# THE CASE FOR FLOW OF FUNDS AND NATIONAL BALANCE SHEET ACCOUNTS

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"My suggestion is that monetary theory needs to be based upon a similar analysis (to that of value theory), but this time not of an income account, but of a capital account, a balance-sheet ...."
J.R. Hicks, "A Suggestion for Simplifying the Theory of Money" ECONOMICA, 1935.

## I. DATA VERSUS THEORY.

It is now nearly 20 years since Morris Copeland published an embryonic set of 'moneyflow' accounts for the U.S.A. {4}. It is nearly 30 years since Wesley Mitchell produced an unpublished paper on the same topic {29} and since J.R. Hicks mooted the concept of the national balance-sheets in the first edition of The Social Framework {17}. In the intervening period while economic statisticians, official and unofficial, national and international, have devoted ever more resources to the production of statistics emanating from these pioneering studies, the theorists seem to have grown increasingly dubious of the analytical value of such statistics. Here, they frequently argue, is a prime example of the production of statistics for their own sake, a case of statistics in search of a theory. David Meiselman's comment on the U.S. flow of funds statistics is probably fairly representative of this point of view.

".... Yet despite this vast and continuing outpour of data from the Federal Reserve's flow of funds statistical salt-mill, to the reviewer's best knowledge not a single important substantive contribution to the fields of money, finance and investment behaviour has resulted from the availability of data or from the special accounting format used to assemble and classify the figures." {26}

Against this type of criticism one can set a minority opinion which argues that financial statistical work has not been barren in terms of its contribution to theoretical advancement. Jacob Cohen, in a recent survey article {3}, adopts this line of argument and points by way of example, to the possible influence of Copeland's views about the role of non-bank intermediaries on subsequent developments notably those due to Gurley and Shaw and Tobin. The stance taken in this present paper is that while such doctrine-historical defences are useful they do not preclude, and are no substitute for, a more generalised approach to defending the vast financial statistical efforts that are underway. It is with an attempt to provide such a defence that this paper is mostly concerned.

The starting point is an opinion held by many but expressed most clearly in a recent paper by Professor Harold Lydall {23}, that the evolution of the subject of economics is biased in a manner which probably involves the misallocation of the resources of the profession. The bias arises because economic analysis is constantly confronted by problems of choice; choice of which problems to study, choice of techniques and assumptions to use in their study, choice of which results to stress or play down, choice of which papers to publish and so on. Since it is impossible to resolve all of these choice problems in a random manner, a bias arises the direction of which is affected by many factors other than the desire to acquire objective knowledge about the workings of the economic system.

One major bias arises in that when choosing a problem for study one is more likely to choose one where the techniques for a solution exist rather than one w where this is not the case. This surely is the general point underlying some economists' concern about the increasing mathematical rigour of economic analysis.

Relating this general proposition to analysis in the area of monetary analysis, one is quickly made aware of an important specific example of this bias. The monetary analysis of J.M. Keynes quite clearly involved two concepts of uncertainty; the first being subject to probability calculations and representable by some probability distribution and the second being random in the sense that no scientific basis exists for forming any calculable probability about it. However, only the first of these has proved amenable to study and incorporation in the rigorous modes of analysis which have dominated post-Keynesian monetary analysis. The second which cannot be easily analysed in the context of rigorously defined economic models has been virtually ignored leaving our conventional wisdom with virtually no message about its implications for the conduct of monetary policy. It is the main contention of this paper that it is biases in the evolution of monetary analysis of this type (and of which this is the main example), which have permitted the critics of flow of funds and related data-gathering to convince so many of the rightness of their criticisms.

The rest of the paper is organised as follows. Section II, briefly discusses the sort of monetary theory models which seem to be exercised for the conduct of monetary policy. Particular attention is focused on the minimal of highly aggregative data needs of these models. Section III takes up the theme of biases, re-examines the Keynesian concept of effective demand and emphasises the importance of financial transactions to the determination of the level of

effective demand at any time. Section IV examines the consequences of incorporating Keynes' second concept of uncertainty into the analysis. Section V relates the conclusions of the previous two sections and attempts to show that the cumulative real output changes (input-output plus income multiplier effects) which are universally recognised as following some disturbance in the economy have a less well recognised analogue in financial markets. Further, it is argued that although the income and financial 'multiplier' effects are inter-related, it is possible that the latter can exercise an independent influence on real quantities. Finally, Section VI attempts to link the analysis to some recent discussions about the conduct of British monetary policy.

## II. THE NATURE OF THE THEORY

The practical relevance of a set of economic statistics must be judged by reference to its role in helping to determine 'appropriate' economic policy and, subsequently, in executing that policy. But the operation of these two functions is normally dependent on an underlying model (whether implicit or explicit), of the behaviour of an economy and the practical relevance of a set of data can therefore be judged according to its consistency with that model.

Two underlying models seem to have been relied upon by most governments to guide the operation of monetary policy in the post-war years. The first is that deriving from the new quantity theory which attaches near exclusive importance to the aggregate money supply as an instrument variable. The second is the so-called "Keynesian" (or "income-expenditure") model which regards the aggregate money supply as of relevance only because of its influence on interest rates. This model however, largely plays down the significance of monetary variables and emphasises fiscal variables as the effective instruments of policy.

With both of these models, the monetary and financial statistics required for the operation of policies based on them are minimal amounting to two or three alternative measures of the money supply, information on who holds this supply and some limited interest rate data. In those cases, notably the U.K., where some form of Radcliffean 'model' has been grafted on, this has invariably been done in only a partial fashion and the extra data implied has amounted to only a few additional aggregates. In the U.K., for example, the impact on real expenditures of bank and hire-purchase lending has been stressed (though not specified) implying the need for data on these two forms of lending.

In cases where formal econometric models have been employed, the most common practice is to ignore monetary and financial variables altogether. In the minority of cases where a financial sub-model has been incorporated, the main purpose of this sub-model has been seen as that of explaining the link between monetary policy instrument variables on the one hand, and certain interest rates which are regarded as relevant to the determination of real expenditures, on the other {13} and {14}. These models have invariably had a "Keynesian-Radcliffean" slant and have regarded the money supply as an endogenous quantity. {8: p. 450} In the U.S. context, the models have normally 'explained' some short term interest-rate (often, the Treasury-Bill rate) by reference to the supply of and demand for unborrowed bank reserves. The three or four longer term interest rates which have been deemed relevant to the explanation of real expenditures have then been 'explained' by reference to some simple term-structure of interest rates hypothesis. Thus once again the data requirements of the model are limited to a few simple aggregates and a few relevant interest rates.

