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Author(s): Lawrence S. Ritter

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# THE FLOW-OF-FUNDS ACCOUNTS: A NEW APPROACH TO FINANCIAL MARKET ANALYSIS

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## AN EXPOSITION OF THE STRUCTURE OF THE FLOW-OF-FUNDS ACCOUNTS\*

LAWRENCE S. RITTER†

### I

IT IS NOW OVER a decade since Copeland's pioneering work set the stage for what we know today as the flow-of-funds accounts. This was followed in 1955 by the Board of Governors' first exposition of the flow of funds, and then in 1959 by the board's revised presentation. Since then the board has been disgorging statistics at an unbelievable pace, and a few economists have been having a field day discussing the host of technicalities involved.<sup>1</sup>

Meanwhile, the economist who is not a specialist in the capital markets has been sitting uneasily on the sidelines, wondering what all the shouting is about and growing increasingly perplexed about what he is to make of this avalanche of numbers that has descended upon him. On occasion he will righteously turn to the *Quarterly Presentation* or to *Supplement 5* and gingerly extract a number, or perhaps even a row of numbers. Other than that, he seems to find little use for the flow of funds in his research and even less use for it in the classroom. If he seeks to orient himself by first acquiring an understanding of the basic framework of the accounts, he will find little help in the literature, most of which is concerned with technical details.

\* This paper and the following papers by William C. Freund and Edward D. Zinbarg and by Stephen P. Taylor, with discussions by Tom Atkinson and Roland I. Robinson, were presented at a meeting of the American Finance Association in Pittsburgh, Pa., on December 28, 1962. The program was under the chairmanship of Roger F. Murray.

† Professor of finance, Graduate School of Business Administration, New York University.

1. See M. A. Copeland, *A Study of Moneyflows in the United States* (New York: National Bureau of Economic Research, 1952); *Flow of Funds in the United States* (Board of Governors of the Federal Reserve System, 1955); "A Quarterly Presentation of Flow of Funds, Saving, and Investment," *Federal Reserve Bulletin*, Vol. XLV, No. 8 (August, 1959); *Flow of Funds/Savings Accounts, 1946-1960 (Supplement 5)* (Board of Governors of the Federal Reserve System, 1961); and *The Flow of Funds Approach to Social Accounting* (New York: National Bureau of Economic Research, 1962).

And yet there is no reason why every economist, and especially those concerned with monetary matters, should not be as familiar with the flow-of-funds accounts as with the national income statistics. The reason they are not provides a perfect example of unbalanced growth: a vast expenditure of time and effort has gone into collecting and disseminating data and into controversy over technical details, while hardly any effort at all has been devoted to explaining the logical framework underlying the construction of the accounts. This is not a case, in other words, where entry is limited to those with prior mastery of specialized knowledge or understanding of advanced techniques. No specialized knowledge whatsoever is required, and the only techniques involved are some elementary accounting principles that are common knowledge—namely, the concept of a balance sheet and an income statement.

In brief, unfamiliarity with the structural relationships inherent in the flow-of-funds accounts has resulted in gross underutilization of a veritable mine of information; even more important, it has seriously inhibited realization of their potential usefulness as a theoretical tool. It is the purpose of this paper to attempt in some small measure to rectify this state of affairs by an exposition of the basic principles underlying the flow-of-funds accounts.

## II

The flow of funds is a system of social accounting in which (a) the economy is divided into a number of sectors and (b) a “sources-and-uses-of-funds statement” is constructed for each sector. When all these sector sources-and-uses-of-funds statements are placed side by side, we obtain (c) the flow-of-funds matrix for the economy as a whole.<sup>2</sup> That is the sum and substance of the matter.

*The number of sectors* is a technical, rather than a fundamental, question. While there must be more than one, in order to permit transactions between sectors, the maximum practical number depends solely on such factors as the homogeneity of groups of decision-making units in the economy, the availability of raw data, and ease of handling. Too few sectors are likely to hide significant relationships, while too many are likely to become unwieldy. In the national income accounts, the Department of Commerce divides the domestic economy into three sectors: households, business firms, and governments. In the flow-of-funds accounts, the board of Gov-

2. See Tables 1 and 5 in the Federal Reserve's *Quarterly Presentation and Supplement 5*.

ernors prefers four main domestic sectors, with financial institutions added to the above three. These main sectors are in turn divided into a number of subsectors. In any case, the sectoring should be exhaustive, i.e., the entire economy should be included, if necessary by the use of a residual "all other" category. In our discussion below we confine ourselves to a closed economy throughout.

