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Hyman P. Minsky Ph.D.

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MONEY, OTHER FINANCIAL VARIABLES, AND AGGREGATE  
DEMAND IN THE SHORT RUN

Hyman P. Minsky  
Washington University, St. Louis

Note: I want to thank Tom Mayer, Mike DePranno, Jack Michaelson, Peter Diamond and David Laidler, as well as the student participants in the Continuing Seminar On Monetary Economics at the University of California, Berkeley for useful and serious discussions of these issues. Needless to say the shortcomings in what follows are all my responsibility.

# Errata

## MONEY, OTHER FINANCIAL VARIABLES, AND AGGREGATE DEMAND IN THE SHORT RUN

by Hyman P. Minsky

Definition - = from bottom of page

<u>Page</u>	<u>Line</u>	
3	11	"corn" not "com"
6	3	cross out relatively
7	-2	cross out identical
8	4	induced not indirect
15	2	$\xi$ s not s
16	9	market not marked
19	16	$r_2$ not $r_1$
20	7	it not if
	-7	rate. To not rate to
21	1	"determines" not determines
22	-9	add "for money" following 2nd substitutes
23	-2	OB not BB
24	4	$(OB^1 = OB + B_1B)$ not $(OB + OB + B_1B)$
26	13	a speculation not as speculation
31	4	value ( $\$V$ ) not value ( $\$r$ )
32	13	is true not is to
34	2	$AA_1$ not AA
	3	$\hat{AA}$ not AA
	Diagram	label Average cost curves $AC_1$ , $AC_2$ and $AC_3$ in ascending order, also $q_1$ , $q_1^1$ , $q_2$ , $q_3$ from left to right
	-5	shortfalls, any not shortfalls. Any
36	9	cross out first <u>next</u>

The Impact of Financial Variables on  
Aggregate Demand--Some Observations

I. INTRODUCTION

I will assume that the topic set for this session is to be taken seriously; that is, we are to discuss impact effects. As impact implies immediacy, our interest is in the short run and in the paths that connect financial changes and various components of demand. Our concern is not with whether, in the long run, the effect of how a financial change occurs washes out. Almost all of equilibrium monetary theory is irrelevant to this session.

From the logic of the program, this session is titled the "Effects of Monetary Policy II", we are to assume that the direction of influence is from Federal Reserve actions to financial variables to aggregate demand. As I have just edited a set of studies on California banking, I am not at all sure that the assumption is valid. Within a state, such as California, it seems as if demand is an "independent" factor and the financial variables, particularly narrowly defined money, adjust to demand. That is, instead of "the" influence running from money to income, as some leading economists hold, a major influence seems to run from aggregate demand to money.

In particular a path running from demand to finance to income to the money supply seems to be very significant in determining what happens. The reserve base of the commercial banks in a state must be earned in the large national economy. It cannot be assumed that the amount and the rate of change of bankers money in a local economy such as California is either exogenously determined or the result of a policy decision based upon a sophisticated interpretation of the 'state' interest.

The inherited set of financial variables, the financial connections among various economic units, as well as the reactions to financial changes are conditioned by the institutional setting. An economy with a Central Bank that behaves in a particular manner, with specified directives, powers, and known preferences is different, with respect to its financial behavior, than a world without this particular Central Bank. For example, it can be argued that an erroneous belief that the Federal Reserve System would protect financial institutions, especially commercial banks, against financial instability contributed to the evolution, during the 1920's, of financial positions which, in the early 1930's, amplified a downturn into the Great Crash.

Monetary theory, perhaps more than other parts of economics, is a mongrel. To be of value it must incorporate propositions which describe in an abstract form how institutions behave. Almost always a relevant question in monetary analysis is how does this particular set of institutions--with its own peculiar reactions--affect the behavior of the system. In any discussion of impact effects the institutional aspect weighs particularly heavy for while the effects of institutional arrangements may wash out in the long run, in the short run they almost certainly can affect system behavior.

Four topics will be taken up. Two deal with definitions and conceptions and two with behavior. In the next section (section II) the appropriate definition of money and financial variables is discussed, in the following section (section III) the meaning to be attached to "impact" is examined. In section IV the question discussed is the circumstances under which monetary changes can quickly return the system to equilibrium. The conclusion is that it all depends--upon the nature of the monetary change and the state of the system. In section V one aspect of the state of the system, the demand and supply of accommodations, is examined. The analysis here reinforces the

contention that once the open market path from monetary change to demand is taken, the relationship between money and demand is not well articulated and precise. It is also pointed out that the reaction to a change in the money supply depends upon whether it is inside and outside money, and thus the empirical observation that money defined as a means of payment and as a liability of the commercial banking system affects the behavior of the economy needs explaining.

## II. THE DEFINITION OF MONEY AND FINANCIAL VARIABLES

In the econometric money game much ado is made about the proper definition of money. Various distinguished authorities mean quite different things when they say money. Perhaps "money" is really like "com", so that its definition must depend upon local custom as well as the problem at hand.

Two apparently sharp and clear definitions of money, as the means of payment (demand deposits and currency) and as the outside asset (gold stock plus government debt) exist.<sup>1</sup> However, as will be pointed out, the sharpness and clarity of these concepts is more apparent than real. Nevertheless these concepts are more precise and really more meaningful than these definitions which emphasize the moneyiness of the liabilities of financial intermediaries<sup>2</sup> and those which consider time deposits at commercial banks as money.<sup>3</sup>

If portfolio transformations are the mechanism by which an initial change affecting financial variables works its way to the arena where it affects

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<sup>1</sup>The two definitions would be identical with a strict gold coin, no banking and no government monetary system.