Although there is a portfolio approach (the 'optimisation' of portfolios subject to a wealth constraint) underlying most modern monetary analysis, including the new quantity theory, the degree of disaggregation involved is invariably minimal. Disaggregation seems to be most common in relation to the analysis of the portfolios of the commercial banks presumably because of their central position in the determination of one of the few monetary aggregates deemed relevant by the models, namely the money supply. In the cases of other sectors the term portfolio 'structure' merely seems to imply a two way dissaggregation into money on the one hand and all other items on the other. Hypotheses about the portfolio behaviour of these sectors are needed only to yield statements about their demand to hold money. These hypotheses are invariably formulated in a manner which involves a high degree of aggregation not only of claims but also of sectors.*

It would seem to follow from all this that any plea for the preparation of detailed and disaggregated financial statistics as a matter of practical relevance, must propose a 'model' of monetary and financial processes alternative to, and in some way, superior to those which now occupy the stage. Fortunately, as much of the recent literature on 'the re-interpretation of Keynes' has emphasised, Keynesian economics, properly construed, does provide such a model.

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* But it is only fair to note that the comments of this type appear to be far less true of academic writings of the 1930's and 1940's. For example, Roland N. McKean writing in 1949 {24} refers to an extensive literature discussing the relationship between balance-sheet components and ratios and the level of spending. Notable contributors to this literature included Fisher {9}, Simons {32} and A.G. Hart {12}. Modern journalistic writings also seem far more aware of the importance of portfolio balance than do academics.

## III. FINANCIAL VARIABLES AND 'EFFECTIVE' DEMAND

The so-called 'classical' model of the operation of the macro-economy is normally described as consisting of three building blocks. The first is the labour market model driven by changes in the real wage. The second is the real goods market driven by changes in the interest rate and, in an open economy, the real exchange rate. Given flexibility of prices, these two sub-models together determine the level of real output, guarantee full employment and ensure that full-employment output is fully absorbed as demand. Finally, the traditional equation of exchange in conjunction with the assumption about the constancy (in the short run), of the income velocity of circulation, provides a purely monetary explanantion of price level determination. An essential of the model is the independence of the three building blocks, one aspect of which is the inability of monetary events to affect real quantities.

The Keynesian repudiation of this model, and the denial of the independence of its separate parts, has often been represented as being primarily dependent on the argument that the relevant prices, and especially the real wage rate, are not in fact flexible. By contrast, the recent literature on the "re-interpretation of Keynes" {19} {22}, has argued that the Keynesian critique of the classical view can be developed perfectly adequately without an attack on the classical assumption of 'price flexibility'. All that is required is:-

(i) a denial of the classical assumption ( part of the perfect competition assumption), that the transmission of information between buyers and sellers, in each market, is perfect.

(ii) a denial of the classical assumption that the elasiticity of price expectations is unity.

and (iii) a recognition of the obvious real world fact that, in a monetary economy, trade between two commodities has to be conducted via the intermediation of a third commodity namely money.*

Points (i) and (ii) together lead to a denial of the conclusion of

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* This point is emphasised most strongly by Clower's recent demonstration {2}, that the general equilibrium eocnomics deriving from classical value theory, is essentially the economics of a barter economy since it permits direct trade between any two commodities in the system. This criticism applies equally to general equilibrium economics as extended by Patinkin {30}, to incorporate real money balances, as an argument in the utility function.

classical value theory that any disturbance within an economic system (for example, a change of tastes) will be quickly corrected by an appropriate price adjustment. This view requires that the transactors in the relevant markets will react to a price change as though they believed it to be permanent. If, because of inadequate information leading to an elasticity of price expectations of less than unity, transactors do not make appropriate reponses to price changes then the excess supplies/demands caused by the initial disturbance may not be quickly eliminated even though prices are fully flexible. Furthermore, because of lack of information about the demand/supply situation in the markets in which they operate, producers and suppliers of factor services may fail to make the price adjustments which value-theoretical considerations would deem the initial disturbance to require.*

Thus there is no reason, given points (i) and (ii) why an unrestrained and price flexible market economy should automatically tend to establish equilibrium prices and quantities in each of its many markets; disequilibrium prices may prevail at least on a temporary basis. In this sense, the price mechanism is flawed and although complete price rigidity is an extreme example of the failure of the mechanism, there is no need to rely on complete rigidity to defend the Keynesian denial of the automaticity of full employment. Nor is there any justification for singling out the labour market as especially relevant to the failure to achieve permanent full employment. Every market in the system is potentially subject to the same defect and one cannot seek solutions to unemployment in one market rather than any other.

Furthermore, as soon as we recognise that disequilibrium prices may get temporarily established on one market, then point (iii) requires us to recognise that this disequilibrium may get communicated to other markets. If temporary unemployment (excess supply) in one market is to be confined to that market, then it is necessary that all transactors in the economy, including those who are temporarily unemployed, should, in Clower's terminology express "effective" demands equal to their "potential" demands (that is, those that they would express

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* Incidentally, this is a more genuinely Keynesian explanation of the Keynesian omission of any discussion of short-run variability of the price-level, than that used by Friedman {11: p. 209}, who rationalises it in terms of money illusion and the activities of trade-unions. It also partially meets Friedman's point that Keynes' rigid price assumption is a deus ex machina with no underpinning in economic theory {11 p. 222}.

if a full equilibrium prevailed). If they fail to do this, then while the information is being gathered which might lead to the appropriate price adjustment in one market, other markets are being thrown out of equilibrium by deficiencies of demand. Unfortunately, in a money economy, the expression of demand presupposes the willingness and the ability to pay in money and this in turn depends on three factors namely:-

(a) the level of money income

(b) the ability and willingness to sell assets to raise money

(c) the ability and willingness to borrow to raise money.

