

USES OF FINANCIAL ACCOUNTS IN MONETARY ANALYSIS

BY HENRY C. WALLICH*

Yale University

Developments in economic theory have in many ways enhanced the opportunity for using financial accounts data in monetary analysis. This is true in such areas as the role of assets, the development of portfolio choice theory, the demand for money, and the behavior of intermediaries. At the same time, theory has increasingly emphasized behavioral relationships. These developments give rise to new data needs. An inquiry was addressed to some 25 specialists, whose responses illustrate these needs. Some of the desired data are "more of the same," such as more sectoring, more detail on financial instruments, data on stocks as well as flows. Some data needs, reflecting behavioral theorizing, point beyond traditional financial accounts data and call for maturity distributions, interest rates, rates of return on equities and real assets, and the parameters of their frequency distributions. The degree of economic development and the degree of openness are found to be important determinants of the kind of data to be sought and employed in particular countries.

Public policy is finding increasing use for financial accounts data in coordinating the flow of financial resources with the planning of physical investment. Nevertheless, many policy purposes call for more detailed data than can be provided by an integrated system. This has led to a selective use of data sources outside the financial accounts. Builders of financial models, likewise, have found it preferable to work with more flexible data selected ad hoc than with integrated financial accounts. Hope of applying the techniques of modern model building to financial accounts data, such as econometric estimation of a flow of funds table, or its conversion into an input-output matrix, seems tenuous for the time being. Thus, financial accountants, competing with financial model builders for the attention of theorists and policy makers, must broaden the scope of their data in the hope that there is room for the growth of both disciplines.

Raymond Goldsmith has often remarked that the Keynes of the Flow of Funds has not yet appeared. I take it that he still holds to that view, or he would have entrusted the present paper to that party instead of to a relative stranger to the area of economic statistics.

Two implications are contained in the dictum. One is that a problem exists in marrying data and theory. Keynes and the national income statisticians were fortunate in finding each other. A theory was made enormously fruitful for empirical work and for policy by the simultaneous and to some extent independent development of the needed data. Alfred Marshall, in constructing his price theory, was less fortunate. The theory has been analytically fruitful. But its marriage to price data has remained unsatisfactory, because the demand and supply functions it should have yielded have proved hard to construct and not very helpful to use.

The second implication of the quest for a new Keynes is that financial accounts do indeed have something to contribute to the real world: that "finance matters." The question of the significance of finance goes beyond its familiar companion problem—"does money matter?" Since money is part of finance, finance will matter, to be sure, if money does. But the focus of monetary influence usually is looked for in the short run. Money matters cyclically. Money also

* Paper presented at the 11th General Conference of the International Association for Research in Income and Wealth, Nathanya, August 1969.

matters during transition periods from one level of money supply or money growth to another. This would be true even if in the long run money were perfectly neutral, i.e. free of all effects on real variables, as the quantity theory asserts. As for the long run effects not envisaged by the quantity theory, it is only recently that theorists have sought to trace the effects of money upon economic growth.

Finance, to matter meaningfully, must matter in ways that go beyond the effects of money. Such effects could be short run and cyclical. They might affect output, employment, prices, and the composition of output and income. More interesting, however, would be long run effects.

The long run effects of finance could be of two kinds. Finance might alter (1) the level of investment, and (2) its composition. With respect to the level, it is necessary to look at both investment and saving. Finance—the development of financial institutions, instruments, and markets—is supposed to increase the efficiency of the investment process. For the borrower, typically a physical investor, this means a higher net return. If the borrower is a firm that maximizes profits, this means a tendency for investment to increase.

For savers-lenders, efficient finance means a higher net return on claims and equities. This raises the old question how saving reacts to a rise in the interest rate. Considering the business and household sectors together, a fairly good presumption emerges that a higher interest rate raises saving. This would imply that Finance, by raising the return to both the saver-lender and to the investor-borrower, raises investment. But this remains a presumption and may not be quantitatively important. We are on safer ground when we look for the effects of finance in the composition of investment. Evidence of that effect will turn up in many parts of this paper.

