanced" capitalist countries during the past century.[1] In Table 1 the estimates available

[1] Abramovitz has quite correctly pointed out that this attitude, as well as the conclusions of this paper, might be different had it been possible to investigate financial structure on a broader basis than I have been able to investigate it here. This might be the case in particular if, in addition to the sample balance sheet ratios used here, consideration had been given—in quantitative terms if that were possible—to the nature of the mechanism by which funds are transferred from lenders to borrowers, following for example Abramovitz's own stimulating suggestions in *Survey of Contemporary Economics* (Bernard F. Haley, editor, Irwin, 1952, Vol. II, pp. 146 ff.). It should be clear to the reader that I am not dealing in this paper with finance or even financial structure in the broadest sense of these terms, but only with one aspect of them—the relationship between tangible and intangible assets in national and group balance sheets—that seems to lend itself well to quantitative treatment and for which the necessary basic information is available, even if only in rough form.

TABLE 1

Growth Rates of Real National Product of "Advanced" Countries, 1860-1950

(*per cent per year*)

Period	U.S. (1)	Canada (2)	Australia (3)	New Zealand (4)	U.K. (5)	France (6)	Germany (7)	Nether-lands (8)	Belgium (9)	Switzer-land (10)	Sweden (11)	Norway (12)	Denmark (13)
						Aggregate Real National Product							
1. 1860-1913[a]	4.3	.	3.7	.	2.4	1.1	3.0	2.3	2.2	2.6	2.0	2.3	2.8
2. 1913-1938	2.0	1.7[b]	2.1	.	1.0	1.1	1.3	2.1	1.0	1.6	1.9	1.9	2.1
3. 1938-1950	5.7	5.9	2.6	3.3[c]	1.6	.2	2.3[d]	1.8	.6	2.1	2.5	3.0	2.2
4. 1860-1950	3.8	.	3.2	.	1.8	1.1	2.4	2.2	1.7	2.1	2.0	2.3	2.5
5. 1913-1950	3.0	2.8	2.3	.	1.2	.9	1.7	1.7	.9	1.8	2.1	2.3	2.1
						Real National Product per Head							
6. 1860-1913[a]	2.3	.	1.7	.	1.5	.9	2.0	.8	1.4	1.4	1.3	1.6	1.8
7. 1913-1938	.9	.2	.4	.	.8	.9	.7	.6	.6	1.2	1.4	1.2	.8
8. 1938-1950	4.2	4.0	1.1	2.4	1.2	0	.7[d]	.6	.3	1.1	1.7	2.1	1.2
9. 1860-1950	2.2	.	1.3	.	1.2	.9	1.4	.7	1.1	1.3	1.4	1.6	1.4
10. 1913-1950	2.0	1.4	.6	.	.9	.7	.7	.6	.5	1.2	1.5	1.5	.9

[a] First period starts with years other than 1860: for U.S., 1869/1878; Australia, 1886; U.K., 1870; Netherlands, 1900; Belgium, 1846; Switzerland, 1890; Sweden, 1870; Norway, 1891; Denmark, 1870.

[b] The year 1911 instead of 1913.

[c] From 1938/1939 to 1947/1948.

[d] From 1936 to 1952.

Source: Figures in lines 3 and 8 derived from estimates of real national product given in *22nd Annual Report*, 1952, Bank for International Settlements, p. 43; and population data mostly from *Demographic Yearbook*, 1952, United Nations. Those for lines 4, 5, 9, and 10 are weighted averages of lines 1 to 3 and 6 to 8 respectively. (Values in lines 1 and 6 have been regarded as applying to full period 1860 to 1913.) Figures in lines 1, 2, 6, and 7 are based on following sources:

Column — Source

1 — *Income and Wealth, Series II*, Simon Kuznets, editor, Cambridge, Eng., Bowes & Bowes for International Association for Research in Income and Wealth, 1952, p. 30, for the period 1869/1878 to 1909/1918; *National Income Supplement, 1951, Survey of Current Business*, Dept. of Commerce, for 1938 to 1950.

2-4, 6, 9-13 — Colin Clark, *The Conditions of Economic Progress*, 2nd ed., London, Macmillan, 1951, pp. 80, 84, 85, 87, 105, 106, 108, 140, and 148, corrected by data in *Review of Economic Progress*, December 1951, for France.

5 — A. R. Prest, "National Income of the United Kingdom, 1870-1946," *Economic Journal*, March 1948, pp. 58-59.

7 — P. Jostock, "The Long-Term Growth of National Income in Germany," unpublished paper submitted to 1953 meeting of International Association for Research in Income and Wealth, p. 3.

8 — *Statistische en Econometrische Onderzoekingen*, Centraal Bureau voor de Statistiek, Utrecht, 1950, p. 174.

in mid-1953 of growth in real national product since the middle of the nineteenth century have been brought together for all countries which can be regarded as "advanced" on the basis of the real income criterion, i.e. countries having real income per head in 1949 of over $400,[2] all of which (with the possible exception of New Zealand) also meet the second definitional criterion, that of possessing a fully developed financial system.

The outstanding—and not unexpected—feature of this table is the higher rate of growth of real national product, per head as well as in the aggregate, of the United States and Canada compared with the other "advanced" countries, most of which are situated in Western or Central Europe. Is one seriously to believe that differences in financial structure are responsible for this basic difference in the rate of economic growth which has endured for most of a century, a difference large enough to raise real income per head in the United States within one century to three times that of most of the other advanced countries? How is one to explain the fact that the country with a rate of growth nearest to the United States—Canada—has quite a different financial structure, which in several respects (e.g. concentration of commercial banking into a small number of nationwide institutions) is closer to European than American patterns? Limiting attention to "advanced" countries in Europe, is there anything in the financial structure of the Scandinavian countries or Switzerland to account for their relatively rapid economic growth, or in that of the Netherlands to explain the slow increase in national product per head? The financial systems of Germany and Great Britain have often been regarded as opposites, and much printers' ink has been spilt, particularly before World War I, in using these differences as an explanation of the two countries' relative growth. In fact, both countries show not too different rates of growth of real income, in the aggregate as well as per head, between the mid-

[2] See *National and Per Capita Incomes, Seventy Countries—1949*, United Nations, Statistical Papers, Series E J, Table 1. Germany is included because it should by 1952 have reached a per head income of over $400 and obviously belongs to this group. Luxembourg and Iceland, though meeting the income criterion, have been omitted for lack of historical data and because it is doubtful if they possess a fully developed financial system. Use of figures for one year employing official exchange rates to convert income estimates in national currencies into dollar figures is obviously open to criticism. The list of "advanced" countries would, however, be essentially the same had it been based on Clark's estimates for 1925-1934 in which an attempt is made to reduce incomes to comparable "international units" (see Colin Clark, *The Conditions of Economic Progress*, 1st ed., London, Macmillan, 1940, p. 41).

dle of the nineteenth century and 1913.[3] Finally, the rate of growth of real product per head was considerably higher from the third quarter of the nineteenth century to World War I than in the following forty years in the case of the United Kingdom, Germany, Belgium, the Netherlands, Denmark, and Australia, while the decline was small, or entirely absent, in the United States, France, Switzerland, Sweden, and Norway. Do these differences and groupings have a significant relation to financial structure?

In all these instances it can of course be argued that, while they are not decisive, differences in financial structure have been an important contributing factor in determining rate of growth of real national product, particularly if financial structure is defined more broadly than in this paper. This possibility cannot be denied or disproved. But neither can it be proven. Nor is it possible—and this is more important—to isolate and measure the contribution of financial factors. If we want to stay within the realm of measurable facts we must, therefore, give up for the time being the attempt to determine the differential effect of financial structure on economic growth among advanced capitalist countries.

Thus we must trim our sails and be content with a much more moderate contribution to the analysis of economic growth. We may first ask what, theoretically, are the characteristics of financial structure which are influenced by and in turn affect the process of economic growth? Second, we may see whether the financial structures of advanced capitalist countries show sufficient common characteristics and significant similarity in development for us to regard these financial traits as "typical" components or accompaniments of their economies and their development. It is to these two questions that the rest of this paper is directed. Naturally, it cannot treat them exhaustively or definitively. The very breadth and novelty of the questions are sufficient to dispel any illusions on these counts. All that can be done is to offer, in section 2, some suggestions of concepts that might be used in a comparative morphology of financial structure; to apply, in section 3, these concepts to changes in the financial structure of the United States during the past century; and to attempt, in section 4, a rapid glance at a few other important advanced countries—Great Britain, Germany, and the Netherlands—

[3] The advocates of the German financial system, it is true, based their arguments on differences in growth during the second half of this period. But for the years 1890-1913 the increase in real national product per head seems to have been only slightly higher in Germany (.9 per cent per year) than in Great Britain (.7 per cent).

in 1913 and at some more recent points of time, the selection of dates as well as countries depending largely on availability of data.

2. *Elements of a Comparative Financial Morphology*

A satisfactory quantitative comparison of the financial structures of different countries at rest and in motion, i.e. a comparative morphology and dynamic, requires for each of them and for a considerable period of time (1) national balance sheets with fairly detailed cross-classifications of intangible assets, liabilities, and equities by creditor (holder) and debtor (issuer) groups, and (2) use-and-source-of-funds statements, on a gross basis, for all major sectors of the economy by type of fund, thus permitting the construction of a square flow table with as many rows and columns as there are sectors to distinguish, a table which is formally quite similar to the familiar input-output matrix for interindustrial relations. This section proceeds as if such statements existed and disregards the numerous conceptual and practical problems involved in their derivation. It explores measures that could be used in such a situation to characterize financial structures and to compare them among countries over time.

One of the basic relations characterizing the financial structure on the national level is the ratio between intangible and tangible assets in the combined national balance sheet, a ratio which is equal to

$$\frac{\text{National assets}}{\text{National wealth}} - 1$$

if tangibles are regarded as including net foreign assets or obligations. It may be called the "financial interrelations ratio" because it measures the extent to which tangible assets are overlaid by a network of financial (intangible) claims, liabilities, and evidences of ownership (equities). The ratio naturally is zero when there are no intangibles, i.e. no financial interrelations, and national assets = national wealth, and is the higher the denser the net of financial interrelations.

The financial interrelations ratio (henceforth designated as FIR) is determined by the following factors:[4]

1. The definition of independent economic units each of which is supposed to have its own balance sheet. To cite only one ex-

[4] The list is not exhaustive; some of the factors could well be further subdivided.

ample: national assets, and hence FIR, are higher if unincorporated businesses are regarded as separate entities than if their assets and liabilities are treated as part of the balance sheet of proprietors, and the difference is equal to the value of the equity in unincorporated business enterprises which appears among proprietors' assets.

2. The definition of assets. Needless to say, both national assets and national wealth, and hence FIR, are affected by the scope of tangible and intangible assets included in the national balance sheet. Liberal definition of intangibles (e.g. inclusion of good will and similar assets or capitalization of claims of social security beneficiaries in excess of fund assets) will necessarily increase both national assets and FIR. Broadening of the scope of tangibles, primarily inclusion of consumer durables or of durable military assets, on the other hand, will raise national assets and national wealth by the same absolute amounts and thus will reduce FIR.

3. The valuation of assets. In periods of rising prices FIR calculated on market prices (or reproduction cost) is likely to be higher than if calculated on the basis of book values, i.e. original cost, while the opposite relationship will prevail after a prolonged fall in prices. The reason is that the book values of a large part of intangibles, particularly short-term claims, adapt themselves rather rapidly to changes in the general price level; whereas, such an adaptation takes a long time for the bulk of tangible assets, i.e. structures and equipment, though not for inventories.

4. The extent to which operation and ultimate ownership of tangible assets coincide. The greater the difference between the values of the typical ultimate unit's (household and government) tangible assets and its equity, i.e. the lower the ratio of tangible to total assets in the typical ultimate unit's balance sheet, the larger the proportion of intangible assets and liabilities necessary to bridge the gap.

5. The degree of "layering" in the economy, i.e. the number of links (independent units) in the chain between tangible assets and ultimates. Two types of layering may profitably be distinguished. The first is layering among major economic groups, i.e. the existence of nonfinancial business enterprises and of financial institutions, the former owning and operating part of tangible assets and the latter providing part of the funds with which business enterprises acquire tangible as well as intangible assets. The second is layering within major economic sectors, i.e. the fact that there are financial interrelations (creditor-debtor and owner-issuer relationships) among units

belonging to the same sector, particularly among affiliated enterprises, between suppliers and customers, and among financial institutions. The extent of this intrasectoral layering is measured by the ratio of the footings of a sector's combined and consolidated balance sheets.

6. The size of the "dead-weight debt," i.e. debt that was incurred without giving rise, as is the normal case, to assets of equal amount.[5] The classical example of dead-weight debt is government borrowing to defray military expenditures (except possibly expenditures on durable military assets, which may be regarded as part of national assets and wealth). But government or private debt incurred to cover a current deficit, i.e. consumer debt in the narrower sense of the word, belongs in the same category. Since dead-weight debt increases the assets of its holders, and hence national assets, but does not directly affect the level of national wealth, it raises FIR.[6] Indeed, the increase in national assets may easily be far in excess of the amount of dead-weight debt if part or all of the debt is bought by the central bank and thus becomes the basis of multiple expansion of assets and deposits within the banking system.