The Keynesian point that unemployment in one market will indeed communicate itself to other markets is nearly always argued solely in terms of factor (a). It is obviously easy to argue that an unemployed worker has a reduced money income and is therefore unable to express effective demands equal to his potential demands. However, to confine the argument in this way and to stress the familiar income multiplier to the exclusion of other cumulative mechanisms, is to argue as though the restraint which defines the limit of possible spending can be defined solely in relation to money income. This is a blatant oversimplification especially in economies with highly developed financial structures. We will argue later that a broader view of this restraint on spending can provide us with a more meaningful monetary theory.

## IV. THE INSTABILITY OF LONG-FUN EXPECTATIONS

One of the most clearcut of Keynes' criticisms of classical theory related to its failure to provide any analysis of the influence of uncertainty about the future and to recognise the potential instability of expectations.

".... being based on so flimsy a foundation, it (a practical theory of the future), is subject to sudden and violent changes. ....The forces of disillusion may suddenly impose a new conventional basis of valuation. All these pretty, polite techniques, made for a well-panelled Board Room and a nicely regulated market, are liable to collapse. At all times the vague panic fears and equally vague and unreasoned hopes are not really lulled, and lie but a little way below the surface.

.... I accuse the classical economic theory of being itself one of these pretty polite techniques which tries to deal with the present by abstracting from the fact that we know very little about the future." {21: p. 214}.

This criticism reflects the essential contrast between the monetary analysis of Keynes and that of his immediate predecessors namely that is concerned with the short run (in which expectational factors are critically important) and not the long run. It also reflects the importance which Keynes attached to incorporating in his analysis, the instabilities which are inherent in a capitalist system because of the essentially speculative nature of much of capitalist decision making.

Unfortunately, the acceptance of the criticism and its incorporation into the 'models' which guide our economic policy has been only partial. Most economists are ready to concede some role for the, regrettably nebulous, factor of business expectations as a determinant of real investment in the short run. There is no similar readiness, at least in academic circles, to recognise the impact of uncertainty on financial portfolios including liquidity preference. Yet Keynes himself clearly attached great importance to this second implication of instability of expectations. He argued as follows...

"Why should anyone outside a lunatic asylum wish to use money as a store of wealth? ... Because, partly on reasonable and partly on instinctive grounds, our desire to hold Money as a store of wealth is a barometer of the degree of our distrust of our own calculations and conventions concerning the future." {21:{p. 216}

This combined with the earlier statement about the 'sudden and violent' changes in expectations would clearly imply a belief in the instability of the position of the liquidity preference function in the face of changes in expectations.* This is quite distinct from the familiar point that changes in expectations about the interest rate cause movements along the liquidity preference schedule. However, contemporary analysis often argues as though

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* It is noteworthy that Professor Friedman also recognises this as a theoretical possibility because one of the arguments in his demand for money function namely 'u' ("a portmanteau symbol standing for whatever variables other than income may affect the utility attached to the services of money"), quite clearly incorporates "expectations about economic stability". {10} and {11}. Presumably the fact that they are mentioned implies that these expectations are not regarded as inevitably constant.

expectations about the interest rate and the general state of expectations can, in some way, be lumped in together and analysed jointly as a determinant of the speculative demand to hold money.* This approach is clearly inappropriate because insofar as the demand to hold money does change with the general state of expectations, then this change must be attributed to the precautionary motive implying a shift of the function and not a movement along it. It is a shift associated with Keynes' second and non-probabilistic concept of uncertainty.

However, we have so far dodged the problem of defining the scope of liquidity and liquidity preference and this is an issue about which we must be clear before we proceed. In particular, it must be stressed that the subsequent discussion accepts the point for which Hicks {18} has provided the theoretical underpinnings, that the bonds/money distinction of the General Theory can reasonably be argued to be a shorthand for a distinction between assets having variable capital values (uncertain yield), on the one hand, and assets having constant capital values (certain yield) on the other. It also follows Hicks {18: p. 36} in recognising that liquidity is a relative concept and in distinguishing "fully liquid assets" from assets which are "more or less liquid. "Fully liquid assets" (or 'money' in shorthand), will always be capital certain assuming stability of the general price level, while "more or less liquid assets" (or 'bonds' in shorthand), will have varying degrees of capital uncertainty attaching to them.

Bearing these definitional points in mind, let us examine the consequences of (for example), an improvement in expectations which shifts the investment function and let us consider two cases; (a) where liquidity preference (in its relative sense) does not shift and (b) where it does shift as a result of the shift of expectations.

(a) The shift in the investment function raises the interest rate and given less than unitary expectations about that rate (that is, point (ii) from p.5), causes an adjustment of portfolios in favour of assets having variable capital values so as to take advantage of the implied expectation of capital gain. This in turn implies a leftward movement along the liquidity preference schedule

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* This tendency is visible in Friedman's phrase ... "In a given state of expectations', that is, for a given value of i* ...." (i* being the rate of interest expected to prevail) {11: p. 213}.

(with 'money' remember defined as 'assets having constant capital values'. However, with the supply of 'money' unchanged, there will now be disequilibrium in two markets; investment exceeds saving and the supply of money exceeds the demand. The crucial point is that the restoration of equilibrium in both of these markets simultaneously cannot be achieved by a classical interest rate change alone; a rise in real output raising both the transactions demand for money and the level of real saving is necessary for the restoration of a full equilibrium. In short, the inelasticity of interest rate expectations renders the interest rate change quite inadequate to counter the effect of a disturbance even though we may allow certain components of demand to be interest sensitive.

(b) However, the size of the output adjustment which is needed instead is a matter of some importance and it is clear that this will be larger if the improvement of expectations which shifts the investment function upwards also shifts the liquidity preference schedule downwards. This is something which Keynes clearly recognised as a possibility {21: p. 218}. It is also highly plausible to argue that a business which invests more because expectations have improved, will partly finance that extra investment by holding smaller reserves of liquid assets, using more risky borrowing patterns and so on. Furthermore, since the suppliers of finance live in the same expectational climate as the users, it is plausible to argue that they will permit this development to take place by themselves holding smaller reserves and lending more adventurously.