The links between finance and the real sector do not all run one way. We look primarily for the effects of finance on real variables. We are likely to find primarily the impact of real variables upon finance. We may also find behavior patterns of finance that seem to have no very close relations with the real sector in either direction. Finance to some extent leads a life of its own. A study of finance in these latter terms is far from uninteresting. The amounts involved are large. For the intermediaries concerned, for traders and other operators in those markets, for holders of claims and equities, what goes on in financial markets is important even if the impact on real variables turns out to be modest.

With a little imagination, this view of Finance may be likened to a large river of savings flowing into the sea of investment through a delta consisting of complex and frequently shifting arms and branches representing markets, intermediaries, and financial instruments. The flow in the river is determined largely exogenously. Total investment is not much altered by shifting flows carried by the various branches. But the welfare of the people living on the river banks—particular sectors in need of financing, savers, and the intermediaries facilitating the financing—is clearly affected.

In this paper, an attempt will be made to survey the uses made of financial accounts. Typically, financial accounts have been used to trace the flow of saving into and its influence on investment, to study the behavior of the financial sector as such, and also to examine predominantly monetary phenomena. Since the use of financial accounts is still at an early stage, potential as well as actual

uses will have to be reviewed. This will also call for an examination of the need for additional data. It is hoped that the discussion will throw some light on the usefulness of the various types of financial accounts for these purposes in contrast to alternative means of pursuing the same analytical objectives.

To obtain more light particularly on the directions in which progress could be made, I have addressed inquiries to some 25 specialists in about half that many countries. I must confess to somewhat biasing the outcome by stressing, in this inquiry, those data that model builders rather than financial accountants as such might want to have, given the circumstances of their particular countries. The response has been very gratifying and instructive, and I have drawn heavily upon it in this paper.¹ For errors of interpretation my correspondents, to whom I extend once more my thanks, are of course in no way responsible.

Given these premises, the uses of and needs for financial accounts data will be examined with respect to (1) underlying theories, (2) problems of private and public decision making.

1. USES AND SOURCES OF FINANCIAL ACCOUNTS DATA IN THE LIGHT OF THEORY

The Federal Reserve traditionally has made the point that its Flow of Funds data are free from theoretical bias. In doing so the Federal Reserve experts have turned what perhaps was not quite a necessity into what has since turned out to be no outstanding virtue. This is no criticism of the pathbreaking work that has gone into the U.S. flow of funds data. Very probably the difficulty of finding a theory-minded suitor for the nubile data could not be foreseen, as the messianic expectation of a Keynes of the flow of funds attests. But by now a good case can be made that further work, particularly in countries that do not yet have very advanced financial accounts, would benefit by being oriented toward theories in the light of which they are to be used.

Since the inception of financial accounts work, theory has in some ways moved in directions that broadly enhance their usefulness. At the same time, theoretical developments have created a need for supplementary data.

Clearly favorable to the use of financial accounts has been the growing interest in financial phenomena, coupled with an interest in the behavior of financial intermediaries. Emphasis has been divided between a narrower approach via money and a broader one via financial assets. Particularly the latter strengthen the need for financial accounts information. Favorable also has been the growing emphasis on the role of assets, to the extent that financial accounts contain stock data. More demanding has been the tendency to make relationships more "behavioral", by introducing interest rates and uncertainty. Serious data problems arise in these two contexts. Some areas of theory—far from exhaustive—

¹ The data most frequently listed as desirable were: (number of respondents in parenthesis) Ownership of demand deposits (7), Trade credit (6), Unused lines of bank credit (5), Interest rates on deposit type claims (4), Non-price data on bank and other loans (4), Maturity breakdown of bonds (4), Sector data separating households and firms (3), Wealth data (2), Liquid assets of business (2), Financial anticipations data (2), Turnover of bank and other intermediary assets (2).

Failure of a respondent to mention some type of data does not imply lack of interest, of course, since the data may have been available in the respective country.

will be examined with a view to uses of existing and needs for additional financial accounts data.