<sup>2</sup>Gurley, J. "Financial Aspects of Postwar Economic Developments in the United States" Study paper #14. Study of Employment Growth and Price Levels, Joint Economic Committee, Congress of the United States, December, 1959.

<sup>3</sup>Friedman, M. "The Demand for Money and Some Theoretical and Empirical Results" Journal of Political Economy, August 1959 Vol LXVII #4, pp. 327-351.

demand, than the appropriate definition of money is as a means of payment. Although the emphasis in such discussions may be on the way in which an increase in money increases demand<sup>4</sup>, it is clear that money as a means of payment may be most important as a determinant of system behavior during or following a financial crisis.<sup>5</sup>

However defining money as a means of payment does not lead to an unambiguous money concept. The means of payments used by bankers is not the same as that which households and ordinary business firms use. Each type of 'money' has a specified set of economic units for which it is the means of payment. Only gold coins when they circulated were simultaneously international, bankers and public money; today there are three only slightly overlapping types of narrow money and changes from one to another can affect system behavior. In particular, the classical bank crisis occurred when holders of one type of money demanded another type.

If the concern is with the effect of money in determining demand, then the relevant factor is not so much the size of the means of payment relative to income as the riskiness of portfolio's. Whether a monetary change ultimately will affect demand depends upon the initial and the resultant riskiness of portfolio's, which is conveniently measured by the relative size of inside and outside money.

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<sup>4</sup>Phillip Cagan has defined the effect of open market operations as lowering ". . . rates of return across the board. The decline in rates thus spreads to all financial and physical assets, so that an increase in the money stock may eventually stimulate investment spending in many dimensions." Phillip Cagan in "A Commentary on Some Current Issues in the Theory of Monetary Policy," in Patterns of Market Behavior, Essays in Honor of Philip Taft, edited by M. H. Brennan, Brown University Press, Providence, Rhode Island, 1965, p. 135.

<sup>5</sup>Hyman P. Minsky "Financial Crisis, Financial Systems, and the Performance of the Economy" in Private Capital Markets Commission on Money and Credit, Prentice Hall Inc., Englewood Cliffs, New Jersey, 1964.

The full significance of the dichotomy between inside and outside money has been lost in the emphasis upon real balance effects.<sup>6</sup> In addition to whatever effects these two types of money have upon the public's wealth when the price level changes, inside and outside money differ in the commitments to make payments to the banking system due to how the money was created. For inside money, some private economic units<sup>7</sup> are operating under a constraint to meet payments that were agreed upon at the time the money was brought into being. With outside money no such private payment commitments exists - money is an asset that is not anyone's liability.

Contractural payment commitments constrain debtor units. The vulnerability of a unit to either a local or general decline in demand increases as the relative size of its contractural obligations increase. As business investment always implies the taking on of new financial commitments, the investment demand schedule is affected by existing financial commitments.<sup>8</sup> If all other circumstances are exactly the same a community with a high ratio of outside money can be expected to invest more than one with a low ratio. That is, a determinant of realized "investment" is the portfolio make up of the investing and financing units. With a larger relative supply of outside money the typical business liability structure is cleaner than if inside money dominates.<sup>9</sup>

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<sup>6</sup>Gurley and Shaw, E. Money in a Theory of Finance The Brookings Institution, Washington, D.C., 1960.

<sup>7</sup>State and local governments are best considered as private economic units.

<sup>8</sup>Investment financed by retaining earnings involves a financial commitment by the investing firm. However this commitment being contingent is much less restrictive than the contractural payment commitments of other financing instruments.

<sup>9</sup>This is an empirical generalization based upon the structure of sectional surpluses and deficits in the United States. Outside money increases rapidly whenever the federal government runs a deficit. At such times the corporate non-financial business sectors and either balanced or running a small surplus. Federal government surpluses or balanced positions are associated with large deficits by the non-financial corporate sector.



As a result entrepreneurs, feeling safer, are more willing to take on additional "uncertainties". In addition asset holders, having a larger proportion of safe assets, relatively are willing to take on the risks inherent in financing business investments at relatively favorable terms for the investing unit.

A federal deficit leaves behind default free assets whose market value is independent of the behavior of any component part of the economy.<sup>10</sup> These "independent" and "freedom from default" attributes do not depend upon the term of the security and whether they were introduced into the economy in such a way that an equal amount of "private spending" did not occur. A rise in the government debt is expansionary to the extent that it increases the willingness to invest by making households and business firms more secure. The net expansionary effect of the portfolio changes over a period will depend upon the relative rates of growth of government deficit. One condition for steady growth is that the stock of outside money grow fast enough. This implies a growing deficit. Whether outside money must grow more rapidly or can grow less rapidly than productive capacity and inside assets depends upon the evolving portfolio preferences of private economic units as wealth increases and as usages change. There is no reason to believe that these preferences will necessarily remain constant over time and institutions.<sup>11</sup>

Institutional arrangements blur the line between inside and outside money. An inside money supply with government deposit insurance is at least in a contingent sense outside money. However even though the asset "demand deposits"

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<sup>10</sup>Tobin, J., "An Essay in Principles of Debt Management" in Fiscal and Debt Management Policies, Commission on Money and Credit, Prentice Hall, Inc. Englewood Cliffs, New Jersey, 1964.

<sup>11</sup>If we combine 100% money, a required rate of growth of the money stock and an aversion to gold we get as target federal deficit which is equal to the required rate of growth times the existing money stock.

is protected debts constrain those units whose liabilities are owned by the banks. Although the nominal value of inside money guaranteed by a government agency is independent of the behavior of the system it still is not fully equivalent to outside money, because "borrowers risk" and the associated constraints exist. The extent to which "inside" money in fact has the characteristics of "outside" money blurs the distinction between these two types of money.