We know that a shift in the liquidity preference schedule is equivalent in its effect to a change in the money supply. In IS-LM terms both imply a shift of the LM curve. This means that it is potentially possible for the increased output associated with higher investment (that is, a rightward shift in the IS curve) to be achieved with an unchanged, or even lower, interest rate because of the rightward shift of the LM curve.*

Furthermore, (and this was the point which led to the Radcliffe Committee's view {36} that there is no limit to the velocity of circulation), attempts to

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* It is interesting that post-Keynesian writers from Hicks {16: p. 154} to Friedman {11: p. 215} have insisted on rationalising Keynes' statements to the effect that a change in the marginal efficiency of investment and/or the money supply might not change the interest rate, by invoking the 'liquidity trap'. This is in spite of the fact that Keynes explicitly repudiated the relevance of such a concept {20: p. 207}. It also ignores the obvious point that a shift in the investment function may often imply a complementary shift of liquidity preference.

control the economy by monetary measures may fail because of opposing shifts of liquidity preference. Although much research has been devoted to the question of how, and to what extent, portfolios have been adjusted to offset the effects of monetary contractions, this research has proceeded on the assumption of unchanged expectations. Thus we have virtually no basis of empirical evidence for deciding whether portfolios are indeed unstable in the fact of unstable expectations. In the absence of this evidence, the Keynesian-Radcliffe view must certainly be accepted as a possibility. Nor is an observed historical stability of velocity necessarily inconsistent with this view. If monetary policy is normally operated passively to supply the needs for extra finance as and when these needs arise, then rightward shifts of the IS curve will be accompanied by rightward shifts of the LM curve caused by changes in the money supply and there will be no need for increases in velocity. This is not to say that such increases would not have occurred if the money supply had failed to increase, And this is an important point because of the danger of accepting historical evidence of stable velocity as an indication that a similar stability would prevail even though monetary policy became much more active.

The argument of this section provides a case for the preparation of relatively detailed financial data, especially balance-sheet data, if only to assess the extent to which, and the points at which, instabilities of portfolios occur. This matter is of some importance because the extent of these instabilities bears directly on the size of the real output adjustment which will be necessary to correct an initial disturbance. In the next section, we strengthen the argument by examining the wider consequences of these instabilities.

## V. THE CONSEQUENCES OF PORTFOLIO INSTABILITIES

The need to explore the wider consequences of portfolio instability was not recognised by the Radcliffe Committee which confined itself to the immediate consequences of portfolio shifts from the viewpoint of the conduct of the control function of monetary policy. However, it has been briefly mentioned by Cramp {5} and discussed in some detail by Minsky {27}, {28}, on whose writings the next paragraphs heavily rely. We will continue to examine the case of an improvement in expectations and begin by examining two general consequences of the possible portfolio changes associated with this.

The first is that the balance-sheet positions of both borrowers and lenders will deteriorate by the standards of previous periods. This deterioration may incorporate an infringement of previous rules as regards borrowing ratios and involve, for example, a higher ratio of short-term debt relative to long term debt, and a higher ratio of equity borrowing to fixed interest debt. It may also involve more expensive borrowing. In addition it will involve riskier asset portfolios with a smaller proportion of assets being held in liquid form and a larger proportion tied up in assets for which there is virtually no resale market (including, of course, the real assets held as a result of higher real investment). In this context we should note that there is nothing absolute about the liquidity or marketability of an asset. An asset which can be sold with absolute ease when few people are trying to sell might prove quite impossible to sell, even with a large price reduction, during a period of panic when all holders are trying to sell simultaneously.* This is an extremely important aspect of the interdependence of different units in a financial system but one which rarely gets incorporated into theoretical discussions.

The second consequence is a change in the cash flow positions of both borrowers and lenders. The smaller reserves of readily marketable assets will reduce the degree of cushioning between cash receipts and cash payments. Thus the ability of one unit to pay its bills will come to depend much more directly on the punctual payment of the amounts owed to it by other units. In other words, the degree of articulation of cash receipts and payments in an economy will become much closer. Furthermore, this tendency will be aggravated by the enlarged cash needs associated with more expensive borrowing and by the enlarged weight of short-term borrowing implying the need for a more frequent redemption of loans.

These two consequences of portfolio shifts lead on to two further consequences. First, the higher degree of articulation of cash payments and receipts, means that the size of an unexpected cash need which might cause serious cash flow difficulties to a business will decline. Businesses, in other words, become much more vulnerable to the unexpected. Secondly, and by

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* A topical illustration concerns the dramatic increase in the liquidity of housing which has resulted from the excess demand for housing and the easy availability of mortgage funds in the past twelve months. A.G. Hart [12] has referred to the 'mythology of maturities': the point being that in periods of prosperity debts have no effective maturity because re-finance is available almost automatically, while in bad times the maturity of obligations is a factor of great significance.

the same sort of reasoning, the frequency with which businesses will need to resort to, what were formerly regarded as second and third line tactics to finance cash payments will increase. In particular, they may need to resort to the sale of assets which they formerly reckoned to hold permanently, or at least until maturity, and resort more frequently to new issues of liabilities. The ability of businesses to deal successfully with unexpected cash needs will therefore become much more dependent on the smooth operation of (and especially the absence of panic selling in) the markets in which they sell assets or issue liabilities. These financial considerations will obviously impinge on the real performancy of the economy in any cases where businesses have to sell operating assets, or curtail the scale of operations, in order to balance cash receipts and payments.

The question of whether these theoretically logical possibilities have any practical significance largely hinges on whether the change in expectations which underlies them turns out, in the event, to have been justified. One aspect of the under-emphasis of the financial side of Keynesian economics, referred to in the previous two sections, is that economists in the Keynesian tradition seem quite willing to recognise that businesses make mistakes in relation to output decisions; mistakes which are subsequently rectified by changes in output in the reverse direction. They are however generally unwilling to recognise the related possibility of mistakes in relation to investment and financing which will also need to be subsequently rectified. Furthermore, while it is well recognised that the attempts of one business to rectify output-mistakes will have consequences for the output of other businesses (for example, through an input-output and income multiplier process), it is not normally recognised that the correction of financing mistakes by one business will similarly involve other businesses as well (though a financial, and especially a cash-flow, interdependence). In other words, multiplier effects in financial markets which are the clear analogue of the familiar income multiplier are generally ignored. In the same way that the income multiplier process depends on the presence of income as one component of the restraint that limits possible spending so the financial multiplier process depends on the presence of the sale of assets and the issue of liabilities as components of that restraint.