1.1. Sectoring

Portfolio choices made by asset holders as well as debtors have evoked considerable interest at the theoretical level. One important prerequisite is appropriate sectoring of relevant data. A distinction between nonfinancial businesses and households is needed, because firms for the most part are assumed to maximize profits or the present value of their equity, while households are assumed to maximize utility. Firms, in other words, are assumed to be risk neutral, households are assumed—generally—to be risk averse. A distinction between financial and non-financial businesses is needed also because the behavior of intermediaries has become a special branch of the theory of portfolio choice. In general, separate data on financial intermediaries are relatively easy to provide. Balance sheets of intermediaries usually are readily available and have few valuation problems. The separation of non-financial firms and households is much more difficult. This aspect of sectoring ranks high among suggestions for additional data that were received from my correspondents.

All this assumes, of course, the availability of stock as well as flow data. Since the latter are often derived from the former, remedying this deficiency where it exists is quite feasible up to a point. Difficulties arise, however, with respect to equities and physical assets and especially with respect to their valuation. Even the relatively good data available in the U.S. have been viewed as needing improvement in the areas of unquoted wealth, especially the price of new and old homes, ownership of deposits, liquid asset holdings of non-financial firms, and trade credit. Such demands are echoed—and greatly broadened—in correspondence from other countries.

Sectoring is important also for other theoretical approaches. Stocks of assets are viewed as influencing investment and consumption of consumer durables, and investment in these two types of assets is treated as a stock adjustment process. Wealth is an important determinant of personal consumption, and capital gains play an important role in at least some models. Separation of the assets of non-financial businesses, consumers, and government is required for these approaches.

1.2. Net and Gross Approaches

In a closed economy, private claims and liabilities net out to zero. Theorems stressing this fact, such as the Pigou Effect, have little use for elaborate financial accounts. Only government liabilities matter and affect behavior as the price level rises or falls. It deserves to be noted that the adherents of the netting out of private finance seem to stand in curious juxtaposition to traditionally oriented practitioners and bankers. The Pegovian theorist regards the public debt as an asset; the bigger it gets in real terms as prices fall the richer people feel. The traditional practitioner worries about it as a burden. Perhaps a compromise could be struck by agreeing that public debt has neither of these characteristics. In open economies, incidentally, the netting out of all domestic claims and debts

usually would not reduce finance to zero—international claims and debts usually are not equal. In any event, at a lower level of abstraction most analysts probably would agree that netting out is inappropriate. The response of debtors and creditors are unlikely to be symmetrical. This is no easy way of getting rid of finance.

It needs to be added that, even with a gross assets approach, the wealth effect is ambiguous. Changes in interest rates change bond prices. But it does not follow that a fall in rates, giving bondholders a capital gain, will induce them to consume more and save less. This depends on their time horizon. In the short run, the investor is indeed better off, since his wealth has increased while his current income has not changed. But if the new lower level of interest rates continues, the bondholder at the latest upon maturity of his present holdings will have to reinvest in lower coupon obligations. His wealth will have been reduced close to its original level by maturities and calls, his income will decline. Bondholders with anything but a short time horizon will therefore regard a fall in interest rates as making them worse off, despite transitory capital gains, and will probably reduce consumption.

To deal with this problem, maturity breakdowns of outstanding securities would be needed. Even then, it would be very difficult to isolate econometrically the effect of bond price changes under conditions where many other relevant variables, especially equity prices, are also changing.

1.3. Inside—Outside Money

The “inside—outside money” analysis narrows down the problem posed by the Pigou effect to exclusively monetary claims and liabilities. Inside money results from monetization of claims on the private sector, outside money from claims on government. In this form a much narrower range of data than offered by flow-of-funds type accounts suffices for analysis. Again, however, the existence of a Rest-of-the-World sector significantly changes the terms of the closed economy model. In an open economy, outside money is approximated by the sum of the banking system’s claims on government plus its international assets. In many countries claims on the rest of the world are much the bigger of the two. This type of analysis can best be conducted with the help of the “monetary survey” data of the IFS type.

1.4. Demand for Money and Other Assets

Financial accounts can contribute to problems of the demand for money as well as of other assets in numerous ways. However, it will quickly appear that by themselves financial accounts data are insufficient. This may be one reason why relatively little use seems to have been made of them in the many controversies that have featured recently in this area.