7. The extent of destruction of tangible assets by "acts of God or the King's enemies," a contingency likely to arise in significant

[5] The concept of dead-weight debt is not an easy one to handle, as Shaw's comments indicate, but I still believe that it has a place in the analysis of financial interrelations and of the connection between financial structure and economic growth. The adjective itself, which is taken from nineteenth century British financial terminology, does not, of course, imply that such debt is "dead" in the sense of being without influence on income, prices, output, and many other economically relevant factors either at the time of its creation or later. Differing from Shaw, I also believe that dead-weight debt can be defined with as much precision as other economic and financial terms. It is simply that part of liabilities which, at current valuations, is not covered by assets. Hence, there is, strictly speaking, dead-weight debt for some units in every sector. If we limit the term in statistical handling to the overindebtedness of governments, or if we equate it sometimes in further simplification with the total debt of the central government, we are applying statistical conventions whose justification depends on how closely they reflect the actual situation. Where sufficient data are available we do not have to treat the entire debt of the central government, or of other issuer groups, as dead-weight or not dead-weight, but can divide all holdings pro rata into parts that represent dead-weight debt or other debt.

[6] In real life, issuance of large amounts of dead-weight debt is invariably accompanied, sooner or later, by a rise in the price level. This rise may possibly be pronounced enough to raise the value of tangible assets so much that FIR actually declines, at least until the volume of intangibles (other than dead-weight debt) adjusts itself to the rise in price level. (In view of Shaw's comment it may be well to emphasize that such a decline in FIR is likely to be temporary and is not to be expected except during hyperinflation.)

amounts only in major wars. In such a case FIR would rise, since an unchanged volume of intangibles is compared with a shrunken tangible asset base. Actually, war-caused destruction of tangible assets (and the loss of net foreign assets, which is similar in its effects) is likely to cause an even sharper increase in FIR, as it will generally be accompanied by the creation of additional intangibles in the form of war damage compensation claims or payments. (Two examples, the British and Dutch situations after World War II, will be found in section 4.)

8. The sudden and unilateral reduction of intangibles—the modern form of *seisachtheia*—which often accompanies currency reforms and repudiations of government debt. Such actions sometimes also reduce the market value of tangibles; but generally much less than corresponds to the shrinkage of intangibles, so that FIR falls abruptly. (A classical case, the German currency reform of 1948, is illustrated in section 4.)

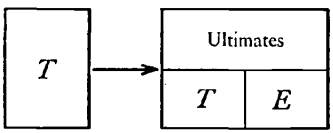
9. Under customary accounting conventions, following legal arrangements, rented real property does not appear in the balance sheet of the tenant but only in the balance sheet of the landlord, in which it is not distinguished from owner-operated property. As a result, the proportion of real property rented is without influence on FIR. The national balance sheet and FIR are thus invariant to shifts between owner operation and tenancy and to differences in the ratio of tenancy among countries, although such shifts and differences are of great economic significance and of importance for many aspects of financial structure. It is worth consideration whether the national balance sheet should not depart from the usual methods of business accounting by entering the value of rented property on both sides of the tenant's balance sheet, as a tangible asset on the left- and as a liability of equal size on the right-hand side, and at the same time show it in the landlord's balance sheet as a claim instead of a tangible asset. Under this treatment, spread of tenancy would increase national assets and FIR, though naturally leaving national wealth unchanged.

It may be well to illustrate these rather abstract considerations by a set of extremely simplified specimens of financial structure on the national level. They are all based on the assumptions that balance sheets exist for all economic units and that valuations are uniform. Only four sectors (groups of economic units) are distinguished: ultimates (i.e. households and private nonprofit institutions), business (nonfinancial corporations and unincorporated enterprises),

financial intermediaries, and government. Business is supposed (except in Specimens 6 and 7) to be entirely financed by intermediaries. Financial intermediaries are assumed (except in Specimen 7), for the sake of simplicity, to own intangible but no tangible assets, and non-financial businesses to own tangible but no intangible assets. For the same reason ultimates are assumed (again except in Specimen 7) to be free of debt, governments to have no assets and only dead-weight debt, and financial intermediaries to be financed entirely by ultimates. Net foreign assets and liabilities are disregarded throughout.

SPECIMEN 1

No Nonfinancial Business Enterprises; No Financial Intermediaries; No Dead-Weight Debt



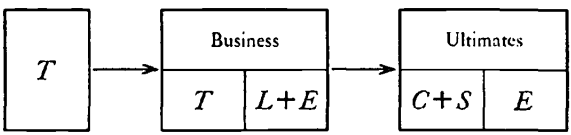
National assets	=	National wealth
Financial interrelations ratio	=	0
Share of financial intermediaries in national assets	=	0

Legend (for all specimens)

T = Tangible assets
E = Equity
L = Liabilities
C = Claims
S = Stocks (i.e. equities held as assets)
D = Dead-weight debt
O = Surplus deficit (overindebtedness)

SPECIMEN 2

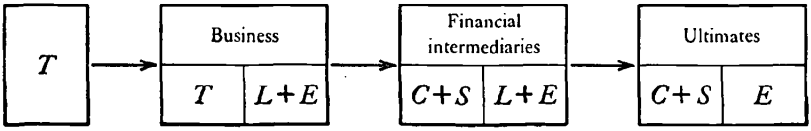
Nonfinancial Enterprises Own All Tangible Assets; No Financial Intermediaries; No Dead-Weight Debt



National assets	=	2 × national wealth
Financial interrelations ratio	=	1
Share of financial intermediaries in national assets	=	0

SPECIMEN 3

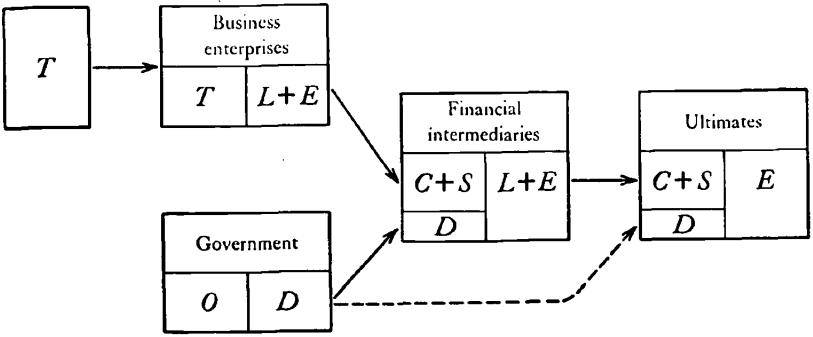
Nonfinancial Enterprises Own All Tangible Assets; One Layer of Financial Intermediaries Supplies All Funds to Enterprises; No Dead-Weight Debt



National assets	$= 3 \times$ national wealth
Financial interrelations ratio	$= 2$
Share of financial intermediaries in national assets	$= \frac{1}{3}$
Layering ratio among financial intermediaries	$= 1$

SPECIMEN 4

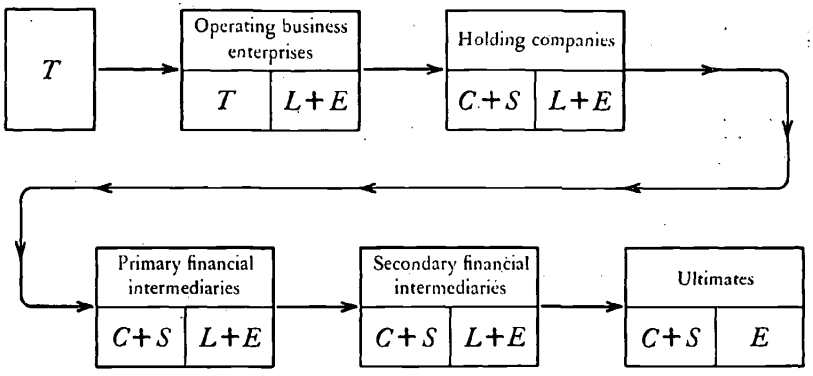
Nonfinancial Enterprises Own All Tangible Assets; One Layer of Financial Intermediaries Supplies All Funds to Enterprises; Dead-Weight Debt Equal to One-Half of Value of Tangible Assets Held Half by Financial Intermediaries and Half by Ultimate Owners



National assets	$= 5 \times$ national wealth
Financial interrelations ratio	$= 4$
Share of financial intermediaries in national assets	$= \frac{1}{4}$
Layering ratio among financial intermediaries	$= 1$

SPECIMEN 5

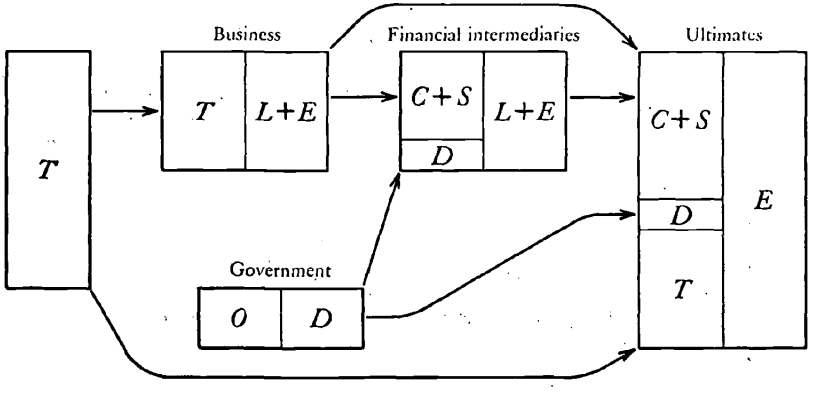
Nonfinancial Enterprises Own All Tangible Assets; Multi-Layered Financial Intermediaries Supply All Funds to Enterprises; No Dead-Weight Debt



National assets	= 5 × national wealth
Financial interrelations ratio	= 4
Share of financial intermediaries in national assets	= ⅖ (⅗ including holding companies)
Layering ratio among financial intermediaries	= 2 (3 including holding companies)

SPECIMEN 6

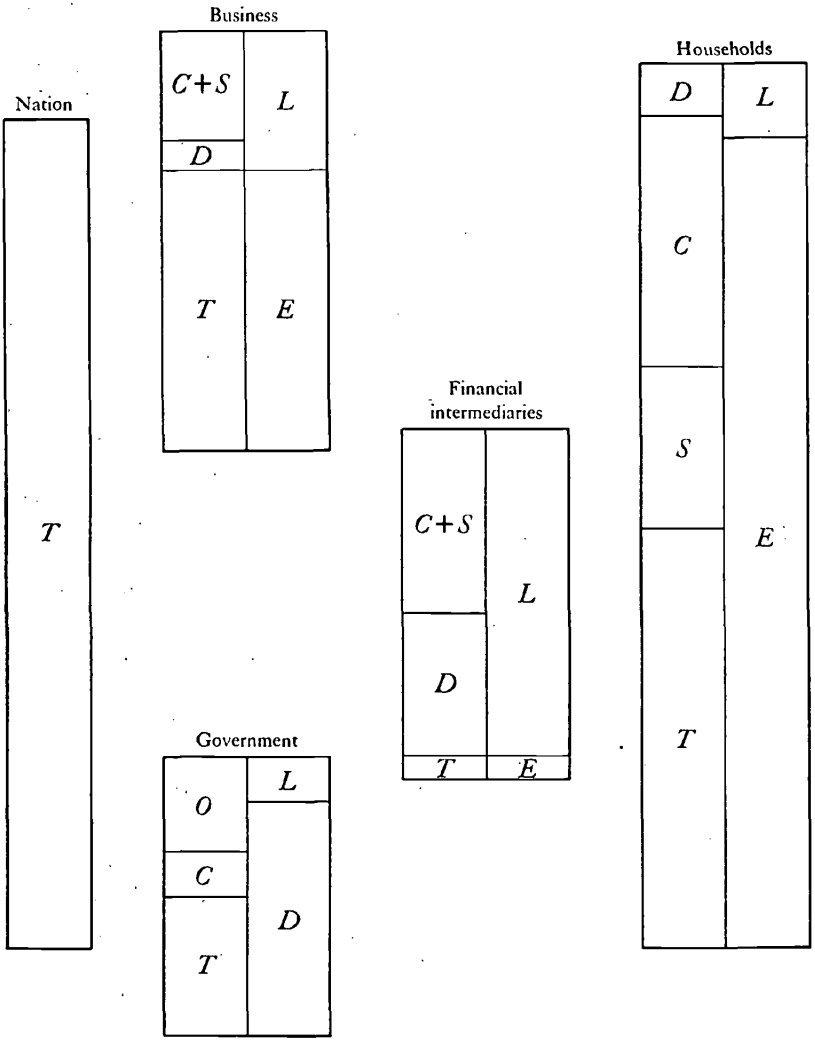
Ultimates and Business Each Own One-Half of Tangible Assets; One Layer of Financial Intermediaries; Dead-Weight Debt Equal to One-Fourth of Tangible Assets and Held Equally by Ultimates and Financial Intermediaries



National assets	= 3⅜ × national wealth
Financial interrelations ratio	= 2⅜
Share of financial intermediaries in national assets	= ⅛ (approximately)
Layering ratio among financial intermediaries	= 1

SPECIMEN 7

Situation Similar to United States in 1949



National assets = 2 × national wealth
Financial interrelations ratio = 1
Share of financial intermediaries in national assets = ⅕

The only point in including these graphs is to bring home more clearly than in the text how the share of tangible assets owned by business, the extent of layering, and the size and distribution of the dead-weight debt affect FIR and the share of financial intermediaries in national assets. Specimens 1 to 5 illustrate extreme cases, not likely to be found in this pure form in actual life. Specimen 6, however, is a little more realistic, and Specimen 7, the most complicated one, is roughly modeled after the situation in the United States in 1949, the last year for which a national balance sheet is available.