In trying to define what we mean by financing mistakes, we can note that investment decisions normally depend on some sort of forecast of the future cash flow position of a business. Further, it can be argued that a proposed investment will only proceed if the business regards this future anticipated

position as acceptable in the sense that receipts and payments can be balanced and in a way which does not infringe the financing rules which apply to the business at that particular time.* If, in the event, the cash flow position which emerges is significantly 'worse' than that which, from an ex ante viewpoint would have been regarded as acceptable, then one can say, with the benefit of hindsight, that the investment was mistaken.

However, a major element in the cash receipts of any business is its sales of output. Further, since the higher investment associated with improved expectations obviously implies the expectation of enlarged future sales revenues, the realisation of the total forecast cash receipts will depend on the change in expectations proving to be justified. If the change proves excessively optimistic then actual cash receipts will fall below expected cash receipts and since there is no particular reason why cash payments should automatically fall as well, the business will need to take some defensive action in order to prevent insolvency. Basically, there are three actions open to it. The first is to reduce costs and therefore cash payments; in particular, by laying off labour. The second is to sell financial assets including short term debtor items and the third is to increase borrowing.

The first is the familiar Keynesian quantity response (contrasting with the classical price response), which, through its impact on the income component of the spending restraint, sets off a cumulative process of output contraction. The second will increase the strain on the cash flow positions of the debtor units which are being asked to redeem the liabilities being offered for sale. If these positions were already stretched then these units will need to take defensive action as well especially if they are affected by the general reduction in the level of demand for real output. The availability of extra borrowing as a third possible escape route will depend on the attitudes of the lending institutions and the proximity, or totherwise, of the would-be borrowers to their conventional borrowing limits. However, the attitude of the lenders is unlikely to be helped by the fact that, they themselves are being forced to redeem their own debts. An easy monetary policy can obviously ease the situation by increasing the total of potential new borrowing. A tight

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* These rules may be self-imposed, imposed by the conventions of the industry in which the business operates or imposed by a major creditor. See Donaldson {6} and {7}.

monetary policy will increase the possibility that some units will be quite unable to balance cash receipts and payments and so will fall into insolvency.

It should be clear from all this that portfolio shifts based on what, in the event, proves to be an overoptimistic view of the future, can give rise to financial difficulties in one part of an economy which can easily communicate themselves to other parts. In doing so they can obviously supplement the cumulative contraction working through output adjustments. The financial multiplier process, if we can call it that, will be characterised by a change in the nature of some formerly liquid assets which will no longer be regarded as liquid because of a large excess of potential sellers over potential buyers. Further, it will be characterised by a change in relative yields with the yield on assets having constant capital values, such as money, rising, and the yield on assets having variable capital values, including tangible assets, falling. These possibilities are naturally all the stronger if some element of euphoria tends to induce a large number of economic units to simultaneously make wrong guesses about their future levels of sales. In these circumstances,* the realisation of error will cause large numbers of units to simultaneously attempt to sell assets thereby undermining the market for these assets. Similarly, though one unit in distress might be able to increase its borrowing successfully, it is less likely that a large number of units will be able to do so simultaneously.

Relating this to our discussion of Section III about whether 'effective' demands could be expected to be equal to 'potential' demands in periods of disequilibrium, we can now see that this is highly unlikely. Not only will the unemployed worker (for example) have a reduced money income but insofar as he is trying to maintain his expenditure by borrowing or selling assets, he will have to contend with a large excess demand for loanable funds and with a shrinking market, and a reduced degree of liquidity, for the assets which he has to sell.

Our contention is not simply that we need to recognise the possible financial multiplier consequences of business mistakes because they supplement and possibly, intensify the income multiplier effects. They are of additional importance because it is through the balancing or non-balancing of cash receipts and payments that businesses survive or fail to survive. Output mistakes taken

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* Circumstances which incidentally accord well with Keynes' statement about one of the three ways in which practical men formulate a view about the future... "Knowing that our own individual judgement is worthless, we endeavour to fall back on the judgement of the rest of the world which is perhaps better informed. That is, we endeavour to conform with the behaviour of the majority or the average." {21: p. 214}.

by themselves have no implications for the continued existence of the businesses which perpetrate them; the impact of the excessive output of one period can be corrected by reducing output in the next. Thus, if we confine ourselves to the income multiplier process, in a sense we are attempting to analyse disequilibrium processes in a distinctly neo-classical manner; the mistakes of one period being corrected by smooth, marginal adjustments of output in the next. By contrast, if we explicitly introduce the financial processes which we have been discussing, the adjustment process far from being smooth, may well involve the complete demise of some of the transacting units of the economy.* If the portfolio adjustments of a period of euphoria have been very drastic then the subsequent return to reality may involve a very large number of such losses.**

If the above argument about the possible implications of portfolio instability is accepted then the need for disaggregated financial statistics is quite clear. We need such statistics as a basis for improving our understanding of how, when and to what extent, portfolio instabilities occur. We need such statistics as a basis for examining how the financial actions of one unit, or set of units, bears on the financial positions of other units. (This is further discussed in a crude sort of way in the Appendix.) Above all, from a policy point of view, we need such statistics as a basis for improving our knowledge of how different monetary policies bear on the financial positions of different economic units. This is not to say that the simpler and more aggregative models of the effects of monetary policy (which largely abstract from the possibility of instability) will not provide correct advice in many, if not most, situations. The essence of an unstable situation is not that it demonstrates its instability in each and every time period. What we are arguing is that we should be equipped with a theory relevant to the examination of instabilities so that we can give sensible advice in the minority of situations when these instabilities do manifest themselves.

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* That the possibility of the demise of institutions is implied in Keynes' view of the ending of booms is suggested by his reference to the upper turning point of the trade-cycle as occurring 'suddenly and violently', as involving a 'crisis' and as happening with 'catastrophic force'. {20: pp. 314-316}.

** The re-appraisal of portfolios and the impossibility of all institutions simultaneously achieving the desired changes is also a characteristic of Marx's view of cycles "... now the cry is everywhere: money alone is a commodity! ... The chain of payments due at certain times is broken in a hundred places, and the disaster is intensified by the collapse of the credit system {25: Books I and III}.