The classical issue of money vs. liquidity can be examined only with the help of comprehensive financial accounts. The liquidity school, as exemplified by the Radcliffe Report, sees the influence of financial variables upon the real sector as coming from the entire spectrum of liquid assets of which money is only one. The central bank should try to control liquidity in the broadest sense, not just the

money supply. This view, insofar as it has been held in England, has received a major setback with the recent shift by British monetary authorities to a more money supply oriented policy, possibly at the instance of the IMF. The merits of the Radcliffe view, in any event, were never fully explored despite availability of financial accounts data in the U.K. One reason may have been that this exploration would call for two further sets of data: an array of interest rates for the respective financial assets, and a maturity breakdown. Knowledge of the structure of interest rates clearly would be needed to explore the substitutability of assets. Data on maturities are essential for an appraisal of liquidity.

The lack of interest rates associated with financial accounts data such as the U.S. Flow of Funds is of course an old complaint. For many markets and instruments, existing U.S. interest data probably would be quite adequate to provide the information needed to match the Flow of Funds. In some markets, however, the wide range of rates quoted for a single instrument might be frustrating. Bonds come with many ratings and maturities, rates on bank loans vary with size and risk, while the return on equities involves problems of a different order that will be dealt with presently.

In many other countries, especially developing countries, interest data are far less satisfactory. The most prominent and accessible rates reported in the IFS are the discount rate and the government bond rate. Where bank lending or deposit rates are tied to the discount rate, the latter conveys important information. Often, however, the discount rate is not very relevant as an indicator of market conditions. The same is true of the government bond rate in countries where only intermediaries hold bonds, often under compulsion. Subsidies, legal limitations, and other controls frequently make available interest rate data suspect.

It is not surprising, in the light of all this, that suggestions for additional data often involve interest rates. For instance, in so well-documented a country as the United States, it is noted that existing data for rates on deposit type claims are based on effective rates, i.e. interest actually paid, whereas what is needed are the rates that are published by intermediaries and used to attract depositors. In most other countries, far simpler data needs are felt with respect to interest rates.

Beyond interest rates, a need for non-price data on bank loans and mortgages is noted by researchers in statistically sophisticated countries. This type of information could be thought of as a subclassification of financial accounts data, which however would be made very complex by its addition.

Maturity data for financial assets would be part of this non-price information. For bonds and some bank loans it could be obtained, if the basic reports required of intermediaries called for it. The request on the part of some of my correspondents for data on loan renewals and renewal facilities indicates that for many types of loans this information is bound to be very vague.

For studies of the demand for money, financial accounts data would have to be supplemented, not only by interest rates on competing assets, but by further sectoral data. Existing studies for the most part do not sectorize, although there are some that distinguish households, firms and government. From what is known, the cash balances of firms, government, and households have very different velocities. Firms' velocity again seems to vary with industry. The sectorization of financial accounts would help with this type of analysis, although

it does not go far enough in the case of firms. But, except for households' personal income, the relevant flow magnitudes against which to establish the turnover of cash balances are not integrated with the data. They would have to be obtained from other, possibly not well matching, sources. All this makes it not surprising that in the very active area of demand for money studies, researchers have tended to obtain their data from ad hoc sources rather than from financial accounts.

1.5. Portfolio Choice

The theory of portfolio selection has made great strides thanks to the development of the risk—return framework. Some of its implied postulates, e.g. that return should be positively associated with risk, have been empirically supported. A statistical framework focussing on financial instruments ought to be capable of contributing toward this type of analysis.

To make this possible, however, one more dimension would have to be added to financial accounts, aside from interest rates that would also be needed: a measure of the dispersion of outcomes. Even theoretically, it is not easy to specify what form this measure should take. It might be the variance of prices of particular assets, or of rates of return including or excluding price changes within particular time periods or over the period—year or quarter—as a whole. Loss data or profit data for intermediaries, as suggested by one correspondent, might help in a rudimentary way.

The theory of portfolio selection gives special weight to the covariance of assets. Diversification makes sense only if asset prices or returns have less than perfect positive correlation. Of all the data mentioned, this is probably the “farthest out” and least likely ever to be published in the statistical bulletin of the future. There seems to be little evidence that even the stock market is aware of the degree of covariance among particular stocks beyond the assumption that it is less than perfect, as evidenced by the universal practice of diversification.