It is, of course, impossible to indicate a typical or normal value for FIR. But it may be useful to show in Table 2 the values of FIR which result from certain assumptions about the value of the main determinants of the ratio, values which appear to be reasonable for modern Western-type economies.

This table shows the wide range—one-third to three—in the value of FIR that may arise without making unreasonable assumptions regarding the main determinants of the ratio. The range of FIR encountered in actual application, however, is much smaller. The share of business in tangible assets, for instance, will generally be found to lie between one-fourth and one-half, and will exceed one-half only in less-developed countries and if agriculture is regarded as part of the business sector. The share of financial intermediaries in financing business is usually of the order of one-sixth to one-third, while the layering ratios among nonfinancial business enterprises and financial intermediaries more commonly range from one and one-half to two. It is only the dead-weight debt ratio which is actually found to have a wide range from virtually zero up to one-half. FIR thus is likely to lie between one-half and one and one-half when there is no dead-weight debt. It may rise to between one and two and one-half in situations where a substantial dead-weight debt, say of up to one-half of national wealth, is present.

For the analysis of a country's financial structure, and of changes in it, there is particular interest in the relation between FIR and the assets of financial intermediaries. This can be set forth in the following formula, which also is sometimes useful as a rough estimating device when no comprehensive national balance sheet is available.[7]

[7] A stands for total assets, T and I for tangible and intangible assets. Subscripts on the right indicate holders, those on the left debtors (issuers); n stands for all groups, h for households, g for government, b for nonfinancial business, f for financial intermediaries, s for foreigners, and o for all groups except financial intermediaries.

TABLE 2

Value of Financial Interrelations Ratio under Varying Assumptions

SHARE OF FINANCIAL INTERMEDIARIES IN BUSINESS FINANCING (ϕ)			SHARE OF BUSINESS IN TANGIBLE ASSETS (β) .25			.50		
			DEADWEIGHT DEBT RATIO (d) 0	.25	.50	0	.25	.50
.25								
Layering ratio of business (λ_b)	1.0	Layering ratio of financial intermediaries (λ_f) 1.0	.31	.44	1.56	.62	1.25	1.88
		2.0	.38	1.12	1.87	.75	1.50	2.25
	2.0	1.0	.56	1.19	1.81	1.12	1.75	2.38
		2.0	.62	1.38	2.12	1.25	2.00	2.75
.50								
Layering ratio of business (λ_b)	1.0	Layering ratio of financial intermediaries (λ_f) 1.0	.38	1.00	1.63	.75	1.38	2.00
		2.0	.50	1.25	2.00	1.00	1.75	2.50
	2.0	1.0	.62	1.25	1.88	1.25	1.88	2.50
		2.0	.75	1.50	2.25	1.50	2.25	3.00

Source: Calculated from the formula

$$\text{FIR} = \beta\lambda_b + (d\delta + \beta\phi)\lambda_f + 2d$$

where δ = proportion of dead-weight debt held by financial intermediaries. This formula considerably simplifies the actual interrelations among groups; e.g. by assuming that financial intermediaries and governments own no tangible assets, that financial intermediaries are financed entirely by households and are holding one-half of dead-weight debt, that there are no interrelations between nonfinancial business and government, and that there is no layering among households and governments.

The formula is derived by summing the assets of the four groups, which can be expressed in the terms used in Table 2 (T = tangible assets, i.e. national wealth), dividing by T, and subtracting 1 (since FIR has been defined as $[\Sigma A/T] - 1$), as follows:

Nonfinancial business : $T + T\beta(\lambda_b - 1) = T\beta\lambda_b$
Government : Td
Financial intermediaries : $Td\delta + T\beta\phi + (\lambda_f - 1)(Td\delta + T\beta\phi)$
$= (Td\delta + T\beta)\lambda_f$
Households : $T(1-\beta) + Td(1-\delta) + T\beta(1-\phi) + Td\delta + T\beta\delta$
$= T(1+d)$

$$\text{FIR} = \frac{I_n}{T_n}$$

$$= \frac{I_f + I_b + I_h + I_g}{T_n}$$

$$= \frac{A_f - T_f}{T_n} + \frac{{}_oI_b + {}_fI_b}{T_n} + \frac{{}_oI_h + {}_fI_h}{T_n} + \frac{{}_oI_g + {}_fI_g}{T_n}$$

$$= \frac{A_f - T_f}{T_n} + \frac{{}_fI_b + {}_fI_h + {}_fI_g}{T_n} + \frac{{}_oI_b + {}_oI_h + {}_oI_g}{T_n}$$

$$= \frac{{}_fI_b + {}_fI_h + {}_fI_g}{T_n} = \frac{A_f - {}_fI_f - {}_fI_s}{T_n}$$

(Holdings of claims against, and holdings of equity securities of, financial intermediaries by domestic business, households, and governments must be equal to total assets of financial intermediaries less claims, etc., of financial intermediaries and of foreigners.)

$$= \frac{A_f - T_f}{T_n} + \frac{A_f - {}_fI_f - {}_fI_s}{T_n} + \frac{{}_oI_b + {}_oI_h + {}_oI_g}{T_n}$$

$$= \frac{2A_f}{T_n} - \frac{T_f + {}_fI_f + {}_fI_s}{T_n} + \frac{{}_oI_b + {}_oI_h + {}_oI_g}{T_n}$$

$$= \frac{(2 - a)A_f}{T_n} + \frac{{}_oI_b + {}_oI_h + {}_oI_g}{T_n}$$

where

$$a = \frac{T_f + {}_fI_f + {}_fI_s}{A_f}$$

Since a is usually rather small (below .25), FIR may be said to consist of two components. The first of them is slightly below twice the ratio of financial intermediaries' assets to national wealth. The second is the ratio of intra- and intergroup claims and equities of other domestic sectors to national wealth, which consists mainly of holdings of government bonds and of corporate securities by

households and nonfinancial business enterprises, of individuals' mortgage holdings, and of accounts receivable of business.[8] The advantages of this formula are that total assets of financial intermediaries are generally known or can be estimated with reasonable accuracy, and that some or most of the components of the second summand's denominator can also be estimated, even if often only rather roughly. In this way FIR can be approximated in the absence of a national balance sheet—the usual situation—when figures are available on national wealth, assets of financial intermediaries, and outstanding securities and mortgages. (In practice the item most often unavailable is business accounts receivable.)

FIR, together with its components, particularly the dead-weight debt ratio and the two layering ratios, is probably the most informative and simplest single measure of financial structure. But complementary ratios, which can generally be regarded as further subdivisions of FIR or its components, are necessary for fuller understanding of differences in financial structure between countries or over time. Among these are:

1. The share of financial intermediaries in total national assets. This is probably the best single indicator of the over-all importance of financial institutions in the national economy.[9]

2. The share of (a) note-issuing institutions (central banks) and (b) check-issuing banks in the assets of all financial intermediaries and in national assets. These ratios are of considerable theoretical importance and also turn out to be good indicators of the stage of a country's financial development. Their significance lies in the fact that they are rough measures of the share of nonmetallic money in all intangible assets. Indeed, for some purposes just this latter share may be preferable to the shares of assets of banks of issue and commercial banks in total intangibles.

3. The share of the main groups of financial intermediaries in aggregate assets of intermediaries and in total national assets. These ratios provide rough indicators of the relative importance of the different types of financial intermediaries and are therefore useful in characterizing quantitatively a country's capital market organization. The main groups to be distinguished—apart from central and commercial banks—are savings banks and similar organizations (in

[8] Accurate calculation, of course, would require some additional items such as loans among households and, if regarded as an asset, tax accruals.

[9] See Raymond W. Goldsmith, *The Share of Financial Intermediaries in National Wealth and National Assets, 1900-1949*, National Bureau of Economic Research, Occasional Paper 42, 1954.

the United States, for instance, savings and loan associations and credit unions); mortgage banks (a group poorly represented in the United States but of great importance in some other countries); insurance and pension funds, subdivided into private and government organizations; and personal trust funds insofar as they are under professional management (in the United States under the administration of personal trust departments of commercial banks and trust companies).

4. The ratio between intangible assets held by financial intermediaries and those held by all other economic groups. The function of this ratio is to indicate the degree of institutionalization of investment in intangible assets. The over-all ratio is usefully supplemented by similar ratios for the main types of intangible assets which are held in substantial amounts both by financial intermediaries and by noninstitutional investors, viz. government bonds, corporate bonds, corporate stocks, and mortgages.

5. The share of financial intermediaries in financing the different sectors of the economy. These ratios are calculated, if national balance sheets but no sources-and-uses-of-funds statements are available, as the share of a sector's borrowings from and its securities held by financial institutions to the sector's aggregate liabilities and equity. They may be regarded as a further breakdown of FIR.[10]

6. Ratio of foreign financing. This ratio has been of minor importance in the United States in the twentieth century, but in many other countries it constitutes an important characteristic of the financial structure, partly because it is the most important exogenous factor in that structure.

7. The liquid asset ratio. This ratio, which compares liquid assets, however defined, with total assets, is significant for individual economic units and groups of them up to major sectors like nonfinancial business or agriculture, but is of limited interest on a national scale. Its importance, like that of the next three ratios, lies primarily in the fact that it constitutes an important determinant of economic behavior, particularly the ability and willingness to make capital expenditures and the decisions to enlarge or curtail the scale of output.

8. The ratio of price-sensitive assets, primarily tangible assets and equity securities (including equities in unincorporated business enterprises), to total assets.

[10] Where sources-and-uses-of-funds statements are available, the ratios are calculated from total sources of funds during a given period and funds supplied by financial intermediaries, rather than from the balance sheet.

9. The ratio of indebtedness to total assets. For analytical purposes a subdivision into a short-term and a long-term debt ratio is advisable.

10. The leverage ratio, a combination of debt ratio and price-sensitive asset ratio, which measures the percentage change in equity resulting from a 1 per cent change in the level of asset prices. This ratio, which can be refined in various ways, is useful as an indicator of the effects of inflation and deflation on different sectors of the economy.

11. The self-financing ratio, which is measured when only balance sheets are available—rather unsatisfactorily if the statements are based on original cost of assets—as the ratio of earned surplus to total liabilities and equity. Calculation from a sources-and-uses-of-funds statement as the proportion between total sources of funds and retained earnings is preferable. This is one of the most important ratios characterizing financial structure, but it is not easily available because balance sheets do not often permit a comparison of earned surplus and total liabilities and equity unless calculated throughout in constant prices, and because sources-and-uses-of-funds statements are rarely available for a period long enough to permit an estimate of the contribution of internal financing to total assets or equity.

12. Concentration ratios, i.e. measures (preferably in the form of Lorenz curves) of the extent to which total assets, total equity, or other balance sheet items of the various sectors of the economy, or of the entire nation, are concentrated in a relatively small number of individual economic units. The broadest measures of this sort are distributions of national assets or national wealth by size which are familiar in the form of wealth distributions among individuals. Similar distributions, of course, can be derived, and occasionally have been, for assets or equity among corporations, among financial institutions of a certain type, or among any other group of economic units which is sufficiently homogeneous and in some sense competitive to impart economic significance to the calculation. Concentration is generally measured on a national scale, but its study is often as significant at the local level. To give only one example, the concentration of commercial banks on the national level is much more pronounced in most European countries which have nationwide branch banking systems than in the United States. It will, however, be found that at the local level, i.e. for a given city or trade area, concentration is often higher in the United States; in

other words, the largest one, two, or three banks account for a higher proportion of total banking resources than they do in Europe.

Only FIR and a few of its components are dealt with in this paper. Hardly any use at all will be made of the other ratios, i.e. those listed under 5 to 12 above. The reason is simply that these ratios do not seem to have been calculated in a systematic and comparable way for a sufficient number of countries to permit international comparisons. On the other hand, figures for the United States, which are available at least for several of these ratios, have not been analyzed here, although they would fit into section 3, in order not to extend this paper unduly and because they have been briefly discussed elsewhere.[11]

3. *Changes in the Financial Structure of the United States*

The following summary discussion of some important measurable changes in the financial structure of the United States over the past 100 years serves three modest purposes. The first is to illustrate the application to one concrete case of the tools of financial morphology, sketched in section 2. The second is to follow the changes in financial structure that have accompanied one of the outstanding examples of economic growth of an advanced country, and certainly the most massive and enduring example: the United States since the middle of the nineteenth century. The third is to provide a standard of comparison with the much rougher measures for a few other countries to be presented in section 4.

TRENDS IN FINANCIAL INTERRELATIONS RATIO AND COMPONENTS[12]

The FIR of the American economy, as it appears in column 1 of Table 3, has shown a definite upward trend, though by no means an unbroken or regular one. Indeed, the movements of the ratio suggest a series of steps rather than a smooth curve.