## VI. THE "SUPPORT" VERSUS "CONTROL" FUNCTIONS OF MONETARY POLICY AND THE "LAME-DUCK" POLICY OF 1970-71.

It is now recognised that, for much of the post-war period, a major aim of British monetary policy has been to provide 'reasonable order' in the market for gilt-edged securities. This policy has been much criticised because of the obvious point that if the authorities work to provide some degree of support for gilt-edged prices, they forego their power to control the money supply. Thus the money supply emerges as a residual of policy rather than as a major instrument variable.

The official case for the support-policy in gilt-edged markets is that reasonable price stability in these markets is necessary for the maximisation of the long-run demand for gilts {35}. In short if the government is to be able to balance its future cash receipts and payments in an 'acceptable' manner (which, in this case, means without resort to "excessive" taxation or to inflationary finance), then reasonable stability for gilt-edged prices in the present is necessary. The view that the support function of the monetary authorities should have primacy over their control function has come under heavy attack from academic critics and for the moment has been placed on the side-lines*.

However, there are two important characteristics of this critical view which are rarely made explicit but which restrict its practical relevance. The first is that it is based on a simple aggregative model of financial processes (normally, the new-quantity theory model) and assumes an underlying stability of financial relationships. The second characteristic is that it emphasises the authorities' role in helping the government to successfully balance its cash receipts and payments but says virtually nothing about their more general role in assisting other institutions to achieve a similar balance.

As regards the first it would probably be accepted that the 'support' versus 'control' controversy is mainly a controversy about whether or not financial relationships and financial portfolios are stable. If the world we liv in is essentially stable and characterised by a high degree of certainty about the future, then there is no need for the support function. In particular,

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* With the publication of the Bank of England's green paper, Competition and Credit Control, May, 1971.

the case for the support role in its narrower sense is fundamentally dependent on the view that the demand functions for gilts are unstable; that a rise in yield will not always result in a rise in demand but may occasionally cause the perverse result of a fall in demand. If this view is incorrect then the critics are right and there is no case for the support function.

As regards the second point, it is valid to quote a recent statement about the appropriate role of a central bank.

"...a central bank must, and will, always act to protect the framework of its institutions and markets when they are being threatened." {31}

Hicks makes the same point emphasising the link between the evolution of Central Banks and the increasing instability of increasingly complex monetary systems {18}. It is certainly the case that the view that the 'lender of last resort' function of a central bank exists only for the benefit of the government and the banking system is much too narrow. It is however a view which appears to be implied in much contemporary discussion of monetary questions.

It should be clear from what has gone before that we are in no position to pronounce judgement on the stability versus instability argument. All that we are arguing for the moment is the need to recognise the possibility of instability and the serious implications of that possibility. However, the argument does carry some topical relevance because it is clear that the "lameduck" policy which was recently pursued in the U.K. relied on a belief in the stability of financial relationships and consequently denied both the argument put forward in the previous section and the need for a support policy in the wider sense. The view of the government would appear to have been that the insolvency of institutions invariably demonstrates their lack of long-term viability and is one of the methods whereby a capitalistic economy must be allowed to adjust to new patterns of demand, new techniques and other changes of circumstances. Consequently the artificial prevention of insolvency through a government support operation would be contrary to the dictates of economic efficiency.

The argument of the previous section of this paper leads to quite a different conclusion namely that institutions can also come under threat of insolvency not through any fault of their own, nor because of any lack of long-term viability. Rather, insolvency can arise because of the investment mistakes

which capitalist economies undoubtedly make and which, because of the high degree of financial interdependence on these economies, can involve innocent bystandars as deeply as those who perpetrated the original error. These bystanders can suffer because they sell to, buy from, hold the same type of assets as, or borrow from the same institutions as those who fall into insolvency deservedly. If we attach any practical relevance whatever to this possibility then it is clear that the simple mechanical view that the control of the money supply must always have primacy over the support function of the authorities, can lead to serious errors of policy. In the period following a 'mistake' when large numbers of institutions and individuals are trying to sell assets and borrow so as to restore balance-sheet and cash-flow positions more acceptable in the light of the new situation, a liberal monetary policy may be the only way of preventing widespread collapse. Such a policy may therefore have to be accepted even though it conflicts with the 'control' needs of the moment as indicated by some aggregative policy model be it the 'income-expenditure' model or the new quantity theory. This is quite apart from the widely recognised possibility that the insolvency of some basically viable organisations may occur because of the temporary failure of the government to maintain an adequate level of real demand in the economy.

The argument of the previous section developed the discussion of the financial multiplier process by using the example of an improvement of expectations which was subsequently followed by the realisation that the improvement was unjustified. However, the state of expectations is only one aspect of the environment in which businesses operate and it is clear that changes in other aspects of that environment might have similar consequences. In particular, one aspect of that environment which is critically relevant to this present discussion is the mode of operation of monetary policy. If this is subject to sudden change then it is arguable that the financial reactions of businesses, and the financial consequences of those reactions will be similar to those discussed in the previous section.

More specifically, if businesses have operated for several years in an environment in which the money supply is altered, more or less automatically, to meet the needs of trade then it is likely that their attitude to their asset and debt ratios will be quite different from those which would have applied if the past had been characterised by active and rigorous use of monetary policy. In particular, businesses are likely to operate with low levels of cushioning

between cash receipts and payments (i.e. low liquidity), be willing (especially if interest rates are high and expected to rise still further), to rely heavily on short-term borrowing and generally to live a little dangerously. In the Britain of the period up to 1969, this attitude was perfectly defensible because the authorities were providing several varieties of support to their institutions. In particular, they were:-

1) imposing no real restrictions on the growth of the money supply
2) supporting the market in gilt-edged securities and thereby guaranteeing the liquidity of an asset which many institutions held as a major reserve asset
3) providing direct financial assistance on a large scale notably through the Industrial Reorganisation Corporation.

The hardening of the government's attitude to all three of these methods of support* in the period 1969-71 must surely have led to a widespread re-appraisal of cash flow positions. Further, it is reasonable to suppose that attempts to establish positions more appropriate to the change of circumstances had cumulative consequences similar to those discussed earlier and that they thereby contributed to the widespread cash-flow crises of 1970-71. This possibility is also quite consistent with the sluggishness of real investment and the high levels of unemployment. Although these phenomena are partly attributable to those businesses which have actually gone broke, there are clearly many other businesses which have survived cash flow crises but which have been unable to do so by actions in the financial sphere alone. In addition, they have had to cut costs and curtail the scale of operations notably by laying off labour and they have had to postpone investment plans which, in the absence of the change in policy, would have certainly gone ahead. Naturally, the cash-flow difficulties of the period have been exacerbated by the rapid inflation especially in Rolls-Royce and nationalised industry-type cases where cash payments have risen in line with the general inflation but where cash receipts have been unable to rise because of some special factors making for inflexibility of prices. However, the inflation (which probably has origins quite independent of the origins of the high unemployment) is only a part of the story.