1.6. Other Data Problems

The variety of data needs not met or not fully met by even the most advanced financial accounts need not be labored any further as far as theoretical approaches are concerned. It is not surprising, therefore, that researchers concerned with specific problems have often preferred to make ad hoc choices among data rather than use the existing system of financial accounts. In doing so they sacrifice one great advantage of the accounts—integration with the real sector. Most financial data, especially those derived from balance sheets of intermediaries, do not mesh automatically with components of the national income accounts, such as saving and investment. This work of integrating the two sets of accounts has been performed by the architects of flow of funds type data. For some problems, considerable economies in data gathering and analysis could be achieved by building on existing financial accounts while adding supplementary data. Adding interest rates to flow of funds data is the most obvious example.

At the same time, a caveat is needed concerning the kind of interest rates we would like to have and those that we can get. It is a truism that people act on

expectations. A statistical relation established between two ex post variables does not prove beyond all doubt that people behaved as the relation suggests. The expectations that motivated people may have been different from the facts as realized ex post. By the same token, failure to find a relation between ex post data does not prove that a relation did not exist based on ex ante expectations. But while this consideration is very pervasive, a brief review of its applications to interest rates will show that it is particularly severe in this area. The problem is compounded because in addition to being subjective, many relevant interest rates are implicit, i.e. not quoted in any market.

1. The real interest rate depends upon price level changes over the life of a claim. The rate relevant to decisions is therefore based on borrowers' and lenders' expectations of inflation at the time of the transaction.

2. The short-run return from a marketable bond may differ widely from its nominal and even real return to maturity if the investor takes into account interim market fluctuations.

3. The return on equities consists of the dividend yield plus the expected rate of growth. This may have little to do with realized growth.

4. The cost of capital to a firm, which involves the return on equity as a component, is therefore also non-observable.

5. The return on physical investment involves expectations over the life of the investment and longer if reinvestment of depreciation allowances is considered.

6. Prices of mortgages, term loans, unincorporated and closely held corporate businesses, and of homes, are not quoted.

7. Marginal values, which govern decisions, may differ from the average values that usually underlie quoted prices and rates. The production function from which the marginal product of capital can be derived contains expectations.

8. Quoted rates and prices may ignore implicit returns, such as services rendered to holders of non-interest bearing demand deposits; they also obscure non-price differences among assets.

The problems here illustrated do not differ in principle for numerous other instances where expectations or lack of information is involved. Many important data are non-observable. The differences between expected and realized values, however, and the uncertainty concerning unquoted values, seem particularly great where rates of return and asset prices are involved.

2. FINANCIAL ACCOUNTS IN PRIVATE AND PUBLIC DECISION MAKING

In this section, financial accounts will be reviewed to illustrate possible applications in areas of private and public decision making.

2.1. *Financial Investment*

Finance, to some extent, leads a life of its own. We cannot be certain that decisions in the financial area have important direct repercussions on employment and output, although we may be inclined to hope that they do. But even if they do not do so directly, financial decisions would matter. Large amounts of money are involved. The soundness of financial institutions, the welfare of the owners or

beneficiaries of the funds is at stake. Thus financial decisions are almost bound to have effects upon the distribution of income and indirectly also on its production. Whatever assumptions we make, efficiency in the handling of financial assets is important.

For financial investors, what matters are correct anticipations of the balance of supply of and demand for funds in the various markets. This is so particularly for investors able to shift among markets, such as banks, insurance companies, pension funds, and individuals. While no forecasts on the Flow of Funds are published in the United States, private parties make a habit of providing the public with their own estimates, with particular emphasis on supply and demand in particular markets and for particular instruments. No doubt many more unpublished estimates are made.

Large borrowers—including governmental units—are in need of the same information. Even operators in the stock market may find the kind of analysis made possible by the flow of funds useful. As one small selective item, they might puzzle why, in most recent years, households in the United States have been net sellers of common stocks.