The ratio was undoubtedly low in 1850, as rough as the estimates may be. It probably remained slightly below .5, indicating that

[11] For liquid asset, price-sensitive asset, and debt ratios see Raymond W. Goldsmith, *A Study of Saving in the United States*, Vol. I, Princeton University Press, 1955, Introduction, Chap. VIII; and for the share of financial intermediaries in total supply of funds, "Financial Intermediaries in the Saving and Investment Process in the American Economy, 1900-1952," National Bureau of Economic Research manuscript, Chap. VIII.

[12] This section is taken with small changes from "The National Balance Sheet of the United States," *Income and Wealth, Series IV*, Cambridge, Eng., Bowes & Bowes for International Association for Research in Income and Wealth, in press.

TABLE 3

Trends in Financial Interrelations Ratio, United States, 1850-1952

YEAR	FINANCIAL INTERRELATIONS RATIO			SHARE OF FINANCIAL INTERMEDIARIES	
		Components			
	Total (1)	*2 × Assets of Financial Intermediaries* (2)	*Remainder (Unadjusted)* (3)	*National Assets* (4)	*Financial Interrelations Ratio (Unadjusted) (per cent)* (5)
1850	.45	...	...	...	...
1880	.50	...	...	...	...
1900	.81	.41	.40	.11	.51
1912	.87	.48	.39	.13	.55
1922	.96	.56	.40	.15	.58
1929	1.24	.70	.54	.16	.56
1933	1.22	.81	.41	.18	.66
1939	1.21	1.00	.21	.22	.83
1945	1.73	1.36	.37	.24	.79
1949	1.24	1.00	.24	.21	.81
1952	1.08	.91	.17	.22	.84

Column		Source
1, 2	1850, 1880:	Very rough preliminary estimates.
	1900-1949 :	Raymond W. Goldsmith, *A Study of Saving in the United States*, Vol. III, Princeton University Press, 1955, Part I.
	1952 :	Rough preliminary estimates.
3	1900-1952 :	Column 1 less column 2; therefore understated by $(a/2) \times$ column 2.
4	1900-1952 :	Raymond W. Goldsmith, *The Share of Financial Intermediaries in National Wealth and National Assets, 1900-1949*, National Bureau of Economic Research, Occasional Paper 42, 1954, p. 97.
5	1900-1952 :	Column 2 divided by column 1; hence overstated by $\frac{(a/2) \times \text{column 2}}{\text{column 1}}$

intangible assets had a value of less than one-half of national wealth. This is hardly astonishing. At that time financial institutions and business corporations were still in their infancy, layering among them was almost unknown, and the dead-weight debt was negligible. It is much more remarkable—and in need of explanation—that the ratio apparently had hardly risen by 1880, although by that time commercial and savings banks had attained substantial size, railroad stocks and bonds had become common investment media, and the federal government's dead-weight debt—the legacy of the Civil War—was equal to nearly 5 per cent of national wealth.

In the last two decades of the nineteenth century the financial

interrelations ratio moved to a new and considerably higher level of .8 to .9, at which it remained until the early 1920's. The rapid expansion of financial institutions in the fourth quarter of the nineteenth century and the sharp rise of security issues and security prices in its closing years, together with a slight decline in the price level of tangible assets, help to explain this increase in the financial interrelations ratio. While most of the forces raising the volume of intangible assets continued throughout the first two decades of this century, their effect on the financial interrelations ratio was now dampened by the doubling of the price level of tangible assets.[13] This rise apparently was strong enough to neutralize the sharp increase in intangibles and the creation of a dead-weight Treasury debt of nearly one-tenth of national wealth during World War I.

The second sharp upward jump, which lifted the financial interrelations ratio in a few years from 1.0 to over 1.2 in 1929, is easier to explain. It reflects primarily the "frenzied finance" of the late 1920's with its unprecedented rise in the level of stock prices, far beyond the current value of the underlying assets of corporations, and its sharp increase in the extent of layering among financial institutions and other corporations, all in the face of stability in the general price level.

The absence of movement of FIR between 1929 and 1939—even in the depth of the depression in 1933—again is a little perplexing, but probably is the result of offsetting tendencies. There was, on the side of increasing the ratio, the expansion of financial intermediaries after 1933, partly reflecting an increase in the federal government's dead-weight debt from approximately 5 to 10 per cent of national wealth. There was on the opposite side the collapse of the inflated level of stock prices as well as a considerable shrinkage in the volume of private debt. These movements in the volume of intangibles—downward from 1929 to 1933, and upward in the following six years—apparently were just of the same proportions as the decrease and recovery in the value of national wealth, which chiefly reflect changes in the price level of commodities.

[13] One might think that inflation, whether due to high dead-weight government debt or other causes, could or would produce particularly high FIR's. Their emergence, however, is prevented by the fact that open inflation also increases the current value (replacement cost) of tangible assets, and does so probably more rapidly than intangible assets grow. It is only in the case of large-scale suppressed inflation, a combination not likely to endure for long and one not yet encountered in the United States although approached in 1945, that extraordinarily high financial interrelations ratios may be expected.

Between 1939 and 1949 the financial interrelations ratio underwent the sharpest increase and the sharpest decrease of which we have knowledge. The jump from 1.2 in 1939 to a peak of 1.7 in 1945 is, of course, chiefly a reflection of war inflation, which increased the Treasury's dead-weight debt by $250 billion or 60 per cent of prewar national wealth, and increased national assets still more since a large part was placed with financial institutions and thus appears two or more times in the national balance sheet. This alone would have lifted FIR considerably. In addition, the rise in the current (replacement) value of tangible assets was held down by price controls and other devices accompanying a semisuppressed inflation. The decline in the ratio between 1945 and 1949 is to a considerable extent the effect of the belated rise in the general price level which brought it more nearly into equilibrium with the expansion of the supply of money during the preceding period. From 1945 to 1949 the volume of intangible assets expanded by only $120 billion (the dead-weight debt actually declined by about 2 per cent of national wealth), while the value of national wealth increased by $330 billion, almost one-half of which was the result of a rise in the price level.

The further, though much slower, decline in FIR for the period between 1949 and 1952, which reduces the ratio to not much more than 1 and thus brings it back to the lowest level since the mid-twenties, can probably be regarded as the tail end of the movement that started after the end of World War II. The increase in intangible assets of approximately $200 billion again was below the rise in the value of national wealth by $300 billion, but the absolute and the relative size of the difference were considerably smaller than in the 1945-1949 period.

Marginal FIR, i.e. the ratio of the increase in total assets between two bench-mark dates to the increase in national wealth, moved as follows:

1850-1880	.47	
1880-1900	1.11	
1900-1912	.95	
1912-1922	1.04	
1922-1929	2.13	1.30
1929-1933	1.28	
1933-1939	1.18	
1939-1945	2.92	
1945-1949	.40	1.02
1949-1952	.60	

Marginal FIR thus was reasonably stable at a level of slightly above 1 from 1880 to 1939 with the exception of only the late 1920's. It was at unprecedentedly high levels during World War II, the only period of suppressed large-scale inflation which this country has experienced. The low ratios of the last seven years may be nothing but the reaction to the spurt of 1935-1945, as marginal FIR for the entire period from 1939 to 1952 (or from 1929 to 1952) is on nearly the same level as the average of the preceding fifty to sixty years.

The FIR of the United States thus shows three characteristics (more intensive analysis will probably disclose others): (1) a generally rising trend over the last century; (2) movements in sharp steps rather than along a smooth curve; and (3) a tendency to remain on a level or to decline—particularly in comparison with the secular upward trend—while commodity prices rise, and to rise in periods of stable or declining prices. (The main exception to the third characteristic, the sharp rise in the ratio during World War II, reflects large-scale semisuppressed inflation.)

These characteristics will be better understood if FIR is split into two components,[14] the ratio of twice financial intermediaries' assets to national wealth and the ratio to national wealth of the inter- and intragroup intangibles of all other groups. The results are shown in columns 2 and 3 of Table 3. Two facts should be remembered: first, the ratio of financial intermediaries' assets to national wealth is less unreliable than the two other ratios, particularly than the ratio of inter- and intragroup intangibles of nonfinancial business, households, and government; second, the first of the two components into which FIR has been divided is somewhat overstated and the second understated. The overstatement of column 2 is due to its being entered at $2 \times (A_f/T_n)$, using the notation and argument of section 2, instead of at $(2 - \alpha)(A_f/T_n)$, α generally being of the order of .2. The understatement of column 3 reflects both this omission of α from column 2 (since column 3 is the residual of columns 1 and 2) and the omission from the national balance sheet of loans among individuals and some other intangibles not involving financial institutions as holders or debtors. The effect of these two adjustments, though each of them is of moderate size, on the share of financial intermediaries in FIR is substantial. Thus the adjusted share of financial intermediaries in 1952 may be estimated at 75 per cent instead of the unadjusted value of 84 per cent, and the ratio of

[14] See page 128 above.

intangibles excluding financial intermediaries to national wealth, i.e. the second component of FIR, at .25 to .30 instead of .17. Major trends are not affected by this adjustment.

This split discloses the striking fact—which cannot be wholly or even mainly attributed to shortcomings of the figures—that the proportion of financial intermediaries' assets to national wealth has shown a pronounced upward trend since the turn of the century (a trend known also to have been present in the second half of the nineteenth century) whereas the ratio of other intangibles to national wealth has moved erratically—this may partly be due to shortcomings of the statistics—and has tended downward since the thirties. In the United States it is thus the growth of financial intermediaries' assets relative to national wealth that has dominated the movements of FIR.

There is no opportunity here to attempt an explanation of the reasons for the trends and fluctuations of shorter duration in the two components of FIR. Such an attempt will be made for the ratio of financial intermediaries' assets to national wealth in a forthcoming monograph dealing with these institutions.[15] The data are probably too scarce and as yet too little explored to do the same for the ratio of other intangibles to national wealth. Suffice it to suggest that the latter ratio is strongly influenced by the price movement of common stocks, which constitute the largest intangible asset in which financial intermediaries are not or are only little involved (see peak of the ratio in 1929); by the vagaries of individuals' holdings of dead-weight government debt (see the bulge of 1945); and by the apparently downward trend in the relative importance of business accounts receivable.

CHANGES IN RELATIVE IMPORTANCE OF DIFFERENT TYPES OF FINANCIAL INTERMEDIARIES

There are at the present time in the United States approximately two dozen reasonably distinct types of financial intermediaries, each of which can be regarded as an organized channel through which funds flow from savers to investors or among financial institutions, viz. (1) the Federal Reserve System, (2) commercial banks, (3) mutual savings banks, (4) the Postal Savings System, (5) credit unions, (6) personal trust departments (including common trust funds), (7) savings and loan associations, (8) mortgage companies and bankers, (9) land banks, (10) investment bankers and security

[15] Goldsmith, "Financial Intermediaries . . . ," as cited.

dealers, (11) life insurance companies, (12) fraternal life insurance organizations, (13) property insurance companies, (14) closed-end investment companies (including investment-holding companies), (15) open-end investment companies (so-called mutual funds), (16) federal social security funds, (17) state and local government pension and retirement funds, (18) private (self-administered) pension and retirement funds, (19) sales finance companies, (20) personal finance companies, and (21) government lending institutions.

Only very few of these channels existed, or were of substantive importance, at the beginning of the nineteenth century. An attempt to indicate the decade in which each of the now more important institutions first appeared is made in Table 4.[16] Dating of the first appearance of a new type of financial intermediary is usually definite, though abortive or insignificant first attempts have occasionally been disregarded. To assign a definite decade to "reaching maturity," in the sense of being fully developed technically and at the same time having reached a size (naturally changing over time) that lifts the institution out of the class of as yet untried experiments or of apparent failures to develop, is, on the other hand, a most difficult task, one that cannot be done without a good deal of arbitrariness, and one that however done is likely to incur the disapproval of economic historians. Yet the distinction is one that sometimes cannot be ignored because of the long interval between the first appearance of a new financial channel and its becoming a significant part of the country's financial structure. (Savings bank life insurance, though now nearly thirty years old, has not yet reached that status. Other examples of an interval of two or three decades between first appearance and maturity are provided by mutual savings banks, credit unions, life insurance companies, and personal trust departments.)

We need note here only two features of Table 4, leaving the explorations of its details to readers interested in them.

The first of these is the pronounced gap in the introduction or maturing of new financial channels in the second half of the nineteenth century. By 1850 most of the private financial institutions that are now most important in terms of resources were already well developed in the sense of operating with techniques basically comparable to, although of course much more rudimentary and much less varied than, those of today, and of covering the entire settled area within the boundaries of the United States. This applies particularly to commercial banks, life insurance companies, and prop-

[16] This table is based on data from "Financial Intermediaries. . . ."