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* Beginning, incidentally, before the election of the present Conservative government, with the commitment to the I.M.F. to restrict domestic credit expansion to @400 million in the financial year 1969-70. In 1969, domestic credit expansion was negative (£-181 million) for the first time since 1955. In the previous year, D.C.E. was +£1908 million and the lowest it had been in any of the preceding 5 years was +£790 million.

It is becoming popular to rationalise the recent high unemployment by arguing that the demand curve for labour has made a once for all shift to the left prompted by the rapid rise in money wages. How this is to be explained is not clear. On the face of it, it implies either money illusion on the part of producers, an inability (largely unexplained), of producers to raise prices to compensate for the higher wages, or, an attempt to avoid some of the disruptions associated with using labour instead of alternative and less militant forms of input. An alternative explanation is that the unemployment is attributable to a fundamental re-appraisal of portfolios following a dramatic change in the environment in which financial decisions have to be made. The inflation is merely one factor strengthening the need for this re-appraisal.

It has become fashionable in the past few months for politicians to say that the co-existence of high unemployment and rapidly rising prices is evidence that "the laws of economics" have been temporarily suspended. It is to be hoped that the economists, by contrast, would give some credence to the possibility that the laws on which they had formerly relied were in some sense, wrong. Possibly they were wrong because they involved far too simple and aggregative a view of monetary and financial processes!

APPENDIX. THE FINANCIAL INTERDEPENDENCE OF AN ECONOMY.

The concept of the interdependence of economic units arising from the fact that they sell output to, and buy output from each other, is familiar enough. Numerical estimates of the extent and nature of this interdependence are also fairly common; it is easy enough, in most economies, to estimate the approximate size of the income multiplier and to compute the Leontieff inverse of an input-output table to demonstrate the input-output interdependence of an economy. By contrast, the concept of financial interdependence is quite unfamiliar and measures of the extent of this interdependence are virtually unknown. This, of course, is not surprising in the light of the theoretical disregard of this aspect of interdependence discussed in the paper.

The only purpose of this Appendix is to set down some crude measures of the financial interdependence of the British economy using data from {1} and a simple national-balance sheet model suggested by Stone {33}. Although our view is that financial interdependence operates through cash-flows, the measures presented here relate to balance-sheet interdependence.

The first variant of the Stone model shows that if one assumes

(i) that each investing sector finances new investment by issuing liabilities such that the mix of its liabilities outstanding remains unchanged

(ii) that any given sector always holds the same share of the total outstanding of any given financial claim, then, given the value of each sector's real assets, one can solve a national balance-sheet system for

  (a) the vector showing the balance-sheet total of each sector

  (b) the vector showing the amounts outstanding of each type of financial claim.

The equations giving the solutions for (a) and (b) are:-

$$w_j = (I_{jj} - A^*_{jk} . L^*_{kj})^{-1} e_j \qquad (1)$$

and

$$l_k = (I_{kk} - L^*_{kj} . A^*_{jk})^{-1} L^*_{jk} e_j \qquad (2)$$

where $e_j$ denotes a vector with as many elements as there are sectors, whose jth element represents the total holding of tangible assets by sector j.

$w_j$ denotes a vector with as many elements as there are sectors, whose jth element represents the total holding of all assets (both financial and tangible) by sector j.

$l_k$ denotes a vector with as many elements as there are financial claims, whose kth element represents the total holding as a liability of the kth claim by all sectors.

The component matrices of expressions (1) and (2) are defined as follows:

$$A^*_{jk} = A_{jk}\,\hat{a}_k^{-1} \qquad (3)$$

and

$$L^*_{kj} = L_{kj}\,\hat{x}_j^{-1} \qquad (4)$$

where $A_{jk}$ denotes a matrix with as many rows as there are sectors and as many columns as there are financial claims. The element in row j and column k of this matrix represents the jth sector's holding of the kth claim as an asset.

$L_{kj}$ denotes a matrix with as many rows as there are claims and as many columns as there are sectors. The element in row k and column j of this matrix represents the holding as a liability of the kth claim by the jth sector.

$a_k$ denotes a vector with as many elements as there are financial claims, whose kth element represents the total holding as an asset of the kth claim by all sectors.;

Also $a_k \equiv l_k$

$x_j$ denotes a vector with as many elements as there are sectors, whose jth element represents the total of the liabilities and net worth of sector j.

Also $x_j \equiv w_j$

Assumptions (i) and (ii) above are equivalent to saying that the coefficients of $A^*_{jk}$ and $L^*_{kj}$ are constant. On the basis of these assumptions, the matrix multipliers of equation (1) and (2) have been calculated using British data for 1962. They are shown in Tables 1 and 2 respectively.

The entries in table 1 can most easily be explained in terms of an increase of £1,000 in the tangible asset holdings of one of the sectors. Let us take as an example the column for the personal sector. The first, or diagonal, entry in the column shows that, on the assumptions of the model, £1,000 of real investment by this sector would lead to an increase of £1,116 in the sector's total asset holdings. Of this sum, £1,000 represent the real investment; and the remaining £116 represent financial assets acquired indirectly by the sector as a consequence of the way in which the real investment is financed. In general,

Table 1

THE MATRIX MULTIPLIER $(I_{jj} - A^{*}_{jk} L^{*}_{kj})^{-1}$ FOR 1962

(All elements multiplied by 1,000)

| Investing sector / Financing sector | Persons | Financial institutions | Non-financial companies | Government |
|---|---|---|---|---|
| Persons | 1116 | 1000 | 761 | 1217 |
| Financial institutions | 104 | 1324 | 409 | 649 |
| Non-financial companies | 39 | 202 | 1244 | 322 |
| Government | 32 | 104 | 243 | 1282 |

persons do not finance the whole of their real investment out of personal saving but, in one way or another, borrow, for instance from building societies and hire-purchase companies. This leads to an increase in the assets of the lenders which must be matched by an equal increase in their liabilities, and somebody must hold these liabilities as assets. This process would continue indefinitely were it not for the fact that, at each round, the sectors finance part of the increase in their holdings of assets from their saving rather than by issuing further liabilities. As a consequence, the rise in claims brought about by an increase in real investment is not infinite, any more than, in terms of Keynesian income analysis, the rise in income from an additional £1,000 spent on consumption is infinite: at every round there is a leakage because part of the additional income is not spent but saved.