A sector "sources-and-uses-of-funds statement" is a hybrid accounting statement which combines that sector's balance sheets and income statement and is derived directly therefrom. Fundamentally, it does not involve any concepts not already present in the balance sheet and the income statement. The construction of a model sector sources-and-uses-of-funds statement occupies most of the remainder of this paper. We proceed from the balance sheet as the first step.

A. A generalized balance sheet, applicable to any sector, would appear something like the following:

(1)                      Assets		Liabilities and Net Worth
Financial assets:		Liabilities:
1. Money		1. Short-term
2. Near-monies		2. Long-term
3. Other		
Real assets		Net worth
	$\Sigma = \Sigma$	

A balance sheet similar to the above can be drawn up for each sector. The only differences between them would be in the characteristic items that would appear under each heading.

As is well known, each real asset in the economy appears on only one balance sheet, that of its owner. However, each liability, by its very nature as a debt, must necessarily imply the existence of financial assets of equal amount on some other balance sheet(s). Similarly, each financial asset, by its very definition as something due to that sector, must necessarily imply the existence of a liability of equal amount on some other balance sheet.<sup>3</sup> Thus, although for any one sector its liabilities are not likely to equal its financial assets, if we take all the sector balance sheets for the entire economy and consolidate them into one, the total of liabilities would conceptually equal the total of financial assets. The net worth (wealth) of the

3. See Kenneth Boulding, *Economic Analysis* (3d ed.; New York: Harper & Bros., 1955), pp. 257-61. The term "liabilities" is usually defined in the flow-of-funds accounts as including equities (stocks) as well as debt claims (bonds). This gives rise to certain problems, as pointed out by Roland Robinson in the discussion following this paper.

economy as a whole is therefore equal to the value of real assets in the economy.<sup>4</sup>

For present purposes it is helpful to rearrange and consolidate balance sheet 1 as follows:

(2)	<i>A</i>		<i>L and NW</i>
	Real assets		Net worth
	Financial assets		Liabilities
	Money		
	$\Sigma$		$\Sigma$
	$\Sigma = \Sigma$		

Sector balance sheet 2 is identical with 1 except for some consolidation and rearrangement of the entries. Since money is a financial asset, it should, strictly speaking, be included under that heading. However, economic theory has traditionally treated money as unique, so that it is entered separately. The entry “financial assets” must therefore be understood as standing for “financial assets other than money.”

*B.* A balance sheet, of course, shows stocks as of a moment in time rather than flows over a period of time. However, by comparing the balance sheets of a sector at two different points in time and noting the changes that have taken place over the intervening time span, balance-sheet data can be converted from stock to flow form. Comparison of a sector’s balance sheet as of December 31, 1961, with that for December 31, 1962, for example, would show the net changes that have taken place between the beginning and the end of 1962.

If we confine ourselves to financial assets and liabilities for the moment, ignoring real assets and net worth, such a comparative sector statement, indicating the net changes that have taken place between two dates in balance sheet 2, could be presented as follows:

(3)	Financial Uses		Financial Sources
	$\Delta$ Financial assets		$\Delta$ Liabilities
	$\Delta$ Money		

Such a statement is a sector *financial* sources-and-uses-of-funds statement. It need not balance, since it is derived from partial rather

4. This conclusion pleases conservatives because it implies that printing money cannot in and of itself make an economy wealthier. However, by the same token, it also implies that increasing an internally held national debt cannot in and of itself make an economy poorer.

than complete balance sheets. A financial source of funds for a sector is, by definition, an increase in its liabilities: households, business firms, governments, and financial institutions can obtain funds by increasing their liabilities (borrowing). A financial use of funds for a sector is, by definition, an increase in its holdings of financial assets or money: households, business firms, governments, and financial institutions can utilize their funds to buy financial assets (lending) or to build up their stock of money (hoarding). Thus 3 could be re-written as follows:

(4)	Financial Uses	Financial Sources
	$\Delta FA$ (lending)	$\Delta L$ (borrowing)
	$\Delta M$ (hoarding)	

However, the above alternatives do not exhaust the possible financial sources or uses of funds. For example, another source, other than borrowing, by which a sector might acquire funds is by selling financial assets or by dishoarding. And another possible use of funds is the repayment of one's debts. These did not appear on 4 because only net changes were considered and it was assumed that these were positive.