Even in the absence of government guarantees banks and other financial institutions absorb and attenuate risk. Presumably the significance of 'liquid assets' and the currency plus commercial bank liabilities definitions of money in explaining system behavior center around the outsideness generated by the way in which these financial variables are generated.

In an enterprise economy the distinction between financial and real variables is not at all precise. The line between a tangible asset--a house--and a financial asset--such as shares of common stock--is vague if only balance sheets and marketability characteristics enter into the definition. Tangible and financial assets both are valuable because they are expected to generate a stream of returns--sometimes in the form of cash, sometimes in the form of services--and are a transferrable store of wealth.<sup>12</sup>

The meaningful distinction between the two is whether their production is a part of income. This amount of real tangible assets in an on going developed economy can be increased only at a rate determined by saving decisions, the rate of increase of financial variables is limited only by ingenuity and acceptability. In a world with layering the identical rate of change of financial variables really has no bounds. The ability of financial layering

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<sup>12</sup>Human wealth not being in fact saleable is clearly not a financial asset.

to increase the burden on the payments mechanism is one way in which the conditions necessary for financial instability can be generated.<sup>13</sup>

Of course the transmission process between an initiating financial change and an indirect change in aggregate demand depends upon tangible and financial assets being substitutes with respect to 'price' and complements with respect to "scale".

Financial variables include all sorts of lease and contingent contracts. Some of the impact that financial variables have upon system behavior depend upon the circumstances which make contingent contracts current. Perhaps one reason for the great crash was that the private and banking communities believed that there was an implicit contingent liability of the Federal Reserve System in member bank liabilities, whereas the Federal Reserve System being narrowly legalistic, operated as if no such commitment existed. Institutions such as Federal Deposit Insurance Corporation were invented in order to remove this element of discretion from central banking.

### III. IMPACT EFFECTS

Impact connotes a forceful impingement, a collision that communicates force. It therefore carries overtones of immediacy, of short period reactions. To study impact problems the how, where and when of financial changes must be specified, as well as the components of aggregate demand that are to feel the impact.

An initial financial change may set off a time consuming sequence of financial adjustments which depend not only on financial market interrelations but also on feedbacks from non-financial markets. Each element of the sequence will have its own particular effect upon demand: the working out of an initial change may lead to a time series of impacts upon demand. The time between an

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<sup>13</sup>H. P. Minsky, "Can 'It' Happen Again" in "Banking and Monetary Studies" edited by D. Carson, Richard D. Irwin, Homewood, Illinois. 1963.

initial financial change and a change in financial variables that are immediately relevant to decisions in a particular market will depend upon the location of the initial financial change. As initiating financial changes are always taking place, the long run equilibrium implicit in any current situation is of no interest.

The financial "past" of the economy can be considered as determining a set of initial conditions for "today". As the initial conditions are almost always not equilibrium conditions, even in the absence of any new financial changes during the period the end of period financial relations will differ from the initial conditions. The end of period set of financial variables is not only due to the reactions to the initial disequilibrium but also the result of independent, largely but not solely policy determined, financial changes and the financial "residue" left by the way in which current income was generated.

There really is no need to consider in detail "independent" changes in financial variables. Today these are largely due to central bank action or legislation, however, something like a major gold discovery could be considered as an independent financial change. In addition the effect that the evolution of financial usages has upon the availability of various types of financial instruments can be considered as an independent financial change.

The income generating process leaves behind a financial residue. The ex-post sectoral deficits of the flow of funds data result in a set of financial liabilities that, with financial intermediation layering, reflect the way in which the ex-post surplus units financed the ex-post deficit units. For example, if over a time period the major ex-post deficit sector is the Federal Government, then the primary financial residue will take the form of a rise in "outside" money. If the major deficit sector is private business then

over a time period the assets acquired by surplus units--directly or by way of financial intermediaries--will reflect private liabilities. That is just as a periods "income" leaves a set of capital goods to subsequent periods, some of which reflects the investment carried on during the period, so the periods "income" leaves behind a set of financial variables, some of which reflect how last periods investment was financed.<sup>14</sup>

Oftimes the short period rate of growth of a particular dimension of either capital or financial variables is not sustainable. However as the financial variables are the result of a particular income generating process, the relative saturation of particular "financial" markets feeds back upon and affects future income generating processes.

Let us make the above a bit more precise by drawing upon the California banking studies I mentioned earlier. One factor associated with the rapid growth of the state has been a house building boom. Some 40% of the funds in California real estate mortgages come from out of state. These funds are not only a major source of financing for the home building industry but they also are the source of a major flow of reserves to the California banking system.

One constituent of this flow of funds into California real estate mortgages has been investments by eastern mutual savings banks. Between 1951 and 1960, the amount the mutual savings banks committed to California real estate grew at the rate of 55% per year. This is obviously a non-sustainable rate of growth: it implies that the investment by these institutions in California soon would be greater than their total assets.

The stock of "foreign owned" mortgages outstanding generate payments from

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<sup>14</sup>Refinancing possibilities make it possible to have marked changes in the stock of outstanding financial instruments whereas the stock of existing real capital can change but relatively slowly. (A financial crisis generates a massive, forced refinancing).

the California economy to the rest of the country. As the stock of such liabilities has been growing about twice as fast as the California economy, the payment burden due to this debt has increased relative to income. Only the continued accelerated flow of out of state investment funds to the state has made the burden feasible: California has been playing a "Ponzi" game with the rest of the country.

The accumulation of residues that are left behind by the financial processes that are associated with the way in which income is generated over a period of time feedback upon and affect the income generating process in two ways. Either the effect is steady and mild, affecting the way in which decisions are made but not generating any rapid, self-stimulating financial changes, or an epidemic which sharply affects assets values take place. (There is a discontinuity between financial stability and instability).