When the concept of the multiplier is generalised to cover a system of many sectors, it is to be expected that all the sectors will be affected by an

impluse set in motion by one of them. That this is so in the present case can be seen by looking at the remaining four entries in the first column of table 1: the increase in assets consequent upon £1,000's worth of real investment by the personal sector is £104 for financial institutions, £39 for non-financial companies and £32 for the government. Taking all sectors together, the original £1,000 lead to asset holdings of £1,310, of which £1,000 represent real investment and £310 represent an increase in claims; of this sum, £116' worth is held by the personal sector itself and £194's worth is held by the other four sectors.

A comparison of the first column of table 1 with the other columns of the table shows that the multiplier effect of the personal sector's real investment is relatively small. The repercussions of £1,000 of real investment by the government, for instance, are altogether greater: the government itself ends with an additional £282's worth of financial assets and the increase in the financial assets held by all other sectors adds up to no less than £2,481.

Let us now turn to the connection between the vector of claims outstanding $l_k$, and the vector of tangible assets, $e_j$. As shown in expression (2) above, this connection can be found, without any need to form another matrix multiplier, by premultiplying the matrix set out in table 1 by the coefficient matrix $L^*_{kj}$. The result of this operation for 1962 is given in table 2. In each column of this table the total increase in financial assets generated by an increase in real investment by one sector is decomposed into its constituent elements, that is, subdivided by type of claim. Thus the total of £310's worth of financial assets generated by £1,000 of real investment by persons is shown to be made up of £35 of cash in Britain, £2 of cash overseas and gold, £4 of savings bank deposits, £10 of building society deposits, and so on down the column.

Table 2

THE MATRIX $L^*_{kj} (I_{jj} - A^*_{jk} L^*_{kj})^{-1}$ FOR 1962

(All elements multiplied by 1,000)

| Claim generated \ Investing sector | Persons | Financial institutions | Non-financial companies | Government |
|---|---|---|---|---|
| Cash & bank deposits in the U.K. | 35 | 427 | 147 | 298 |
| Cash & bank deposits overseas & gold | 2 | 13 | 11 | 26 |
| Savings bank deposits | 4 | 32 | 26 | 106 |
| Building society deposits | 10 | 124 | 38 | 61 |
| Cooperative society deposits | .. | 1 | 9 | 2 |
| Friendly society deposits | 1 | 1 | .. | 1 |
| Finance house deposits | 1 | 12 | 4 | 6 |
| Discount house deposits | 3 | 42 | 13 | 21 |
| Other deposits | .. | .. | .. | .. |
| Other money at call | 1 | 4 | 2 | 3 |
| Treasury bills | 3 | 9 | 20 | 108 |
| Commercial bills | .. | 2 | 10 | 2 |
| National savings certificates | 2 | 8 | 18 | 96 |
| Defence & development bonds | 1 | 3 | 7 | 39 |
| Premium bonds | .. | 1 | 3 | 13 |
| Tax-reserve certificates | 1 | 2 | 4 | 19 |
| Quoted U.K. government securities | 11 | 36 | 85 | 446 |
| Quoted U.K. local authority securities | 1 | 2 | 6 | 30 |
| Unquoted U.K. local authority securities | 3 | 10 | 23 | 119 |
| Quoted U.K. loan stocks | 1 | 12 | 24 | 10 |
| Unquoted U.K. loan stocks | 1 | 5 | 11 | 4 |
| Quoted U.K. preference stocks | 1 | 8 | 24 | 8 |
| Unquoted U.K. preference stocks | .. | 1 | 4 | 1 |
| Quoted U.K. ordinary shares | 25 | 229 | 408 | 176 |
| Unquoted U.K. ordinary shares | 5 | 45 | 82 | 35 |
| Unit-trust units | 1 | 8 | 3 | 4 |
| Overseas government securities | 1 | 7 | 6 | 16 |
| Overseas company securities | 5 | 36 | 31 | 74 |
| Direct investment inwards/outwards | 11 | 81 | 105 | 158 |
| Bank advances in the U.K. | 20 | 46 | 77 | 69 |
| Hire-purchase in the U.K. | 10 | 9 | 9 | 12 |
| Other instalment credit in the UK | .. | 1 | 1 | 1 |
| House mortgages | 59 | 53 | 40 | 64 |
| Long-term loans in the U.K. | 16 | 49 | 209 | 188 |
| Long-term loans overseas | 5 | 24 | 31 | 122 |
| Trade debtors/creditors in the UK | 16 | 24 | 79 | 50 |
| Trade debtors/creditors overseas | 1 | 5 | 5 | 10 |
| Other debtors/creditors in the UK | 21 | 52 | 77 | 75 |
| Other debtors/creditors overseas | 3 | 3 | 2 | 3 |
| Life-policy funds | 18 | 221 | 69 | 109 |
| Pension funds | 11 | 135 | 42 | 66 |
| Unfunded pension rights | 4 | 13 | 32 | 152 |
| Sinking funds | .. | 2 | 1 | 1 |

Note. The symbol .. indicates an entry of less than 0.5.

Tables 1 and 2 provide an approximate indication of the degree of financial interdependence between the four aggregated sectors which are distinguished. It is evident that this is considerable. However the measures we have used suffer from the defect that they assume constant coefficients when, in practice, many of the relevant coefficients will be variable. Changing coefficients will alter the nature of the interdependence but not necessarily its extent; a point which is confirmed by comparison of the two matrix multipliers for a number of different dates as given in [ 1]. The main point which emerges from this illustration is that a sector undertaking real investment can have little idea of the indirect financial consequences of its actions on other sectors. The range and size of the apparent relationships between the real investment of some sectors and the amount of outstanding claims which they themselves do not issue as liabilities surely supports the need for comprehensiveness in financial analysis and statistical presentation.

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