In gross form, a sector financial sources-and-uses-of-funds statement would have slots for negative as well as positive changes:

(4')	Financial Uses	Financial Sources
	$\Delta FA \uparrow$ (lending)	$\Delta FA \downarrow$ (selling securities)
	$\Delta M \uparrow$ (hoarding)	$\Delta M \downarrow$ (dishoarding)
	$\Delta L \downarrow$ (repaying debts)	$\Delta L \uparrow$ (borrowing)

In this framework it becomes clear that lending and borrowing are not opposites, as is usually assumed. Instead, the opposite of lending, which is the purchase of a financial asset, is the sale of a financial asset. And the opposite of borrowing is the repaying of one's debts. Also evident is the similarity, in purpose and in impact on the financial markets, of borrowing and selling off financial assets; both increase the market supply of securities, the former by the sale of one's own liabilities and the latter by the sale of someone else's.

Useful analytically as 4' is, it is difficult to collect data on a gross basis. As a result, most published data are in the form of 4, with each pair netted; by convention, if the net change in any entry

turns out to be negative over a period, it is kept on the side where it presently appears in 4 but preceded by a minus sign. Net dis-boarding, for example, would be recorded on the uses side but preceded by a minus sign and referred to as a negative use.

C. We have thus far ignored changes in the first pair of entries on 2, namely, changes in real assets and in net worth. This is because we have confined ourselves thus far to considering only financial sources and uses of funds. But, in addition to financial sources and uses, a sector is also likely to have "non-financial" sources and uses. These may arise from transactions on *capital* account or from *current* transactions.

Non-financial transactions on *capital* account, as in national income accounting, refer to changes in real assets and in net worth. A change in real assets over a period, the acquisition of capital goods, is usually termed real (in contrast to financial) investment. The purchase of a capital good is obviously as much a use of funds as the purchase of a bond or a stock. Investment may be reckoned on either a net or a gross basis, in the sense that depreciation may or may not be deducted from the change in the value of a sector's holdings of real assets.

The change in a sector's net worth over a period could now be derived as a residual, if one wished to do so. Net worth, by definition, is equal to total assets minus total liabilities. A change in net worth over a period must therefore equal the change in total assets minus the change in total liabilities. If we insert the change in real assets into 4, we will have accounted for all changes in assets and in liabilities and could derive the change in net worth as the difference between the two. However, this procedure might obscure the fact that the change in net worth for a sector over a period is identical with what is usually termed the "saving" of that sector during the period.

The saving of any sector is, by definition, the excess of its current receipts over its current expenditures. But an excess of current receipts over current expenditures (flows) must necessarily imply either a buildup of (stocks of) total assets or a reduction of liabilities (or some combination of the two) equal in amount to the excess of current receipts over current expenditures. Thus the saving of any sector must be equal to the change in its total assets minus the change in its liabilities, which in turn equals the change in its net worth.

The net changes for a sector between two dates in the first pair of entries on 2 can thus be presented as follows:

(5)	Non-financial Uses on Capital Account		Non-financial Sources on Capital Account
	Δ Real assets (investment)		Δ Net worth (saving)

Just as 4 did not have to balance, since it was derived from partial balance sheets, neither is 5 likely to balance. An individual unit or sector may invest an amount equal to its current saving, but it may also be in deficit, investing more than it saves, or in surplus, saving more than it invests. However, if 4 and 5 are combined into one, as 6, it must necessarily balance:<sup>5</sup>

(6)	Uses		Sources
	Δ <i>RA</i> (investment)		Δ <i>NW</i> (saving)
	Δ <i>FA</i> (lending)		Δ <i>L</i> (borrowing)
	Δ <i>M</i> (hoarding)		
	Σ = Σ		

Statement 6 is the most widely used form of sources-and-uses-of-funds statement and is frequently labeled that, although, strictly speaking, it is incomplete. It contains financial sources and uses of funds (4) and non-financial sources and uses on capital account (5) but does not take explicit account of current transactions. That is, it does not include current receipts as a source of funds or current expenditures as a use, except insofar as the difference between the two (saving) is included as a source of funds on capital account. Nevertheless, as it stands, 6 is useful in showing that a deficit sector, with investment greater than saving, *must* borrow, dishoard, or sell financial assets in an amount equal to its deficit, and that a surplus sector, with saving greater than investment, *must* repay debts, hoard, or lend an amount equal to its surplus.<sup>6</sup>

Although 6 is in wide use, it is difficult to recognize unless one

5. As would also, of course, be true if 4' and 5 were combined into one, which could be called 6'.

6. It is also useful in providing a demonstration alternative to the usual Keynesian one that, ex post, saving must equal investment for the economy as a whole. It was noted above with respect to 1 that if all sector balance sheets were consolidated into one, the total of liabilities would equal the total of financial assets, so that the net worth of the economy as a whole must necessarily equal the value of the real assets. It follows that if all the sector-sources-and-uses statements, such as 6, were consolidated into one, the total of borrowing would equal the total of lending plus hoarding, so that, for the economy as a whole, saving must necessarily equal investment.

has been forewarned. There seems to be a deep-seated aversion on the part of those who publish statistics to the establishment of consistency in either the titles or the form of the tables they issue. For example, the Department of Commerce regularly issues data in a table entitled "Sources and Uses of Corporate Funds," which is, as one would expect, statement 6 for the corporate business sector. The same department also issues data in a table entitled "Disposition of Personal Saving." This turns out to be the same thing for the household sector, although neither the titles nor the arrangements of the two tables bear any obvious relationship to each other.