TABLE 4

Appearance (X) of Different Types of Financial Intermediaries in the United States

	Before 1800	*1809*	*1819*	*1829*	*1839*	*1849*	*1859*	*1869*	*1879*	*1889*	*1899*	*1909*	*1919*	*1929*	*1939*	*1949*
Central bank													X			
Commercial banks	X															
Mutual savings banks			X													
Postal Savings System												X				
Credit unions												X				
Small loan companies												X				
Sales finance companies												X				
Savings and loan associations					X											
Private life insurance companies	X															
Fraternal life insurance organizations	X															
Savings bank life insurance departments													X			
Private pension funds														X		
Federal pension and social security funds														X		
State and local pension funds												X				
Investment companies																
Closed-end													X			
Open-end														X		
Land banks													X			
Mortgage companies									X							
Property insurance companies	X															
Personal trust departments			X													
Investment bankers					X											
Government lending institutions													X			

erty insurance companies. Apart from mortgage companies, which have never played a large role in the financial structure of the United States,[17] only one financial channel expanded so much during the second half of the nineteenth century that it can practically be regarded as a new one—investment banking. This evolution, however, was crucial for the changes in the country's financial structure during this period. It meant the development of corporate securities, both bonds and stocks, into one of the most important means—and strategically if not statistically the most important one—of financing economic expansion. It also meant that the bulk of the new securities were sold through the investment banking machinery to individual buyers in this country or abroad rather than to financial institutions.[18]

The second feature is the concentration of the development of new types of financial institutions in the 1920's for private and in the 1930's for governmental organizations, particularly if attention is directed toward maturation rather than experimental beginnings The 1920's thus saw the development of investment companies, sales finance companies, personal finance companies, and private pension funds; the 1930's the rise of federal social security funds and federal lending institutions.

Table 4 is only a first step in understanding the changes in the financial structure of the United States during the past 100 years. It has two defects in particular—it is nonquantitative, each type of financial institution being implicitly treated as if it were of equal importance with the others, and it says nothing about changes in financial techniques and in functions and operations of institutions retaining their formal identity. The second defect cannot be remedied here except in issuing the warning that such changes in techniques have been common and that they have been particularly pronounced since the 1930's, when the lack of entries in Table 4 might give the erroneous impression of absence of changes in financial structure. It may suffice to point to the development of direct placement of securities, lease-back arrangements, competitive bidding for securities, government-guaranteed mortgages, and a secondary market for

[17] It may even be that these companies, or some similar organization, go back to the late eighteenth century. See H. Parker Willis and Jules I. Bogen, *Investment Banking*, Harper, 1929, p. 175.

[18] In 1900, financial institutions (excluding personal trust funds administered by banks and trust companies) held approximately 25 per cent of corporate bonds and 3 per cent of stock outstanding (*The Share of Financial Intermediaries in National Wealth and National Assets, 1900-1949*, as cited, Chap. 3, Tables 14 and 16).

mortgages to forestall such a conclusion. The lack of quantitative data on changes in financial structure in Table 4, on the other hand, can be remedied, though only to a minor extent as space is limited.[19] Indeed, all that can be done here is to look briefly at the distribution of the total assets of financial intermediaries among the main groups of institutions and at the structure of their assets and liabilities. The first set of figures will show changes in the relative importance of different financial channels, while the second set, to be discussed in subsection 3, tells us something—though far from enough—about changes in the function of the different institutions and in financial channels.

The relative importance of the main groups of financial institutions, insofar as it is measured by their total resources, has shown at least three major trends during the past century, which can be followed in Table 5:

1. The share of commercial banks has declined considerably and almost continuously. In the middle of the nineteenth century the resources of commercial banks were approximately three times as large as those of all other financial institutions put together. By 1900 commercial banks still had slightly more assets than all other financial institutions. Another half century later their share in the resources of all financial intermediaries was down to not much over one-third. Since commercial banks combine the functions of money creation (check deposits) and cloak-room banking (savings deposits), and do so to a degree varying over time, and since the share of equity in total assets decreased considerably—from over two-fifths in 1850 to less than one-tenth in 1950—it is not easy to appraise this trend. In comparison with the assets of all financial intermediaries, bank capital undoubtedly declined precipitously during the 100 years ending in 1950 (from as much as 30 per cent in 1850 to 3 per cent in 1950), savings deposits increased between 1900 and 1950 (from 6 to 9 per cent) and probably did not change much in the preceding fifty years, while demand liabilities (including circulation) declined considerably between 1900 and 1950 (from 37 to 25 per cent) after probably having slightly increased between 1850 and 1900.

2. Insurance institutions have gained in importance, particularly since the 1930's. They accounted for less than one-seventh of the

[19] The subject is dealt with more extensively in "Financial Intermediaries . . . ."

TABLE 5

Distribution of Assets of Financial Intermediaries in the United States, 1850-1949
(*per cent*)

Institution	*1850*	*1880*	*1900*	*1912*	*1929*	*1939*	*1949*
Federal Reserve banks	—	—	—	—	3.5	9.8	10.5
Commercial banks	75.0	58.0	54.5	54.9	42.9	34.0	36.4
Mutual savings banks	7.0	15.0	13.2	10.1	6.4	6.1	5.0
Banking system[a]	82.0	73.0	67.7	65.0	52.9	50.5	52.7
Life insurance companies	3.0	9.0	9.7	11.5	11.8	15.6	14.3
Property insurance companies	5.0	5.0	2.6	2.5	3.1	2.5	2.9
Private retirement and pension funds	—	—	—	—	.3	.5	1.6
Government retirement and pension funds	—	—	.1	0	.9	3.2	9.0
Insurance	8.0	14.0	12.3	14.1	16.2	21.9	27.7
Savings and loan associations	...	...	2.7	2.4	4.8	2.7	3.4
Personal trust departments	...	...	16.3	17.6	19.4	18.0	11.6
Miscellaneous private[b]	...	...	1.0	.9	6.5	3.2	1.9
Government lending institutions	—	—	—	0	.2	3.8	2.8
Miscellaneous	10.0	13.0	19.9	20.9	30.9	27.7	19.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

[a] Includes postal saving.

[b] Includes investment and investment holding companies, mortgage companies, land banks, and credit unions.

Source: 1850, 1880: Extremely rough estimates; 1900-1949: Raymond W. Goldsmith, *The Share of Financial Intermediaries in National Wealth and National Assets, 1900-1949*, National Bureau of Economic Research, Occasional Paper 42, 1954, p. 39.

assets of all financial intermediaries in 1912, but are now approaching one-third.

3. Public financial intermediaries have likewise risen in importance, particularly if the Federal Reserve banks are put in this category. Their share in total assets of financial intermediaries was insignificant until World War I, but now amounts to almost one-eighth excluding and over one-fifth including the Federal Reserve banks. These figures, of course, are not adequate indicators of the impact of government on the financial structure since they cannot take account of the effect of government guarantees, particularly of the guaranteeing of a large fraction of all mortgage loans outstanding; or of government regulation of many features of financial transactions, e.g. through the rules governing the investment of the funds of most types of financial institutions and many aspects of corporation finance and trading in securities.

CHANGES IN FINANCIAL CHANNELS

1. *Changes in Sources and Uses of Funds by Financial Intermediaries.* The structure of assets and liabilities of all financial

intermediaries taken together, which gives a clue to the sectors from which they draw funds and the sectors to which they make funds available, is shown in Table 6, though only for the past fifty years.

TABLE 6

Structure of Assets and Liabilities of Financial Intermediaries, United States, 1900-1949
(*per cent*)

	1900	*1912*	*1929*	*1939*	*1949*
Cash	15	13	11	22	16
U.S. government securities	4	2	6	20	41
State and local government securities	6	5	5	6	4
Corporate bonds (including foreign bonds)	13	16	14	12	9
Corporate stock	5	8	14	10	7
Mortgage loans	20	20	20	14	11
Short-term loans	28	29	23	10	9
Tangible assets	5	4	3	4	1
Other assets	4	2	5	2	2
Total assets	100	100	100	100	100
Equity	18	18	20	13	13
Liabilities to households	55	57	54	56	59
Liabilities to business	11	11	7	7	7
Liabilities to government	1	2	2	3	3
Liabilities to banks	7	7	5	10	7
Unclassified liabilities	8	5	12	11	11
Total liabilities and net worth	100	100	100	100	100

Source: Raymond W. Goldsmith, *The Share of Financial Intermediaries in National Wealth and National Assets, 1900-1949*, National Bureau of Economic Research, Occasional Paper 42, 1954, Table 8, p. 45.

Several changes in financial channels can be inferred with reasonable confidence from these figures:

a. An increasing proportion of total funds of financial intermediaries has been channeled to the federal government. This trend reached its peak in 1945 when one-half of the assets of financial intermediaries consisted of United States government securities. Seven years later the share had fallen back to not much over one-third.[20]

b. Mortgage loans, mostly made available to finance urban residential construction, have accounted for a declining share of all funds supplied by financial institutions—one-fifth from 1900 to 1930, but not much over one-tenth in 1949.

[20] Figures for 1945 and 1952, not shown in Table 6, will be found in "Financial Intermediaries. . . ."

c. The most pronounced relative decline has occurred in the financing of business, the share falling from approximately one-half of total assets of financial intermediaries in 1900 to one-fourth in 1949. The decline in funds made available directly to business, however, has been much sharper in short-term loans than in purchase of business securities in the open market or through direct placement.

d. Most of the funds with which financial intermediaries operate have always been supplied by domestic households. The share of business has shown a slightly declining trend from fully one-tenth in 1900 to 7 per cent in 1949.

These trends are the results of a combination of the accounts of more than a dozen different types of financial intermediaries, some of which have shown considerable variations in behavior. More adequate inferences on changes in financial channels from the balance sheets of financial intermediaries would require separate treatment of the main intermediaries, which is out of the question in a short paper like this.[21]

2. *Changes in Distribution of Intangible Assets between Financial Intermediaries and Other Groups.* A more significant indication of the nature of financial channels and changes in them is given by the proportion of the main types of intangible assets held by financial intermediaries. These figures, summarized in Table 7, indicate the division of holdings of these assets between financial intermediaries and all other groups taken together—i.e. in the case of securities and mortgage loans, primarily nonfarm households. They do not by themselves measure, or even approximate, the share of intermediaries in financing the various sectors of the economy. To do so sources-and-uses-of-funds statements would have to be available for protracted periods. What little information is now available on this point will be reviewed below.

The outstanding feature of Table 7 is the increasing share of financial intermediaries in almost all important types of intangible assets since at least 1900, and probably since the middle of the nineteenth century, though detailed quantitative evidence has not yet been worked up for the period from 1850 to 1900. This increase is most pronounced in the case of corporate bonds. By 1900, financial intermediaries had provided only one-third of this form of financing for corporations. Fifty years later their share approached seven-eighths. Combining all financing through securities and mortgages,

[21] For basic data and some discussion see "Financial Intermediaries . . . ," Chap. IV.

TABLE 7

Share of Financial Intermediaries in Selected Intangible Assets, United States, 1900-1949
(*per cent*)

	1900	*1912*	*1929*	*1939*	*1949*
A. Including Personal Trust Departments					
Bonds	42	41	50	73	72
United States government	54	67	52	80	69
State and local governments	60	54	54	69	77
Corporate (including foreign)	35	36	48	66	86
Stocks	8	10	14	23	24
Preferred	7	10	19	33	37
Common	8	9	14	22	22
Mortgage loans	55	66	67	70	72
Farm	37	47	59	76	67
Nonfarm	65	78	69	69	72
Short-term loans	35	45	45	.	40
Short-term business loans	27	35	27	.	30
B. Excluding Personal Trust Departments					
Bonds	34	33	36	59	64
United States government	54	67	47	73	63
State and local governments	51	45	34	46	53
Corporate (including foreign)	26	28	33	46	77
Stocks	3	2	6	8	9
Preferred	1	1	6	16	20
Common	3	2	6	6	7
Mortgage loans	37	53	61	64	70
Farm	19	34	53	69	66
Nonfarm	47	65	63	63	71
Short-term loans	35	45	45	.	40
Short-term business loans	27	35	27	.	30

Source: Raymond W. Goldsmith, *The Share of Financial Intermediaries in National Wealth and National Assets, 1900-1949*, National Bureau of Economic Research, Occasional Paper, 42, 1954, p. 51, and worksheet data.

which together account for the bulk of all long-term financing, the share of financial intermediaries increases from less than one-third from 1900 to 1929 (not much over one-fourth if personal trust departments are excluded, as the trustees have only limited control over the funds) to three-fifths in 1949 and to still well over one-half without personal trust departments. The institutionalization of financial channels which these figures reflect and measure is one of the outstanding characteristics of the changes in this country's financial structure over the past century.

3. *Sources of Financing of Main Sectors.* Probably the most important single characteristic of financial channels is the distribution of total sources of funds among internal funds and external funds

with the latter subdivided into institutional and other funds.[22] It is this subdivision which determines, or reflects, the demand for funds that appears in the market—internal financing obviously generates no such demand, but quite on the contrary may increase the supply of funds unless fully invested in tangible assets—and which also indicates to what extent external funds have taken the detour through financial intermediaries in reaching borrowers and issuers of securities.

If the first half of this century is taken as a whole—a procedure permissible only provisionally because of the great differences in the economic character of subperiods—it appears that less than one-fifth of the total net asset expansion of farm and nonfarm households, less than one-third of that of state and local governments and of unincorporated business enterprises, but three-fifths of the net asset expansion of nonfinancial corporations required external funds, i.e. had to go through financial channels (Table 8). In the case of the federal government the excess of current expenditures over current income has been so great, i.e. internal financing has been negative to such an extent, that external financing through the sale of government securities is almost four times as large as total financing. Combining these six sectors, it appears that saving (retained net income) has financed a little less and external financing a little more than one-half of net asset expansion; and that slightly more than one-half of external financing or approximately 30 per cent of net asset expansion has been provided by financial intermediaries. These are the relations shown in Table 8; like all calculations of this type, they are only rough approximations.[23] Table 8, however, also provides a comparable breakdown of the sources of financing for seven periods of five to twelve years' duration. It will immediately be seen that there have been considerable changes in sources of financing from period to period, some of which are

[22] The calculation can be performed on a gross or a net basis, i.e. internal funds may include or exclude capital consumption allowances. If the financing of gross capital expenditures is under study, the gross approach is the one to be used. In an analysis of net asset changes, however, net expenditure figures are appropriate.