A third aspect of the accumulation of financial residues is that for a growth process to be an equilibrium process, the "stocks" and "values" of financial variables must grow along with income, so that at the end of each "period" all actors are willing to take another appropriately larger balanced step. However if the value of current financial variables reflect subjective uncertainties about the stability of income, a long period of sustained growth will lead to a rise in the value of real and financial assets relative to income by inducing a reduction in these uncertainties. This will tend to induce a larger than equilibrium step in income, or the desire to increase the size of the step must be offset by some constraining change in income or financial variables. If the animal spirits released by a successful run lead to growth that unbalances the outside-inside money ratio, the potential for financial instability is increased.<sup>15</sup>

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<sup>15</sup>I have dealt at some length with these ideas in H. P. Minsky, "Financial Crisis, Financial Systems and the Performance of the Economy", op. cit.

The accumulation of financial variables from past incomes can be subsumed under the initial conditions. However as in the California case the evolution of some of these initial conditions may be such as to indicate that the income generating process ruling over this period is not in the longer run sustainable.

We therefore have three financial impacts during any period. One flows from the initial disequilibrium inherited from the past. Inherited balance sheets are not "desired" and units operate to adjust their balance sheets. The second is the result of the current income generating process. Its initial "impact" can be considered as the ex-ante "desire" of various units to emit certain financial liabilities and the "ex-ante" desire of units that run financial surpluses to acquire particular financial assets. The third impact is due to exogenous changes--the realm of monetary and financial policy. All three impacts can affect variables that are relevant for income decisions.

Fortunately the time series of financial changes that would result if an initial situation is allowed to work itself out can be ignored if the dynamic process is "linear". All of the past, the entire past set of exogenous changes as well as the residues left behind can be summed up into the "initial" conditions. The effects of whatever "new shock" takes place can be added onto the time sequence that would have resulted in the absence of the shock.

#### IV. THE DYNAMICS OF ADJUSTMENT TO AN INITIAL DISPLACEMENT

In one of his characteristic "en passant" flashes of genius, Professor Harry G. Johnson remarked that the General Theory ". . . attempts to bring markets with widely different speeds of adjustment--the goods market, the money market and the labor market--into one short-period equilibrium analysis".<sup>16</sup>

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<sup>16</sup>Harry G. Johnson, "The 'General Theory' After Twenty-five Years", Ch. VI in Harry Johnson "Money Trade and Economic Growth", Cambridge, Mass., 1962, p. 130. Reprinted from A.E.R. L.I. No. 2, May, 1961, p. 17.

As far as I know he nowhere spells out what this means. As I see it the Keynesian dynamic specifications are that the goods and labor markets react slowly, in particular they tend to be quantity rather than price reactors, and the money market(s) react quickly, and it (they) tends to be a price reactor.

The quickly reacting money market(s) may or may not induce changes in aggregate demand which effectively eliminates the aggregate supply. When Keynes wrote that there were ". . . several slips between the cup and the lip"<sup>17</sup> with reference to the effectiveness of money in calling the tune for system behavior, the allusion obviously was to the conditional nature of the effect of a monetary change. How the reaction depends upon the state of the economy and the nature of the monetary change needs to be spelled out. In particular it should be noted under what circumstances the complex financial system can work to attenuate or intensify an initial monetary impulse.

In terms of the controversy between quantity theorists and Keynesians, the point of departure for this section is that the relevant question is not which view to accept but ". . . the circumstances under which the one or the other view is likely to be more fruitful."<sup>18</sup> The fact that Friedman and Meiselman found that a naive income expenditure model did better than their quantity theory for the Great Depression period indicates that allowing for switching in the mode of operation of the system improves our understanding.

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<sup>17</sup>"If however we are tempted to assert that money is the drink that stimulates the system to activity, we must remind ourselves that there may be several slips between the cup and the lip.", J. M. Keynes, The General Theory of Employment Interest and Money, New York, 1936, p. 173.

<sup>18</sup>M. Friedman and D. Meiselman, "Relative Stability of Monetary Velocity and the Investment Multiplier in the United States, 1897-1958", in C. M. C. Stabilization Policies, Prentice Hall, Inc., Englewood Cliffs, New Jersey, 1963, p. 170.



Keynsian economics, correctly interpreted, incorporates "switching" among operation modes, hence its claim to generality.

With respect to the recent discussion of the lag between a monetary and an income change, it follows from the conditional view of the response to a monetary change that the length of the lag will be variable.

What follows is based upon particular specifications of relative speeds of adjustment and impact points. Ultimately this is an empirical rather than theoretical problem. In a world with evolving institutions there is no reason to expect that relative reaction times within markets and contacts between markets will always remain the same.

In addition, as the growth and development of market institutions and usages depends upon profit opportunities, the very adjustment path taken by the economy can affect the "how" and the "rate" of future adjustments. Finance affects system behavior in a much more complicated fashion than a simple reading of existence theorems and econometric equations lead one to believe.

#### 1. Aggregate Demand

Consider aggregate demand and supply schedules  $D_1$  and  $S$  which yield an equilibrium at  $A$ . The schedules can be for either labor or commodities, as it is assumed that these are the markets in which prices move slowly. In the first instance any adjustment to a change (schedule shift) in these markets will be with constant prices.