2.2. Behavior of Intermediaries

An important theoretical advance occurred when the creation of money by banks came to be viewed, not as a mechanical process reflecting a fixed reserve multiplier, but a behavioral process in which banks, like other intermediaries, maximize profits. In the U.S. this process had traditionally been analyzed starting with the “sources and uses of member bank reserves.” These data are an important part of “monetary analysis” in the United States. While less fully explored in most other countries, it seems plausible that this type of analysis focuses mainly on the money market. Financial accounts in the flow of funds sense focus mainly on capital markets. Hence the potential contribution of financial accounts data, even when supplemented with interest rates, probably is slight in this area.

A more important contribution to the analysis of intermediaries’ behavior can be made by financial accounts when we are concerned with these institutions’ choices among different assets. The same applies to the creation of intermediaries’ liabilities, on terms—interest rate, maturity, and others—set by them while the volume is largely determined by the public. Here the vast detail of a full set of financial accounts can be made fruitful, with homogeneous classification of assets—provided some progress can be made toward obtaining the relevant interest rates.

2.3. Countries and Data

Two country characteristics are particularly important in determining the choice and organization of financial data: the degree of openness, and the degree of development. Openness bears upon the relative importance of domestic and international influences. Typically small countries are more open on current

account than are large. Openness on capital account tends to follow the same rule. But arbitrary factors like foreign exchange control and the lesser international orientation of financial markets that present and even past controls imply, play an important role here. The more open an economy, the more detailed a presentation of its international financial relations is desirable.

The typical treatment of the balance of payments in the flow of funds accounts, in the Rest-of-the-World sector, does not meet this criterion particularly well. Whether exports amount to 50 per cent of GNP or 5 per cent, whether a large part of domestic capital flows abroad and a large part of domestic investment is foreign financed or not, the Rest-of-the-World is always one sector. It may be argued that this does not greatly matter. Balance of payments data are available for most countries in a degree of detail that exceeds what a flow of funds statement can conveniently accommodate. Research and policy analysis will normally be done with the help of balance of payments rather than flow of funds data. This, however, may imply losing the benefits of fully integrated data.

Possible improvements of the flow of funds accounts might include, on the domestic side, the breaking out of an export sector. This is not easy to do in an analytically useful way because exports originate income, assets, and liabilities in sectors outside the sector doing the actual exporting. The Rest-of-the-World sector might be broken down according to type of country—industrial or developing. In the capital account, some countries might find it interesting to segregate flows to and from the Eurodollar market and its analogues, to the limited extent possible. I should add that none of my correspondents asked for this kind of information, or indeed any other international information.

The degree of openness makes relevant other forms of monetary analysis besides fullfledged financial accounts. For countries with relatively undifferentiated domestic financial systems, the Monetary Survey type distinction between money of external and internal origin seems appropriate. Discussion of imported inflation has revived lately, although with reference primarily to industrial countries. For these, the process of importing inflation is sufficiently complex to make a simple Monetary Survey type of analysis less than adequate.

The monetary analysis of the Netherlands Bank, involving liquidity balances, seems well suited to an extremely open economy with nevertheless strong and active domestic sectors. The most important aspect of equilibrium, in this analysis, is that of the balance of payments. When the sum of the balances of all other sectors is zero, implying no net domestic imbalance, the balance of payments is also in equilibrium. This result may be consistent, of course, with very substantial domestic imbalances in particular sectors.

The degree of development is the second major criterion for the appropriate selection of financial accounts data. An early stage of development implies a financial system even less developed, in a sense, than the real sector. The financial interrelations ratio is lower, so that financial assets are a relatively small part of household wealth. The range of intermediaries is narrow, in the extreme case being limited to commercial banks. The spectrum of financial assets is restricted. Money and capital markets are lacking, and financial assets other than deposit type claims have very little liquidity. Much liquid wealth is held outside the country. If

inflation is habitual the growth of the financial system is stunted beyond what the stage of real development would imply. It should be noted, however, that inflation is by no means characteristic of all developing countries.

The consequences for financial accounting in developing countries have often been pointed out. In the absence of financial markets, liquidity differences among financial instruments become small and no great effort need be made to account for particular "markets." The distinction between the household and the business sector is less clear-cut, and the distinction between incorporated and unincorporated business is largely irrelevant. Countries with a non-monetary sector have a special problem, especially if this sector is gradually being "monetized." So do countries where crop and real estate financing is in large part conducted by private storekeepers or private money lenders. The Rest-of-the-World sector is highly important on capital account, reflecting foreign investment in the country and—often clandestine—capital exports. It is important usually also on current account, although there are some developing countries with a low trade/income ratio.