[23] It should be noted that Table 8 eliminates capital gains and losses from income and hence from internal financing, and is based on replacement cost depreciation allowances which in this period are higher than the customary original cost allowances so that internal financing represents a smaller proportion of net asset expansion (which, of course, excludes revaluations) than it would if the conventional treatment had been followed.

TABLE 8

Sources of Financing of Main Sectors of United States Economy, 1901-1949
(*per cent*)

SECTOR	INTERNAL FINANCING (1)	EXTERNAL FINANCING			TOTAL FINANCING (5)
		Total (2)	*By Financial Intermediaries* (3)	*By Others* (4)	
	A. 1901-1949				
Nonfinancial corporations	38	62	23	39	100
Unincorporated business	70	30	12	18	100
Agriculture	85	15	7	8	100
State and local governments	71	29	21	8	100
Federal government	—264	364	228	136	100
Nonfarm households	86	14	8	6	100
All sectors	47	53	29	24	100
	B. 1901-1912				
Nonfinancial corporations	33	67	24	43	100
Unincorporated business	67	33	53	—20	100
Agriculture	43	57	24	33	100
State and local governments	49	51	21	30	100
Federal government	50	50	6	44	100
Nonfarm households	88	12	9	3	100
All sectors	61	39	18	21	100
	C. 1913-1922				
Nonfinancial corporations	40	60	18	42	100
Unincorporated business	78	22	22	0	100
Agriculture	7	93	43	50	100
State and local governments	37	63	28	35	100
Federal government	—349	449	145	304	100
Nonfarm households	86	14	7	7	100
All sectors	51	49	19	30	100
	D. 1923-1929				
Nonfinancial corporations	28	72	29	43	100
Unincorporated business	31	69	21	48	100
Agriculture	110	—10	1	—11	100
State and local governments	60	40	20	20	100
Federal government	528	—428	—14	—414	100
Nonfarm households	73	27	15	12	100
All sectors	62	38	19	19	100
	E. 1930-1933				
Nonfinancial corporations	78	22	13	9	100
Unincorporated business	166	—66	47	—113	100
Agriculture	51	49	28	21	100
State and local governments	4	96	67	29	100
Federal government	—126	226	232	—6	100
Nonfarm households	—767	867	645	222	100

(cont. on next page)

TABLE 8 (cont.)
(*per cent*)

SECTOR	INTERNAL FINANCING (1)	EXTERNAL FINANCING			TOTAL FINANCING (5)
		Total (2)	*By Financial Intermediaries* (3)	*By Others* (4)	
All sectors	94	6	13	—7	100
		F. 1934-1939			
Nonfinancial corporations	128	—28	36	—64	100
Unincorporated business	143	—43	—48	5	100
Agriculture	106	—6	6	—12	100
State and local governments	129	—29	22	—51	100
Federal government	—55	155	96	59	100
Nonfarm households	78	22	0	22	100
All sectors	42	58	38	20	100
		G. 1940-1945			
Nonfinancial corporations	62	38	6	32	100
Unincorporated business	97	3	4	—1	100
Agriculture	108	—8	—6	—2	100
State and local governments	129	—29	8	—37	100
Federal government	—351	451	289	162	100
Nonfarm households	98	2	1	1	100
All sectors	16	84	52	32	100
		H. 1946-1949			
Nonfinancial corporations	49	51	27	24	100
Unincorporated business	75	25	34	—9	100
Agriculture	84	16	8	8	100
State and local governments	64	36	26	10	100
Federal government	—81	181	132	49	100
Nonfarm households	78	22	15	7	100
All sectors	76	24	14	10	100

Source: Raymond W. Goldsmith, "Financial Intermediaries in the Saving and Investment Process in the American Economy, 1900-1952," National Bureau of Economic Research manuscript.

rather erratic. The main trends stand out more clearly if we disregard the periods affected by wars and the Great Depression.

Column 3, the share of intermediaries in total financing, is possibly the ratio of most interest for a study of the capital market. In what might be called "normal" periods (1901-1912, 1923-1929, 1934-1939, 1946-1949) financial intermediaries have provided between one-fourth and one-third of total net financing of nonfinancial corporations. Their share has been somewhat lower, but also fairly regular, in providing funds to state and local governments. Fluctuations are too wide and irregular to show anything like a normal level or

a trend for the other groups, except possibly for nonfarm households, for which the increasing recourse to institutions in financing the acquisition of houses and consumer durables has led to a rise from less than one-tenth before 1922 to one-seventh in the 1920's and after World War II.

4. *International Sidelights*

This section, I am aware, should discuss statistical measures of financial structure in other advanced countries in a manner similar to the treatment accorded to the United States in the preceding section. That, alas, has been impossible, partly for lack of data and partly for lack of time. There is only one country—the Netherlands—for which a national balance sheet comparable in approach and in detail to that constructed for the United States exists, but it is available for only two recent dates (1939 and 1947-1948). For Great Britain there are the somewhat rougher statements which Professor Hicks has put together for 1932-1934 and 1947-1949. For all other countries one would have to start practically from scratch with occasional estimates of national wealth as the only substantial help. In this situation it is entirely out of the question to present a systematic comparison of measures of financial structure of the main advanced countries over the last 50 to 100 years. It is not even possible as yet to calculate FIR and its main components for all or most advanced countries at any one recent date, though approximations could in most cases be made if one were willing to devote the necessary time to the task. But such comprehensive coverage is probably not required to obtain a preliminary picture of the quantitative characteristics of differences in financial structure among advanced countries and the main changes in such structures since the end of the nineteenth century. It may suffice for that purpose to look at a few examples which, it is hoped, on the one hand will illustrate situations of long-term economic equilibrium, using the years 1913 and 1938 as the last instances of an approach to such a state of affairs in the Western World; and on the other will demonstrate the effects of "abnormal" situations such as inflation followed by currency reform (Germany in 1925-1929 and 1948-1951) or of war losses and war debts without monetary reform (Great Britain and the Netherlands in the late 1940's).

Because I regard whatever figures I shall use in this section as purely illustrative I do not feel called upon to indicate in detail the sources and methods from and by which they have been derived

as I would if I intended to make a contribution to the financial history of the various countries used as examples. I hope, nevertheless, that the order of absolute and relative magnitudes of the figures is correct, and that they are sufficiently reliable for the limited use that is made of them. If nothing else, the attempt to do work of this type to a little more exacting standard for one country would keep me from making any further-reaching claims for what follows.

AVANT LE DELUGE (THE WORLD OF 1913)

For many people, including I should think not a few economists, the world of 1913 has the attraction that always attaches to a "Golden Age"—an attraction that grows the further that age recedes into the past. Standing at the end of what was truly *saeculum mirabile*, if economic progress is the test, the years immediately before 1914 represent possibly the last period in which something like long-term equilibrium prevailed. At the same time the period is close to the earliest date at which the system of check deposits and multiple credit expansion, corporate predominance in major industries, and large-scale investment banking, the triad which characterizes finance or security capitalism, had been fully developed for a sufficiently long time—in most countries for one or two generations —to be "mature."[24] It is, therefore, doubly interesting to see how the financial structure of the advanced countries looked in 1913, even if this can be done at the moment only in a superficial and in some respects an impressionistic way.

What Table 9 provides is indeed only a rough and unduly simplified picture, but I doubt whether better basic data—for which there is a crying need—would invalidate the conclusion that the level of FIR was approximately the same for the United Kingdom and Germany, viz. a little below 1, and was only slightly lower for the United States and lower still for France. Similar rough estimates could probably be prepared for a few other advanced countries for which estimates of national wealth are available, but I have not had the time to examine the relevant financial statistics.

Among components of FIR, one was reasonably similar among countries—the share of the assets of the banking system in national

[24] The word is used here not in the derogatory sense of stagnation and senescence that has recently been attached to it by politicians but simply in the sense of an economic society which has passed the experimental stage and has reached a stable institutional pattern.

TABLE 9

The Financial Interrelations Ratio and Its Components before World War I, Selected Countries
(*as ratio of national wealth*)

	United States (1912)	*United Kingdom (1913)*	*Germany (1913)*	*France (1913)*
1. Intangible assets (FIR)[a]	.82	.95	.95	.70
2. Assets of banking system[b]	.16	.12	.14	.10
3. Assets of other financial institutions	.04	.08	.15	.05
4. Government debt outside financial institutions	.02[c]	.04	.07	.10
5. Domestic business securities outside financial institutions	.28	.18	.09	...
6. Mortgages outside financial institutions	.04	...	.08	...
7. Foreign investments (gross)[d]	.04	.26	.09	.16

[a] Includes other intangibles not covered in lines 2 through 7, particularly business receivables. Does not include proprietors' equity in unincorporated business; hence differs for United States from Table 3.

[b] Central, commercial, and savings banks.

[c] Government securities alone are zero.

[d] Includes gold, direct foreign investments, and foreign investments held by financial institutions.

wealth and assets.[25] France again showed the lowest ratio.[26] On the other hand, differences were pronounced in the absolute level and the relationships of the shares of other financial institutions, government debt held outside of financial institutions, business securities, mortgages, and foreign investments. It is, of course, just these differences that reflect the variations of financial structure among the four countries.

The share of financial institutions other than banks varied from approximately .05 in the United States and France to .08 in the United Kingdom and .15 in Germany. The particularly high German ratio was due to the existence of a well-developed system of mortgage banks and credit unions—two types of institutions which are virtually unknown in the Anglo-Saxon countries, where some of their functions are discharged by commercial and savings banks, and are of considerably smaller relative size in France. Differences in the share of life insurance companies tended in the opposite

[25] It will be remembered that this ratio (as does line 3) enters FIR at nearly twice the value shown in line 2.

[26] The differences are considerably smaller if national assets rather than national wealth are used as denominator. In that case the ratios are .06 for France against .06 for the United Kingdom, .07 for Germany, and .08 for the United States.

direction. Their share was relatively high in the United States and the United Kingdom and relatively low in Germany and France.[27]

The differences are easiest to explain in the case of holdings of government securities outside of financial institutions, primarily holdings by individuals. Here the contrast is between the United States, with only very small intangible assets of this type, and the three European countries, with ratios varying from approximately .04 (United Kingdom) to .10 (France). This difference reflects primarily variations in the ratio of total government debt to national wealth or assets[28] since at that time only a minority of that debt was held by financial institutions. One must be careful, however, in drawing inferences from the figures as they stand. The British and French government debts had been incurred mainly by the central government and were largely the result of military expenditures. Most of the German government debt, on the other hand, had been contracted by the Laender and much of it had been used to finance the acquisition and expansion of the country's government-owned railway system.

Differences were apparently marked and significant in the share of domestic business securities (primarily corporate stocks and bonds), but the estimates for this component of national assets unfortunately are particularly precarious, subject to incomparabilities among countries,[29] and missing for France. It is nevertheless unlikely that better figures would basically modify the conclusion to be drawn from Table 9 that the importance of domestic business securities among national assets and in relation to national wealth was higher in the United States than in Europe, and among the three European countries was much higher in the United Kingdom than in Germany, France probably ranking last. One reason for these differences is the larger share of business done by corporations in the United Kingdom and particularly in the United States compared with the Continent, but if the figures are even roughly cor-

[27] It amounted to approximately .04 (of national wealth) in the United Kingdom, .03 in the United States, .02 in Germany (.03 including social insurance organizations), and not much over .01 in France.

[28] The share of total government debt in national assets was less than .03 in the United Kingdom, .05 in Germany, and .08 in France.

[29] The American ratio is based on the market value of corporate securities and the face value of corporate bonds; the German one on the market value of corporate stock and the face value of corporate bonds and capital of G.m.b.H.'s (organizations similar to British private companies); the British ratio is based on the face value (rather than the market value) of capital of public and private companies, and thus is too low.

rect other factors must have been at work which I have not had an opportunity to examine.[30]

The largest differences, finally, appear in the share of foreign investments and they are certainly not due to a statistical mirage, rough as the figures are. The ratio of foreign investments (gross, including gold) to national wealth was only .04 in the United States against ratios of approximately .09 in Germany, .16 in France, and .26 in the United Kingdom. These figures cannot be used as measures of the contribution of foreign investments to FIR without some downward adjustment since some foreign investments are held by financial institutions (and hence are already included in lines 2 or 3 of Table 9) and others consist of tangible rather than intangible assets. But even after such adjustments the differences among countries would still be very great and the relations among the ratios for various countries would probably not be much different from those shown in Table 9.