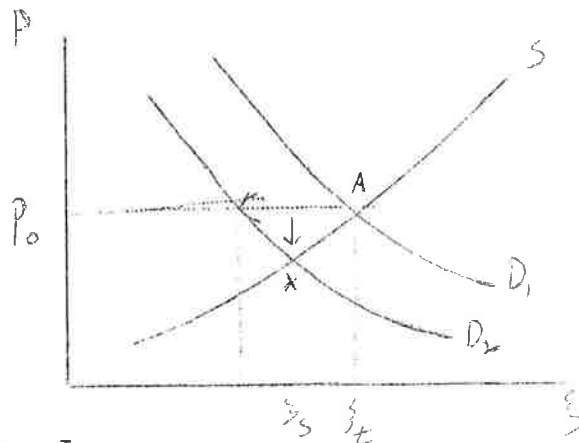


Diagram I

A decline of demand to  $D_2$  will lead to a quantity change. Excess supply of  $s$  at  $p_0$  will appear, and no significant change in  $p$  will occur while this is taking place: The market will not in the first instance move toward  $x$  its new "equilibrium."<sup>19</sup> Certainly in the labor market, where short period transitory unemployment is not rare, a fall in labor demand will not lead to an immediate decline in wages. This is particularly true if unemployment first increases by a decrease in the hiring rate. In such economies, employment initially decreases as a result of attrition. Unemployment increases as new entrants to the labor market find it more difficult to get jobs.

Assume that this shift in demand (aggregate or for labor) occurs in an enterprise economy with a mixed (inside and outside) money supply, a banking system with an unimpaired--perhaps even augmented--capacity to acquire earning assets and a demand schedule for bank accommodation that is related to output. The shift in the aggregate demand schedule and the decline in output will be associated with a fall in the demand schedule for bank accommodations

The shift in the demand schedule for bank accommodations may be an initiating factor or a consequence of the shift in aggregate demand. On the basis of constrained, intertemporal income generating systems, a downward shift of those demands sensitive to the overall rate of growth of the economy is not difficult to explain.<sup>20</sup> Under these conditions the initial downward shift of the aggregate demand function is based upon an assumed constancy of interest rates. It may very well be a "virtual" shift, as the other things assumed to

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<sup>19</sup>The Phillips curve 'closes' the Keynesian System as it describes how wages and prices in fact react to market demand situations. See, A.W. Phillips, "The Relation Between Unemployment and the Rate of Change in Money Wage Rates in the United Kingdom, 1862-1957, "Economica" (Nov. 1958, p. 283-99).

<sup>20</sup>Minsky, H. P. "A Linear Model of Cyclical Growth", Review of Economics and Statistics.

be constant will not in fact remain unchanged. Nevertheless if for any reason whatsoever, aggregate demand decreases, the associated fall in the value of goods in process of being produced leads to a decline in the demand for bank accommodations.

Assume that market processes operate so that wages and prices remain constant (move slowly) in the face of excess supply while interest rates move rapidly. The rapidly falling interest rates and the associated increased availability of "credit" tend to shift the aggregate demand curve upward. How great an original shift in demand can be offset by financial market changes in a given time period? The answer depends upon the nature of the underlying demand relations and how the financial market reactions occur.

In the Hicksian IS-LM diagram, (Diagram II), if  $IS_1$  shifts to  $IS_2$  what happens to  $r$  and  $y$  depends upon the elasticity of the LM curve. If LM is infinitely elastic  $r$  does not change, if LM has zero elasticity  $y$  does not change, and if LM is as conventionally drawn both  $r$  and  $y$  change. The nature of the LM curve depends upon institutional arrangements.

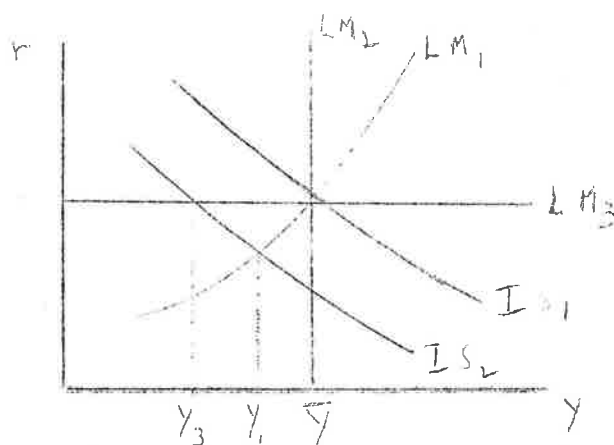


Diagram II

We can posit that with a given monetary system--including how money is fed into the economy as part of the monetary system--there is a maximum to the decline in demand that can be overcome by purely monetary means within a period in which wages and prices remain essentially fixed. A special Keynesian view--modified by real balance effect arguments--is that wage and price level

flexibility is an inefficient way to raise aggregate demand. But our domain of concern stops short of the effect of wage and price flexibility, we are concerned only with whether the return to equilibrium in the labor and commodity markets can be achieved by monetary means that operate more quickly than price flexibility.

Note that the "Keynesian" policy position with regard to government spending is designed to shift the aggregate demand curve to a position where a permissive monetary mechanism can return the system to equilibrium. Keynesian fiscal policy is not a substitute for monetary policy--it can, if you wish, be considered as a way of making money effective when the direct link between money and demand has been attenuated.

## 2. Bank Behavior.

In the face of a decline in demand for their output, banks will try to remain fully invested. To do this they "sweeten" accommodation terms and purchase inherited eligible paper from the open market. Both the sweetening of accommodation terms and the purchase of open market paper are subsumed into a fall in the interest rate. That is, in the time horizon being considered, bankers are quantity--maintainers and price adjusters whereas both labor and commodity sellers adjust quantity and maintain price.