D. A complete sector sources-and-uses statement, as mentioned above, must also take account of *current* transactions: receipts accruing during a period as a source of funds and expenditures as a use of funds. In other words, the income statement has thus far been neglected.<sup>7</sup>

A generalized income statement, applicable to any sector, would, in skeleton form, be something like the following:

(7)	Non-financial Uses on Current Account		Non-financial Sources on Current Account
	Current expenditures		Current receipts
	Saving (addition to <i>NW</i> )		
		$\Sigma = \Sigma$	

The excess of current receipts over current expenditures is generally termed "saving" when it applies to the household sector, a "budget surplus" when it applies to the government sector, and "retained earnings" (or addition to net worth or to surplus) when it applies to the business sector.

As a "use" of funds on current account, saving takes the form of non-spending, of accumulation or retention. As such, it becomes available as a source of funds for capital account and represents an addition to net worth.<sup>8</sup> As with investment, saving may be reckoned on a net or a gross basis, in the sense that depreciation charges may or may not be deducted from the addition to net worth. It

7. Capital expenditures, which have been discussed above, do not appear on an income statement.

8. Saving may also be negative, of course, and thereby represent a subtraction from net worth. Furthermore, net worth may also change for other reasons than those discussed in this paper, such as by revaluation of assets (capital gains or losses). This gives rise to problems closely related to those mentioned in n. 3. Again see Roland Robinson's remarks.

should be noted, however, that even if depreciation is deducted, so that saving is measured on a net basis, depreciation would still be a source of funds for capital account, since it represents a non-cash expense rather than an actual current outlay of funds.<sup>9</sup>

E. A complete sector sources-and-uses-of-funds statement, including transactions on current and capital account, as well as financial transactions, would combine 6 and 7:<sup>10</sup>

( 8 )	Uses		Sources
	Current receipts $\Delta NW$ (saving)		Current receipts
	----- $\Delta RA$ (investment) $\Delta FA$ (lending) $\Delta M$ (hoarding)		----- $\Delta NW$ (saving) $\Delta L$ (borrowing)
	$\Sigma = \Sigma$		$\Sigma = \Sigma$

Complete sector sources-and-uses-of-funds statements, such as 8, are no longer shown explicitly in the final matrix for the economy as a whole, but they are still the basic backbone underlying the flow-of-funds accounts.<sup>11</sup> Since the income statement (above the dashed line) must balance, and the changes in the balance sheet (below the dashed line) must also balance, the summation of all the sources must equal the summation of all the uses of funds. Also, since saving (or the change in net worth) on the income statement must necessarily be the same as the change in net worth (or saving) on the balance sheet, saving could be deleted from both sides without disturbing the equality of total sources and total uses.<sup>12</sup> If this were done, the statement would simply express the logical necessity

9. For example, assume that a firm's current receipts exceed current expenditures by exactly the amount of depreciation charges, so that net saving (and the change in net worth) is zero. This zero change in net worth is not consistent with the fact that real assets must be written down by the amount of the depreciation; on this latter basis, net worth should be lower by the amount of depreciation. The firm must have, for example, "involuntarily" accumulated cash equal to the depreciation charges, which cash can be spent to restore real assets to their former value or for any other purpose the firm chooses.

10. Or the combination of 6' and 7 into 8'. See n. 5.

11. See Table 4 ("Sector Statements of Sources and Uses of Funds") in either the *Quarterly Presentation* or *Supplement 5*.

12. Thus just as the Keynesian analysis can be presented without explicit reference to the concept of saving, since it is implied once consumer spending is determined, so the flow of funds can also be presented without saving appearing explicitly.

that the funds a sector receives during a period from current receipts and borrowing must necessarily be disposed of in some way and must therefore equal the sum of its current expenditures, capital expenditures, lending, and hoarding.<sup>13</sup>

F. As mentioned at the beginning of this section, the flow-of-funds matrix for the economy as a whole merely consists of all the sector sources-and-uses statements placed side by side. Initially, in 1955, the published matrix showed the complete sector sources-and-uses statements in the form of 8. Since the 1959 revision, however, it has consisted of only partial statements in the form of 6, i.e., only that part of 8 below the dashed line.