Problems of data gathering more or less match the structural characteristics. Data for intermediaries are easy to get, and intermediaries are important as the principal sources of financial assets. Household and business data are often of low quality. Published interest rates are not of great value, the principal behavioral influences coming from availability factors. The balance of payments, which is important, usually is well documented, especially if exchange control is being employed.

With this kind of domestic sector, the Monetary Survey approach of the IFS once more shows its value. Money creation is without doubt the principal financial event, because money is so large a part of total financial assets. The three sources of money creation distinguished—balance of payment, government borrowing, private sector borrowing, are precisely those that the monetary authorities would want to distinguish. They can typically control one of the three—private sector borrowing. Government borrowing and the balance of payments they have to accept as exogenous—without implying that the government itself may not decide to control its borrowing tightly. The sectoring matches the policy problems rather neatly.

2.4. Public Policy Decisions

The policymakers can derive much useful information from an integrated set of financial accounts. He can trace the financial implications of past and current events and to some extent estimate future repercussions, including the effects of his own policies. He can learn much about the structure and behavior of his economy. Whether or not the financial accounts are in fact the best means of deriving this information is another matter that will be touched on briefly at the end of this paper.

An all-purpose instrument like the flow of funds accounts is not likely to be optimal for highly specialized uses. Whether he wants to know the financial problems of a particular part of the economy, or the behavior of some group of intermediaries, or something about the balance of payments—the policymaker

always has at hand more detailed sources of information. The usefulness of general financial accounts thus must be sought mostly in the overall picture they present integrating financial and real developments. When and how often the policymaker needs such a picture is not obvious.

This applies even in the purely financial sphere, independent of the real. Much of what the policymaker may want to know about bank reserves, about the money supply, even about non-monetary financial flows, he can get better by resorting to some form of monetary analysis that falls short of a full dress flow of funds presentation. The flow of funds accounts are no substitute for the central bank bulletin.

At a minimum, however, the flow of funds accounts seem useful in all cases where the policymaker must be concerned with the overall limitation of resources and with channeling them into competing uses. This is the case, for instance, of economies close to the dangerline of inflation. It applies equally where one sector, say the government, is making unusual demands on financial markets. It particularly fits the case of an economy subject to tight planning.

In a well articulated financial system, there is a substitute for the kind of overview offered by financial accounts: a firm monetary policy. The typical effect of sectoral imbalances is always on the money supply. If the regular sources of supply in a market prove insufficient, it will tend to be the banking system that makes up the difference. If monetary policy blocks this escape from excess demand for savings, the market will have to ration out the available supply, by raising interest rates or in other ways. The authorities need not take cognizance of what happens in particular sectors, and need look at no flow of funds table, so long as they can be sure that the market distributes savings equitably and efficiently, and so long as they have no specific targets for flows of savings into particular activities.

Where the policymaker has in mind a plan for allocation of capital resources, he can neither ignore the implications of a tight monetary policy, nor try to solve his problem simply by plugging all gaps with newly created money. Planning indeed is easier if finance can be ignored. But the principle "what can be produced can be financed" applies at best in wartime, under truly effective price controls. The Keynesian principle that savings always equal investment—which the financial accounts endorse in an *ex post* sense, does not work *ex ante*. The need to match physical resources with financial is a strong argument for using integrated financial accounts as part of an overall plan. Obviously, this information cannot be enough for observing the financial evolution of a disaggregated plan. Particular industries, or industry groups, may have a financial experience different from that of the business sector in general. But the information supplied by financial accounts constitutes a minimum and at the same time a summary, to which more detail can be added.

Finally, it should perhaps be noted that the physical planner's failure to consider finance bears some resemblance to the financial accountant's failure to consider interest rates. The first is concerned only with quantities to the exclusion of financing. The second is also concerned only with quantities, to the exclusion of prices. Both ignore an essential dimension without which their work loses some of its usefulness.