Two modes of operation of the banking system can be distinguished. One will be labeled "commercial loan" and the other "open market" banking. However both terms are used here are not identical with their common usage. In the first place "commercial banks" can engage in open market operations as when they purchase treasury bills from the market during a period of slack loan demand. Central banks can engage in commercial loan operations as when they rediscount, purchase bankers acceptances or purchase newly issued government debt from the treasury. The distinction between the two is between their

impact, whether the monetary change initially modifies portfolios or finances demand. Open market operations, in the first instance, modify portfolios; commercial loan operations, in the first instance, finance operations.<sup>21</sup>

One way of distinguishing between the two is by the past of the financial asset acquired by the banking system. If the asset existed prior to the banks purchase, then it is an open market operation. If it is created "de nova" in the process of the banks operations, then it is a commercial loan operation.

The line between open market and commercial loan operations may be even fuzzier in fact than they are in principal. The use of the proceeds of a sale of pre-existing assets to finance operations transforms what looks like an open market operation into a commercial loan operation. In a world with a complex financial structure, portfolio adjustments may often be the way in which idle cash is activated. In particular bank and financial institution sale of seasoned (and endorsed) earning assets may be a way to mobilize funds to finance new expenditures.<sup>22</sup> Once the scope of open market operations is expanded to include commercial bank activities, the traditional expansionary operation (purchases) may be associated with contractions and the traditional contractionary operation (sales) may be associated with expansions.

In addition to bank creation of money, money may be "mined", earned by the foreign balance, or printed by the government. A government deficit, independently of whether it is financed by "new money" or by "activating"

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<sup>21</sup>I have dealt with these concepts in my comment on Friedman and Schwartz's Money and Business Cycles, Review of Economics and Statistics, Supplement, February 1963, Vol XLL #1, Part 2, pp. 64-72.

<sup>22</sup>If we assume banks and financial institutions only sell endorsed paper, then it becomes clear that this open market sale is really part of a commercial loan operation--the total of bank liabilities, primary and contingent--increases as a result of these paired transactions.

idle money, has the same impact as a "commercial loan". Of course if the debt emitted is fully competitive with private debt, so that the public deficit in full or in part is offset by a reduction in private deficits, then it would not have a net impact equal to the size of the deficit. The impact of a government deficit depends in part upon the way the debt is managed.

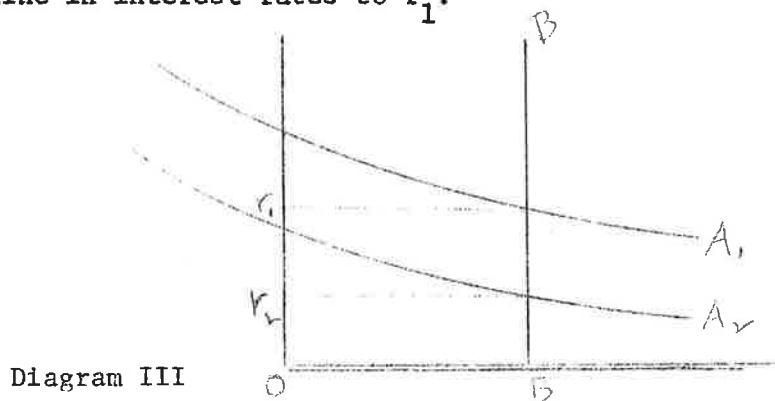
An increase of the money supply that is due to the mining of gold and an export surplus is also a "commercial loan" increase in money.

Government deficit and produced money are outside money. The repercussions of the mix of outside and inside money upon system behavior is considered later.

Note that "commercial loan" banking as used here has nothing to do with any rule for the determination of the "correct" amount of money.

### 3. Commercial Loan Banking.

If banks remain fully invested by maintaining their demand related accommodations, then the effect upon bank earning assets of a shift in demand for private accommodations from  $A_1$  to  $A_2$  (Diagram III) will be offset by a decline in interest rates to  $r_1$ .



If interest rates fall fast enough and far enough, the movement along  $A_2$  (Diagram III) will shift  $D_2$  back to  $D_1$  (Diagram I). Of course for this always to be true, all interest rates (including if need be negative interest rates) must be possible and, in addition, with low enough interest rates, the level of accommodations and the level of associated output demand will exceed any pre-assigned amount.

The above is a commercial loan view of banking. The proceeds of bank loans are spent on output and a rise in bank loans are associated with a net increase in financial paper. In such a world--no portfolio alternatives and borrowers who spend--the only price that needs to adjust is the interest rate and the only quantity that is relevant is the amount of bank accommodations available. The transmission line is that the creation of money makes "demand" effective--its impact is that it finances planned expenditures.

In the commercial loan view of banking, the relation between the money supply and the financing of operations is very close. If at the "beginning" of a period OB of money is created to finance operations (Diagram III) then at the "end" of the period OB of money is destroyed as the borrowers repay bank debt. To undertake the same level of operations in the next period the process has to be repeated. In this view a net decline in the quantity of money means a reduction and a net rise means an increase of spending--and this change takes place immediately and without any further intermediation. A shift in BB the supply of accommodations will lead to either a rise or a decline in operations.

Diagram III can be interpreted in a static or a dynamic context: OB may be the amount of investment in excess of ex-ante saving (saving based upon "last periods income") that is needed if the economy is to grow at the desired rate to achieve this growth, all that is necessary in the way of economic policy is to have the money supply grow at the "proper rate". If portfolio money is a simple known relation to transactions money then once again growth at a proper rate of money balances will do the job, but in this case "idle" money may have to be fed into the system by open market operations.

The  $A_1$  and  $A_2$  schedules can be interpreted as relating to the productivity--implicitly we are assuming that thrift is independent of interest rates--of the

"productivity and thrift" pair that determines interest rates. If money is fed into the system to finance investment plans, then under the assumption made above, a shift in the productivity of investment with no change in thrift or the supply of money will in the first instance only affect interest rates.