Assuming a total of three sectors and omitting some detail, the current presentation of the flow-of-funds matrix for a specified time period appears essentially as follows:<sup>14</sup>

(9)	SECTOR A		SECTOR B		SECTOR C		ALL SECTORS	
	U	S	U	S	U	S	U	S
SAVING ( $\Delta NW$ )								
INVESTMENT ( $\Delta RA$ )								
LENDING ( $\Delta FA$ )								
HOARDING ( $\Delta M$ )								
BORROWING ( $\Delta M$ )								

This complete matrix, or summary statement of the flow of funds, forms an interlocking self-contained system. It shows, for a specified time period, the balanced sources-and-uses-of-funds statements for each sector, the interrelations among the sectors, and the aggregate totals of saving, investment, lending, hoarding, and borrowing for the economy as a whole.

Any one sector may invest more or less than it saves, or borrow more or less than it lends. However, for the economy as a whole, saving must necessarily equal investment, and borrowing must equal

13. More precisely, the funds a sector receives during a period from current receipts, borrowing, selling financial assets, and dishoarding must necessarily equal the sum total of its current expenditures, capital expenditures, debt repayments, lending, and hoarding (see nn. 5 and 10).

14. See Table 1 or 5 ("Summary of Flow of Funds Accounts") in the *Quarterly Presentation* or Table 1 in *Supplement 5*.

lending plus hoarding.<sup>15</sup> Thus deficit sectors, which invest more than they save, necessarily imply the existence of other surplus sectors. This is not only because the economy-wide total of saving must equal investment but also because a deficit sector *must* finance its deficit by borrowing, dishoarding, or selling off securities. This implies the existence of surplus sectors to do the lending, hoarding, or buying of the securities.<sup>16</sup> Similarly, surplus sectors, which save more than they invest, necessarily imply the existence of other deficit sectors.

If particular types of financial instruments are specified in the flow-of-funds matrix (as government obligations or corporate bonds), as in fact they are, the financial interrelations among the individual sectors can often be observed in even greater detail, in terms of which particular surplus sectors directly or indirectly finance which particular deficit sectors.

### III

It is not the purpose of this paper to delve into the technicalities involved in constructing the accounts. The literature on that is extensive and thorough (see n. 1). Nevertheless, it is worth calling attention to some of the main differences between the Federal Reserve's flow-of-funds accounts and the Department of Commerce's national income accounts. Four differences are of particular interest.

First, the national income accounts confine themselves exclusively to non-financial transactions. They contain no data on borrowing, lending, or hoarding. Second, the income accounts are designed to measure the current output of final products; so far as possible, duplicative transactions and trading in already existing assets are eliminated in order to avoid double counting. This is not true of the flow-of-funds accounts. Third, the income accounts treat all real investment, or capital expenditures, as a business activity; neither consumers nor governments, as such, can invest. In the flow-of-funds accounts, consumer purchases of durable goods are treated as investment and are shown both gross and net of depreciation. This has the effect of removing the purchase of consumer durables from the

15. See n. 6 and the related text.

16. The existence of deficit (or surplus) sectors in an economy thus requires a rather advanced financial structure to permit the requisite financial transactions to take place and, indeed, to facilitate them. See the lucid exposition of John G. Gurley, "Financial Institutions in the Saving-Investment Process," in *Proceedings of the 1959 Conference on Savings and Residential Financing* (U.S. Savings and Loan League 1959), especially pp. 12-17. This is reprinted in L. Ritter, *Money and Economic Activity* (2d ed.; Boston: Houghton Mifflin Co., 1961).

category of current expenditures and thereby greatly increasing the volume of consumer (and national) saving. Finally, the sectoring is much more detailed in the flow-of-funds accounts than in the national income statistics, making integration and reconciliation of the two a rather complicated matter. In principle, one should be able to move easily from one set of accounts to the other, but in practice the sectoring and the treatment of various transactions are so different as to make it awkward and cumbersome to do so.

The potential usefulness of the flow-of-funds accounts as a theoretical tool is still largely unrealized. In the flow of funds we now have a complete and internally consistent body of data on financial flows, interlocked with national income data. Data on the financial markets are meshed with data on the goods and services markets. However, these still consist of logical ex post identities. Upon this foundation, we need to proceed to the even more important job of testing alternative hypotheses regarding the interaction between the financial and non-financial variables, with the ultimate objective of moving from the logical identities to the construction of a set of behavior relationships possessing explanatory value.