2.5. *Financial Accounts and Financial Sector Models*

The elaboration and analysis of financial accounts is of relatively recent origin. In most countries much progress remains to be made. But while the development of present methods and data was going forward, another approach to partly the same data has come into vogue—the building of econometric models of the financial sector. These models, representing an expansion from the real to the financial sphere, are available so far for probably even fewer countries than are flow of funds accounts. But they have generated widespread intellectual interest, work on them is underway in many places, and the number of available models is clearly destined to increase rapidly. Their interrelation with financial accounts needs to be examined.

The relation could be one of complementarity, of competition, or of independence. Most likely it will turn out to contain elements of all three.

The two approaches are potentially complementary in several ways. Model builders, for instance, might draw upon financial accounts for their data. The informational output of the two approaches can be used jointly. The flow of funds might conceivably borrow from the techniques of model building and be turned into a kind of model itself.

As for use of financial accounts data in models, a cursory examination suggests that econometricians have on the whole preferred to go their own ways. Not having been involved in these activities, I can only speculate as to the reasons. Flow of funds data are far more disaggregated than financial sector models have been able to become so far. Their use in models would therefore have to be on a highly selective basis. Flow of funds data also, as already mentioned, tend to focus on capital markets, while an important emphasis in financial models has been on the money market. Finally I suspect—and this is no criticism of model building—that financial accounts data are not very easy to work with for econometricians. To establish significant relationships with a high explanatory content may involve a certain amount of experimentation. A flexible choice among different series covering approximately the same ground, with freedom to make adjustments, is probably helpful. An integrated system of accounts may not lend itself to these procedures.

The joint use of the informational output of both approaches seems more promising. Models serve principally for prediction. Their behavioral properties qualify them for that use. Financial accounts also can be diverted to that end. But obviously their predictive use is bound to be principally judgemental. Like the national income accounts, however, they do serve well for an interpretation and understanding of past and present events. At the same time, the view they furnish is comprehensive and highly disaggregated.

Finally, there is the possibility of turning a flow of funds system into something like a model. Theoretically, two methods are available. One is econometric estimation. Any cell in the flow of funds statement could be estimated as a function of other cells and outside variables. The effort, however, to establish any but the simplest and most aggregative relations on the basis of quantity data alone would certainly fail. In any event the results would not be interesting because important determinants such as interest rates, would be ignored.

To introduce interest rates, however, would require first the assigning of the right rates to each market. More important, it would raise all the problems with which econometricians have struggled in building models. In the present state of the arts and the data, significant estimation would be out of the question.

An alternative method that has been proposed is to turn the flow of funds into an input-output table. This would require, first of all, obtaining data to fill each cell, so that the table would show the amounts flowing from each sector to every other sector in each market. With respect to the securities markets, where often all that is known is the amount borrowed by a particular sector in a particular market, i.e. by means of a particular instrument, this is not an easy assignment. Secondly, however, the chances of obtaining stable cell coefficients are slight. In the physical input-output table, inter-industry relations can be expected to be reasonably stable to the extent that they are technologically determined. Even so, disregard of substitution in response to price changes is a serious flaw. In the flow of funds, some institutional constraints could be regarded as the analogue of technological factors. Savings and loan associations finance (virtually) only housing. Only life insurance companies (with minor exceptions) write life insurance. But by and large the channels of finance are flexible. Most borrowers can draw from more than one source, most lenders finance more than one borrower. In terms of the example cited earlier, the progress of the river of savings through its delta into the sea is subject to many shifts that do not greatly affect the volume nor often even the composition of investment. The input-output approach to the flow of funds does not seem promising.

The extent to which financial sector models and monetary or financial accounts analysis compete cannot be specified very reliably. Clearly they compete for the attention and the time of researchers interested in finance. Clearly they may compete for the attention of policy makers, although there is enough complementarity to make both types of information valuable. Probably the behavioral model must be judged a more sophisticated form of analysis than the one-dimensional financial accounts.

It could be, therefore, that financial accounts work will see itself displaced increasingly by work on financial models. But financial accounting is itself in so early a stage in most countries, and the prospect of estimating comprehensive models in many of these countries so remote, that ample opportunity should remain for the independent evolution of both.