In the above "commercial loan" view a decline of interest rates is associated with the impact of money upon demand. Earlier we had identified gold mining and an export surplus as being similar to a "commercial loan" increase in money. However a decline in interest rates is not part of the mechanism by which they affect demand. The very process of mining gold or producing for export generates income. What happens to interest rates depends upon how the increased money supply and the rise in income due to the production of money interact in generating demand and supply of finance. The income due to the production of the money commodity is a particular high powered type of investment as far as the Keynesian model is concerned.

Of course not all of external finance is by way of bank credit; many units emit liabilities which are not bank eligible. Whether monetary changes, operating through a banking system that remains fully invested, but not necessarily fully loaned up, will impinge upon such financing depends upon the path from "fully invested" banks to these other financial markets.

#### 4. Open Market Banking.

A banking system that remains fully invested in the face of a decline in the demand for accommodations may do so by purchasing existing earning assets from the market. For this to take place a sufficiently large stock of bank eligible earning assets must exist. (The definition of what is bank eligible need not remain unchanged over time). The seller of the asset to banks exchanges an earning asset for money; his portfolio is altered. There is no direct link between money creation and spending.



Normally there are households and business firms who are seeking to get out of non-monetary temporary abodes of purchasing power into money in order to effect some purchase or fulfill some commitment. At the same time other units are trying to place cash into such temporary abodes. Much of the action that characterizes the markets for non-monetary liquid assets is due to the association of these markets with payments related to financial rather than income transactions. When banks move into--or out of--these markets, either to be fully loaned up or to acquire funds to satisfy customer loan demand, they affect the price of these assets, i.e. interest rates are either raised or lowered.

The supply of some financial instruments which usually serve as non-monetary temporary abodes of purchasing power is not, in the short period, responsive to demand. In fact their behavior may be "perverse", the supply of near money marketable assets may decrease as a result of the same income conditions which led to a decline in the demand for bank accommodation. As a result some units will have to choose between holding money and holding assets that are not conventionally accepted as temporary abodes of purchasing power.

The maintenance of the money supply by means of open market operations can mean no more than the substitution of money for the closest of substitutes in some household and business firm portfolios. The open market path may lead to no appreciable short term impact upon demand. However, under the assumed conditions, as the money supply is maintained or increased by open market operations, the price of bank eligible securities rises. As the preferred money substitutes are short term, even a large decline in interest rates will not yield any substantial capital gains. However once short term interest rates to "preferred" borrowers falls below the running yield on longer term securities, the possibility of making on the carry will induce position taking in longer

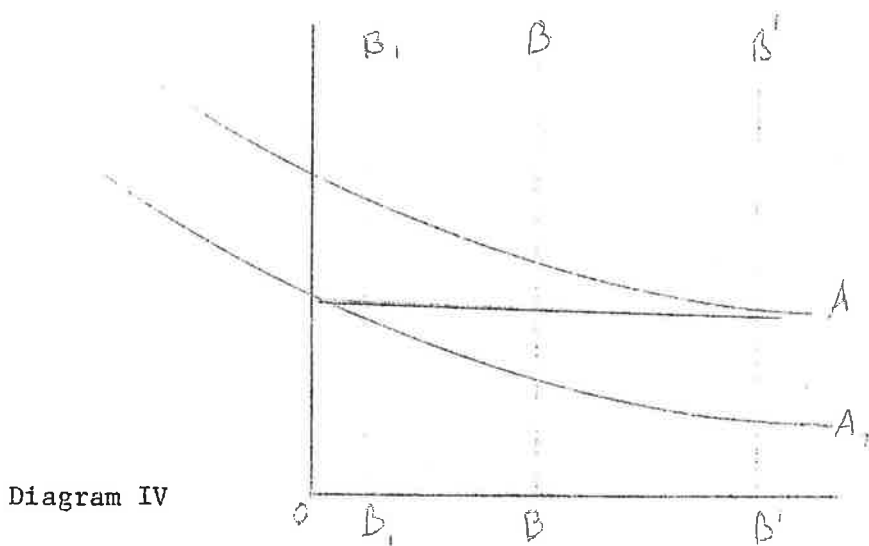
term securities. A decline in interest rates throughout the economy may follow, even though such position taking on the basis of short-long rate differentials is in part dependent upon the existence of adequate refinancing opportunities. The easing of longer term market rates can thus lead to a rise in the value of paper reflecting some tangible sources of income or services, particularly if the nominal returns or the price of the services do not change.

The rise of the market value of existing tangible assets, with unchanging labor and commodity prices, tends to lead to a substitution of "newly produced" for "second hand" capital goods. Such a shift of the demand for investment at a particular price and wage level will shift both the demand for accommodations and the aggregate demand schedule upward. A process which in principle can lead to the return of  $D_2$  to  $D_1$  may be set into motion by open market operations.

This rise in the market value of second hand tangible assets relative to their production costs depends upon a pervasive oozing of the money generated by open market operations to other markets. In the case of the substitution of money for temporary repositories of purchasing power, for the demand to respond as indicated, an appreciable proportion of managers of portfolios will have to reach for yield with funds that as risk averters they held in short term assets under the previous relative yield relationships. The question is whether yield differentials can be increased by enough to generate a significant shift to longer term securities. This at best is a highly tenuous process; a large part of the money created by such open market actions will gravitate to idle balances.

Even if expansionary open market operations have little impact upon demand in the short run nevertheless they will affect aggregate demand with a lag - in a longer run. In Diagram IV if, during a period, B-B of earning assets can be acquired by the banking system, and if the banking system can acquire an

unlimited amount of pre-existing, eligible paper from the market, then with accommodations demand  $A_2$ ,  $OB_1$  of accommodations and  $B_1B$  of open market asset acquisition will take place. An autonomous shift of the demand for accommodations schedule from  $A_2$  to  $A_1$  will enable the banking system to acquire  $OB'$  ( $OB=OB+B_1B$ ) of earning assets during the "period", as the assets acquired in open market operations are sold back to the public where they function as "temporary" abodes of purchasing power.