Finally, to show how large differences in financial structure may hide behind the same FIR, and to warn about the indiscriminate use of the ratio, a comparison will be made between the United Kingdom and Germany, using aggregate FIR as the basis:

	United Kingdom	*Germany*	*Difference*
Total	.95	.95	—
Banking system (2 ×)	.25	.29	—.04
Life insurance (2 ×)	.07	.04	+.03
Other financial institutions (2 ×)	.10	.28	—.18
Government debt	.04	.07	—.03
Mortgages	small	.08	(—.05)
Domestic business securities	.19	.09	+.10
Foreign investments	.27	.10	+.17

GREAT BRITAIN

Up to World War I, or at least until close to the end of the nineteenth century, Great Britain occupied in the world of finance a position similar to the one held by the United States since the end of World War II, and possibly since as early as the 1920's—that of the leading financial power, whose methods to a considerable extent set the tone and the standard. It is, therefore, very regrettable that we are not yet in a position to provide an adequate quantitative

[30] The share of agriculture in total national assets is a factor obviously negatively related to FIR since agriculture is only rarely conducted in corporate form except in colonial areas. This factor helps to explain the low FIR for France and the United States in comparison with the United Kingdom, but makes the high FIR of Germany more remarkable.

picture of the financial structure of Great Britain at its zenith. However, Hicks' statements of national assets and wealth, available for 1932-1934 and 1947-1949,[31] provide a starting point for a picture of the British financial structure under the influence of the Great Depression and World War II and permit useful comparisons with the United States.

TABLE 10

Selected Characteristics of Financial Structure, United Kingdom and United States, Selected Years
(*as ratio of national wealth*)[a]

	UNITED KINGDOM			UNITED STATES		
	1913	*1932-1934*	*1947-1949*	*1912*	*1933*	*1949*
1. Intangible assets (FIR)[b]	.95	1.45	2.60	.82	1.20	1.22
2. Assets of banking system[c]	.12	.25	.60	.16	.20	.25
3. Assets of insurance organizations	.04	.10	.16	.03	.09	.12
4. Assets of financial institutions (2 ×)	.40	.80	1.60	.40	.66	.90
5. Government debt outside financial institutions	.04	.16	.50	.02[d]	.07	.11
6. Domestic business securities outside financial institutions	.18	.30	.30	.28	.36	.18
7. Total government debt	.05	.41	1.20	.04	.13	.33
8. Foreign investments (gross)[e]	.26	.21	.11	.04	.06	.07
9. Share of financial institutions in FIR	.42	.55	.62	.49	.56	.73

[a] Except for line 9.

[b] Does not include proprietors' equity in unincorporated business; hence differs for United States from Table 3.

[c] Central, commercial, and savings banks.

[d] U.S. government securities alone are zero.

[e] Includes gold, direct foreign investments, and foreign investments held by financial institutions.

The figures, as they are arranged in Table 10, seem to be good enough, notwithstanding their numerous and all too obvious shortcomings—not Hicks' fault—to justify the following conclusions:

1. Both in 1913 and in 1933 the FIR of the United Kingdom was only slightly above that of the United States. In 1949, however, the British FIR was more than twice as high as the American, and this was the result exclusively of a rise in the British ratio.

2. The rise in the British FIR between 1933 and 1948—as well as the smaller advance from 1913 to 1933—is due primarily to a sharp increase in the dead-weight debt ratio coupled with a moderate increase in national wealth (which would be transformed into a decline if account were taken of the rise in the price level), an in-

[31] J. R. Hicks, *The Social Framework*, Oxford, Clarendon Press, 1942, p. 103; 1952, p. 109.

crease which in turn reflects the effects of two World Wars on domestic tangible assets and particularly on net foreign assets.

3. The components of FIR that have increased most in both countries, though much more so in the United Kingdom, are bank assets and government securities held outside financial institutions, both reflections of the growth of dead-weight government debt.

4. The share of all financial intermediaries in FIR has increased in both countries, and virtually to the same extent—rising from slightly less than one-half in 1913 to two-thirds in the late 1940's.

5. In both countries the share of assets of insurance organizations has increased steadily and strongly. It is now four times as high as in 1913 both in the United Kingdom and in the United States.

6. Foreign assets (including gold) have contributed a declining component of FIR in the United Kingdom, but constitute a rising though still very small share in the United States.

FINANCIAL STRUCTURE, INFLATION, AND CURRENCY REFORM—THE GERMAN CASE

Changes in the financial structure of Germany over the last half century are of particular interest because they show more clearly than developments in any other advanced country the effects of inflation and of currency reform accompanied by a radical *seisachtheia*, and not once but twice. Again although the figures that can be hastily put together from outside the country are very approximate, Table 11 suggests the following conclusions:

1. In 1913, after half a century of rapid economic development, Germany's FIR was quite similar to those of the United States and the United Kingdom at slightly less than 1, but the share of financial intermediaries in FIR was considerably higher.

2. Two years after the first currency reform, i.e. at the end of 1925, FIR at .35 was abnormally low for an advanced country. However, it was even lower at the end of 1948, half a year after the second and still more radical currency reform. At that time FIR was only slightly above .20, and a large part of this small ratio was attributable to the assets of the central bank, reflecting essentially the provision of the economy with a new currency.

3. Both post-reform levels of FIR were obviously not compatible in the long run with the operation of an advanced economy. Hence in both cases a rapid increase in FIR occurred. However, the ratio was still far below the 1913 level six years after the first and four years after the second currency reform when the economy had been

TABLE 11

Selected Characteristics of Financial Structure, Germany, 1913-1951
(*as ratio of national wealth*)[a]

	1913	*1925*	*1929*	*1938*	*1948*	*1951*
1. Intangible assets (FIR)	.95	.35	.65	.80	.22	.40
2. Assets of banking system[b]	.14	.06	.12	.17	.06	.09
3. Assets of insurance organizations	.03	.01	.02	.04	.01	.01
4. Assets of financial institutions (2 ×)	.57	.20	.45	.60	.16	.28
5. Government debt outside financial institutions	.07	.02	.04	.03	.01	.02
6. Domestic business securities outside financial institutions	.09	.06	.09	.07	.02	.04
7. Mortgages outside financial institutions	.08	.01	.02	.02	.01	.01
8. Total government debt	.10	.05	.07	.07	.05	.05
9. Share of financial institutions in FIR	.60	.57	.69	.75	.73	.70

[a] Except for line 9.
[b] Central, commercial, and savings banks.

fairly completely restored in a physical sense. Indeed, notwithstanding considerable further expansion of the financial network after the Great Depression, FIR in 1938, i.e. fifteen years after the first currency reform, was still slightly lower than before World War I.

4. As in the United States and in the United Kingdom, the share of financial intermediaries in FIR increased from 1913 to the present time, but much less pronouncedly. Although the 1913 share was higher than in the United States or in the United Kingdom, the present share is on the same level as in the two other countries.

5. The effects of the two inflations are particularly visible in the ratio of the assets of insurance organizations. The long-term trend toward an increase in the ratio was obviously also at work in Germany, but it was sharply interrupted twice by inflation and currency reform. As a result, the ratio at the middle of the century was still well below the 1913 level.

6. The sharp expansion in the proportion of dead-weight government debt to national wealth and national assets, which is characteristic of developments in the United States and the United Kingdom in the twentieth century—as well as in most other advanced countries—and which is largely responsible for the rise in FIR and the increase of the share of financial intermediaries in it, is entirely absent in Germany. Twice a very heavy national debt was piled up, but twice it was almost entirely eliminated.

THE NETHERLANDS

This short list of "case studies" in national financial structure may be brought to a close with the Netherlands for the reason, already mentioned, that even though it is not as large or typical an economy as the United States, Great Britain, Germany, or France, it is the only country which seems to have a national balance sheet very close in concept and detail to that used in section 3 for the United States. The comparison, unfortunately, must be limited to the late 1930's and 1940's as no attempt seems to have been made to draw up a comparable statement for the Dutch economy at an earlier date. Table 12 shows the relevant figures.

TABLE 12

Selected Characteristics of Financial Structure, Netherlands and United States, 1939 and 1947-1949
(*as ratio of national wealth*)

	NETHERLANDS		UNITED STATES	
	1939[a]	*1947*[b]	*1939*	*1949*
1. Intangible assets (FIR)[c]	1.00	1.60	1.20	1.22
2. Assets of banking system[d]	.10	.35	.25	.25
3. Assets of insurance organizations	.06	.12	.09	.12
4. Assets of financial institutions (2 ×)	.32	.94	.82	.90
5. Government debt outside financial institutions	.10	.29	.07	.11
6. Domestic business securities outside financial institutions	.14	.17	.28	.18
7. Mortgages outside financial institutions	.11	.05	.04	.03
8. Total government debt	.13	.64	.17	.33
9. Foreign investments (gross)[e]	.30	.28	.10	.07

[a] Based on J. B. D. Derksen, *A System of National Book-keeping Illustrated by the Experience of the Netherlands Economy*, National Institute of Economic and Social Research, Occasional Paper x, 1946, p. 19.

[b] Based on *Statistische en Econometrische Onderzoekingen*, 1949, pp. 9 ff.

[c] Does not include proprietors' equity in unincorporated business; hence differs for United States from Table 3.

[d] Central, commercial, and savings banks.

[e] Includes gold, direct foreign investments, and foreign investments held by financial institutions.

In 1939, FIR was slightly lower for the Netherlands than for the United States, due chiefly to the relatively smaller size of assets of the banking system. Claims against insurance organizations and corporate securities (chiefly stocks) held outside financial institutions were also of less importance in the Netherlands. Foreign investments, as well as mortgages and government debt held by individuals, on the other hand, bulked considerably larger.

At the end of 1947, in the midst of the reconstruction following World War II, FIR for the Netherlands had sharply risen to approximately 1.60, well above the United States ratio for 1949 of 1.22. The higher value of FIR is due primarily to the higher dead-weight debt ratio in the Netherlands, which in turn is partly attributable to heavy war damage compensation claims accounting for 12 per cent of tangible assets. The relatively heavy weight of government debt affects FIR twice: first, by raising the holdings of government debt by households and business (Table 12, line 5); and second, by increasing the assets and deposits of the banking system (line 2). Of the other components of FIR two, business securities held outside financial institutions and the assets of insurance institutions, are practically equal in both countries. The third and smallest component, mortgages held by households and business, is considerably more important in the Netherlands than in this country, because in the Netherlands most mortgages are still held by individuals, while they are found mostly in institutional portfolios in the United States.[32, 33]

If allowance is made for this greater dead-weight debt, which is largely a legacy of World War II, the national financial structure of the Netherlands is thus seen to be essentially similar to that of the United States with one important exception—foreign investments constituted only a very small proportion of national assets or national wealth in the United States, but were of great importance in the Netherlands.

5. *In Place of a Conclusion*

This paper, it must be admitted, has not shed much light on the influence of financial structure on economic growth. All that we can possibly derive from the cursory review of changes in financial structure of the leading "advanced" countries reflected in certain ratios derived from national balance sheets are suggestions of a few trends in finance that have accompanied economic growth in Western communities since the industrial revolution:

1. The financial interrelations ratio, i.e. the ratio of intangible assets to national wealth, has shown a secular tendency to rise.

[32] Total mortgages are of equal importance in both countries—7 per cent of national wealth.

[33] Another item of considerably larger weight in the Netherlands in 1949 is tax accruals, which are estimated at 13 per cent of national wealth (3 per cent for business and 10 per cent for households) against only 2 per cent in the United States. This item reflects extraordinary tax arrears and unpaid installments on two capital levies.

2. Advanced countries since the turn of the century rarely have shown FIR of substantially less than 1.

3. A high FIR—say, in excess of 1½—has been found only in connection with a large dead-weight government debt, i.e. after prolonged and expensive wars.[34]

4. Before the Industrial Revolution, intangibles took the form predominantly of loans among individuals, unincorporated business enterprises, and governments. Financial intermediaries were almost entirely absent. The first intermediaries to acquire substantive importance—measured by their assets in comparison with national assets—were banks of issue. Commercial banks (banks of deposit) followed. In the first century after the Industrial Revolution—i.e. in Western Europe and North America until approximately the middle of the nineteenth century—financial intermediaries other than banks remained small and played only a subsidiary role in the financial structure.

5. Since statistics have been available, i.e. since late in the nineteenth century, the share of the banking system in national assets and its contribution to FIR have had a tendency to decline.

6. Within the banking system the proportion of assets held by the central bank of issue generally shows a declining trend. Both this trend and the decline in the share of the banking system in national assets mean that the same monetary base has come to support a larger financial superstructure. They also mean that money creation through the banking system has lost in importance as a method of financing. These tendencies, however, have been reversed during wars.

7. The share of insurance organizations, both private and public, in FIR has tended to rise.

8. The status of an "advanced" country is compatible with quite different financial structures in the sense of differences in the ratio (to national wealth or national assets) of the assets of financial in-

[34] The rise in prices of tangible assets that generally accompanies large-scale war expenditures might be thought to prevent a substantial increase in FIR. It should be remembered, however, that an increase in government debt held by financial institutions leads to at least twice as large an increase in the absolute value of national assets, and that usually part of the total government debt during a war is absorbed outside of the banking system and does not result in an increase in the money supply. Indeed, it would be only if the money supply were increased by the full amount of the government debt that, abstracting from changes in velocity of circulation and volume of real output, the value of tangible assets could be assumed to increase in the same proportion as the money supply with the result that the increase in dead-weight debt would not lift FIR.

stitutions and of government debt, business securities, and mortgages held outside financial institutions. Apparently, however, no country has moved into the "advanced" category without a banking system of substantial size (say, with assets of at least one-tenth of national wealth), without corporations' accounting for a large part of all business done, with a high level of interest rates (say, in excess of 5 or 6 per cent for high-grade bonds), while it was undergoing secular inflation, without a substantial ratio of national saving and capital formation (say, at least one-tenth), and unless a substantial proportion of business expansion has been financed out of retained earnings.[35]

Even if it should turn out that all or virtually all advanced countries have, during the twentieth century, actually met the tests set forth above, it still would have to be established that the same tests have not also been met by less advanced or "underdeveloped" countries.

COMMENT

EDWARD S. SHAW, Stanford University

The general subject of Goldsmith's paper is the connection between the level of capital formation and the channels and practices by which investors obtain access to financial resources. The initial question posed is the connection between physical assets and the debts and claims to which the accumulation of physical capital (and other activities) has given rise. The principal measure of this relationship, which the author considers an index of financial maturity, is the financial interrelations ratio and certain of its statistical components. These indexes express the national net accumulation of debts as a ratio of the value of physical assets. They pertain exclusively to the structure of balance sheets, bypassing both flow patterns and price relationships, two varieties of index which, we all know, have been used more commonly to measure financial maturity.

Goldsmith's second objective is to show that a country which is relatively mature in its accumulation of physical assets is also

[35] The last four characteristics have not been substantiated in this paper. Evidence on interest rates is hardly required; that on the national saving and capital formation ratio will be found in Kuznets' paper. There really is not enough material for a considered statement on the share of self-financing for more than a few advanced countries and for more than a few periods, or on the share of corporations in business done.

mature in its financial accumulation, in the sense that its FIR is relatively high and that at least some of its components tend to fall into a distinct pattern. One of his results is that "Since the turn of the century, advanced countries rarely have shown FIR of substantially less than 1"; another is that in advanced countries financial intermediaries other than banks tend to gain an increasing share of total financial assets. Goldsmith does not indicate whether and, if so, how physical maturing and financial maturing are mutually stimulative.

The study is rewarding to the rest of us in various ways. It is a prime example of empiricism, based on the premise that "naturally" an examination of the links between finance and growth "should run in quantitative terms." It provides ingenious indexes for measuring financial development both aggregatively and partially. It suggests fascinating new insights into economic history and historical methodology. It pinpoints important instances in which long-run and short-run analysis must be concurrent. While its own objective is limited, references to the larger work indicate that important analytical developments are under way there.

The first issue on which one might attempt constructive criticism is dead-weight debt. Goldsmith's general definition is this: dead-weight debt increases national assets in a combined balance sheet, but does not directly affect the level of national wealth in a consolidated balance sheet. The statistical definition is more restricted, apparently including only the outstanding debt of national governments. His central conclusions regarding dead-weight debt are that it bears a high proportion to national assets and national wealth in most advanced countries and that it is largely responsible for the complex and powerful network of financial intermediaries in advanced countries.

May I suggest, first, that "dead-weight debt" is an ambiguous category of debt. It is always perilous analytically to try to match increments in specific debt forms with increments in specific assets. Moreover, any of the usual definitions of dead-weight debt leaves one at a loss as to how to classify debt in many specific cases. What of private debt incurred in hyperinflation that results only in price advances rather than in increases in the substance of wealth? What of private debt incurred simply to improve liquidity? My question is whether dead-weight debt is really identifiable for quantitative analysis.

Is dead-weight debt really dead? It is arguable that the existence

of government securities in some circumstances relieves private borrowers of the need to issue their own securities for the purchase of physical assets. If public debt were not as high as it is, private debt might be higher. Is the public debt dead if it displaces live private debt?

In other cases outstanding public debt provides collateral or secondary reserve without which private debt would not be issuable for financing tangible assets. If it were not for the "dead" debt, there could not be as much "live" debt. I doubt whether conceptually or statistically securities can be put into two boxes marked dead and alive.

In his present paper Goldsmith indicates some uncertainty in the theoretical aspects of public debt. At one point (footnote 6) he suggests that the issue of public debt in large amounts is invariably accompanied by inflation, with or without lag, possibly in sufficient degree to lower FIR—the ratio of financial assets to tangible assets. At a later point (page 3, especially footnote 34) he concludes that high FIR's are found only in connection with large public debt, and denies that government borrowing is likely to bring inflation adequate to stabilize or lower FIR. A country becomes financially "advanced" if it has had heavy public borrowing and if the effect of this dead-weight debt on FIR is not erased by inflation in commodity prices. We are told that the demand for government securities at a stable price level is both a function of the stock of real wealth and not such a function.

These issues of dead-weight debt seem to call for theoretical meditation before statistical measurement. Although I have not meditated seriously about debt theory, I recommend discarding the "dead-weight" concept in favor of some other way of classifying securities.

I am confident that in his larger work Goldsmith will infuse some of the life of demand and supply analysis into his study of financial growth processes. It is interesting to speculate about, and even to examine empirically, the needs and desires of both buyers and sellers that have created markets for the accumulating mass of securities. Goldsmith tells us that securities do accumulate; that they are diversified in changing patterns and dispersed in changing proportions among various holders; that the accumulation, diversification, and dispersion can be measured; and that these measures can be put alongside those of physical accumulation. He has taken this mechanical step so expertly that one anticipates keenly what he will have to say about the economics of financial accumulation.

Financial assets would not accumulate in real-value terms if there were not willing holders. Financial intermediaries would not multiply if there were not a real demand for their services. They are not simply layers in a pyramid of security issuers and owners; they have distinctive services to sell. Where does the demand for these services come from, and is their emergence a part of the growth process? Accumulating securities are in effect the capital equipment, or part of it, for certain service industries. How do profitable opportunities arise for these industries?

To begin with, one may speculate that physical accumulation and rising real income per capita generate effective demands for money balance in notes and deposits, for savings media that do not require managerial skills, for insurance of property and life and health. In other words, rising real income generates demand for services of such financial intermediaries as commercial banks, savings banks, and insurance companies. Equalization in income distribution may tend to shift the balance of personal demand for savings media away from stocks and bonds and mortgages to, say, insurance policies, government securities, and savings and loan shares. Thus the general public releases stocks and bonds to insurance companies and savings banks so that the latter can provide savings media that cater to the popular taste. Again, cyclical instability may intensify the public's demand for security in the form of unemployment insurance or gilt-edge vehicles for saving, opening market opportunities for insurance companies, pension funds, and savings banks.

Rising FIR and a proliferation of financial layers, then, are partly a response to real demands for new services. These demands are generated in the growth process. To a degree they may develop comparably in different countries, but one should also expect their complex and changing pattern to reflect peculiar aspects of the growth process country by country. My impression is that an early effort to incorporate them in a tentative theory of growth would lead to some interesting experiments in assembling and manipulating statistics.

Here and there in Goldsmith's paper one finds tantalizing suggestions that there are equilibrium levels and disequilibrium levels for his financial ratios. There are hints that forces can be identified which tend to restore an equilibrium once disturbed. Thus he speaks of FIR ratios that are not "compatible in the long run with the operation of an advanced economy." He refers to "situations of long-term economic equilibrium" in which presumably FIR's are

not distorted by recent spurts in dead-weight debt. One has the impression that Goldsmith may have thought more than he admits of economic forces that are somehow regulated by the reserve ratio of real assets to paper assets. In his present paper, analysis of equilibria and disequilibria seems to be inhibited by the working principle that investigation of the role of finance in growth "naturally should run in quantitative terms. . . ."

Experimentally, one might hypothesize that at any given stage of development in per capita real income in any given institutional setting there is a normal FIR. At any higher stage of development this same FIR would be too low—below equilibrium. At any lower state of development it would be too high—above equilibrium. Goldsmith warns us that these normal levels cannot be identified, except possibly for 1913 and 1938, but he seems to feel that they may exist.

What happens in disequilibrium? How, for example, is a subnormal FIR corrected and with what consequences for both the real rate of growth and the financial rate of growth? This may be a matter of pressing interest, since in Goldsmith's tables 1952 seems to be a subnormal year in the United States. A subnormal FIR can be raised by a flurry of security issues, by a boom in security prices, or by a fall in reproduction costs of real assets—i.e. by an inflation of financial assets or a deflation of real assets. To put it another way, either interest rates can be forced down to inflate security prices and stimulate security issues, or interest rates can be put high and commodity prices forced down to deflate real production costs and retard the rate of real accumulation. Goldsmith's data seem to say that 1880 and 1922 as well as 1952 were years of subequilibrium FIR's. After 1880, security issues and prices rose notably. The sequel was repeated in the 1920's. Let us hope that the possible imbalance of 1952 will be corrected in the same way rather than by a goods deflation. The present Treasury view in this country appears to prefer the latter solution.

An excessively high FIR may indicate a complex imbalance that induces debtors and creditors to adjust debt and asset positions. The correction comes, as Goldsmith illustrates, by debt cancellations, by deflation of security prices, by inflation of commodity prices. Given time, such an imbalance might be corrected by the relatively slow processes of real economic growth. That is, an economic system might grow up to a high FIR. The likelihood is, though, that

inflation would have to be held in check during the growing-up period by price controls and allied devices.

As a minor aside, reasoning about the equilibrium value of FIR might help to solve an old puzzler, When is a debt a burden? The answer may be that debt is burdensome when it is either too large or too small in relation to the value of real assets. It is not burdensome when FIR is at equilibrium level for the given stage of development. If an equilibrium level of FIR is conducive to economic growth, society may tolerate, even need, not only a rising total of debt but a rising ratio of debt to wealth and income.

Goldsmith comments that FIR has risen not continuously but by jumps. There may be something in the physiology of growth that requires this; or there may be some discontinuities in Goldsmith's statistics; or the considerable variation in the length of intervals in his table may be responsible for it. But the explanation could also be that some of the FIR values are close to the equilibrium trend line and others are more or less remote from it. A time series including disequilibrium values should hardly be expected to cling closely to a smooth trend curve. The values of FIR for 1880, 1922, 1945, and 1952 might well be significant deviations from equilibrium values.

I have been suggesting that one way to think about the role of finance in economic growth would be to define the implications of an equilibrium level of FIR, to study the sources of disequilibrium, and to work out the nature of adjustments that restore equilibrium. Monetary theory, as we know it, may have been a rather good approximation of this kind of analysis when money constituted a larger proportion of outstanding securities and when banks were relatively more important as sources of finance than they are now. Goldsmith's data bring out the relative decline of money among financial assets and of banks among financial institutions. I take this to mean that traditional monetary theory is in need of reorientation. Perhaps it should be renamed "debt theory" or "financial theory," taking for its area of competence supply and demand functions for all securities including money. Its responsibility would be to examine the nature of market equilibrium and the processes of adjustment to disequilibrium for financial assets generally.

We may take it for granted that Goldsmith will devise other measures of financial structure and development than he presents in this fragment of his work. These particular ones, and especially FIR, are not very sensitive to the forces, perhaps some of them

financial, which account for wide differences in per capita income between, say, the United States and the United Kingdom or Germany. Moreover, the differentials in income suggest that among the several countries there are significant differences in demand for the services of financial intermediaries. If this is so, there should be more evidence of it than one finds in Goldsmith's data.

A supplementary measure would be an incremental FIR. Existing aggregates of securities and of real assets are so very large that, in an average FIR, they conceal degrees of difference in rates of financial and physical accumulation. I would think, too, that some explicit use should be made of the structure and level of interest rates as a measure of financial development. On his final page, Goldsmith comments that a high level of interest rates is not congenial to financial or physical maturing. Income measurements would not be superfluous—income originating in financial activity, the relative importance of income of independent proprietors as against interest and dividends, the distribution of interest and dividends between foreign and domestic recipients, the ratio between gross and net interest, etc. One may hazard the guess that some of these measures would bring out more clearly the relative roles of finance in advanced countries. Until they have been explored, I would hesitate to accept Goldsmith's doubts concerning the role of finance in stimulating a comparatively high rate of growth in this country.

Reply by the Author

I have taken account of some of Shaw's very helpful comments quite inadequately by means of a few minor changes in the text and a couple of footnotes. Unfortunately, I cannot do anything at this time about his basic suggestion of a closer tie between the analysis of financial growth and standard demand and supply theory, e.g. by defining equilibrium levels of FIR or by connecting the level of FIR with the character of the demand for the services of financial intermediaries. Such a tie is certainly desirable, but it would call for a far-reaching expansion, rearrangement, and revision of the entire paper. This leaves just one or two comments or interpretations of Shaw's that I would not accept, although my formulation in the original draft may have been responsible for his making them.

FIR and the other measures used in the paper are at this stage quite empirical. There is no implication that a rising FIR necessarily

measures the approach to financial maturity. Nor is there intention of establishing, or even asserting, that maturity in a country's accumulation of physical assets and maturity in its financial structure go together. (Indeed, I would not know how to define the former.) Similarly, there is no implication that financial maturity is necessarily connected with the existence of a large dead-weight debt. Maybe Shaw was misled as to my stand by the fact that all the advanced countries I used by way of example have at one time or another had a large dead-weight debt. But such a debt is not part of the definition of a financially advanced country. There certainly are cases of financially advanced countries having only a very small government debt, dead-weight or productive—for example, before World War I, the United States, Switzerland, and the Netherlands.

PART II

SAVINGS AND FINANCE IN THE SOVIET UNION