The overshooting possibility inherent in such portfolio changes is evident, and the existence of a complex financial structure enhances both the attenuation and the over overshoot possibilities. It also indicates that the effect of bank operations during any short period depends upon portfolio changes by banks as well as the net change in bank liabilities. Even a steady increase in the money supply, combined with a large stock of eligible open market paper and a shifting demand for private accommodations schedule, can lead to short run variability in impact of banks upon the system.

Open market operations, broadly conceived, need not be restricted to short term securities. The issue is broader than the "Bills Only" doctrine of the Federal Reserve System, once the term open market operations is extended to include all banking system dealings in existing securities.

Of course upon market operations as discussed here have nothing to do with the determination of the amount of earning assets the banking system can acquire.

5. Excess Reserves.

A third path open to banks generates excess reserves. A shift of the demand for accommodations schedule downward and a low yield on eligible paper will induce some banks not to follow the market down but to settle for an easy life. Of course excess reserves are in the longer run a transitory phenomena, but in the short period they constitute another slippage between money and aggregate demand.

The accumulation of excess reserves in the banking system may induce some banks to reach for yield. As money men do not like to realize capital losses they will reach for yield only if they are able to treat as speculation as an investment if the need arises. That is, they will reach for yield only if the volume of excess reserves and short term assets they hold is so large that, over a period in which the 'longs' will mature into 'shorts', they can satisfy any 'normal' rise in customers' demand without being forced to sell their 'long' positions. That is, a rise in excess reserves and an accumulation of a large volume of short term securities is a necessary condition for pure commercial banks to affect directly the interest rate on marketable longer term investments.

It is evident from the above that how money is fed into the system by the banking system is important in determining the effect of a monetary change. If money is introduced to finance expenditure decisions, then the link between money and income is direct. If money enters as a portfolio transformation, in which money is substituted for another asset, then the linkage is vague, and the impact upon demand may occur with a considerable lag.

## V. THE DEMAND AND SUPPLY OF ACCOMMODATIONS

The demand for accommodations, introduced in the preceeding section, requires further analysis. Although the diagram is drawn as if there is only one type of "accommodation", in the discussion it is clear that there are many. It is necessary to disaggregate.

Financial liabilities are emitted to finance the acquisition of financial and second hand tangible assets as well as to finance investment. The layering of financial assets through financial intermediaries absorbs and distributes risks. Thus financial intermediation is a determinant of realized investment. Nevertheless it seems best to initially ignore such phenomena. Let us assume that liabilities are emitted solely to acquire goods and services which are part of current income; our concern is with the sectoral net financial deficits and surpluses.

Demand and supply schedules for accommodations yield ex-ante sectoral financial surpluses or deficits. The demand schedules are derived from tangible investment opportunities. The supply schedules are based upon portfolio preferences. The demand and supply schedules that rule at any time depend upon institutional limitations and reflect the existing situation as to the existence of markets.

All positions, including those taken by business firms in capital goods, are portfolios. The investment process can be interpreted as flowing from a disequilibrium asset and liability structure. Units desire to acquire some tangible assets and "emit" particular financial liabilities in order to move to a "better" position. Technical progress, relative prices and the past of the economy as well as financial variables determine not only each moments desired position in tangible assets but also the pace at which this position will be approached. Monetary policy actions are undertaken to generate disequilibrium.

An investment decision is based upon a simultaneous analysis of the expected returns from the tangible asset to be acquired and terms upon which it can be financed.<sup>23</sup> Although the two are not really separable we will first look at the investment decision ignoring financing aspects and then take up finance. Both sets of decisions are dependent upon how risks are evaluated.

Portfolio preferences of units with "poor" own investment opportunities determine the net supply of accommodations.<sup>24</sup> For these units their existing portfolio of financial and real assets and the current cash flow from operations generate a supply schedule of accommodation. The terms upon which particular assets will be acquired in exchange for this cash depends upon the initial portfolio conditions as well as the expected returns.

Thus the initial portfolio conditions of private deficit and surplus sectors (or units) are proximate determinants of realized ex-post investment. In particular, the safety and security of the initial asset structure of surplus units is a determinant of the rate at which the various liabilities emitted by deficit units will be absorbed.

In this section we will first examine the basic determinants of investment demand. This discussion will in part be looking back to the material of section IV; as we will be asking under what conditions can the open market oozing phenomena work to increase "realized" investment. This will be followed by a discussion of the effect of the liability structure of investing units. The willingness to absorb private financial assets by surplus units is next discussed. The effect that non-bank financial intermediaries and commercial

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<sup>23</sup>Hart, A.G., "Capital Appropriations and the Accelerator", Review of Economics and Statistics, May, 1965. Greenberg, E., "Appropriations Data and the Investment Decision", Journal of the American Statistical Association, Vol. 60, No. 319, (June 1965).

<sup>24</sup>Hirshleifer, J., "On the Theory of the Optimal Investment Decision", Journal of Political Economy, August, 1958.

banks have upon the investment process will be taken up in the final section.

### I. Investment Demand.

Investment occurs when the capital stock is changed. The "initial" capital stock is not the desired capital stock, and for the continued normal functioning of an enterprise system it is necessary to make sure that the actual capital stock is never equal to or greater than the desired stock. The function of policy is to rig the game, i.e. to continually generate an appropriate disequilibrium.

Open market operations initially lower specified interest rates. For this to call the tune for aggregate demand, decreases in the market rates directly affected by traditional open market operations must spill over to raise the value of tangible assets and of the liabilities used to finance their purchase.

For lower market interest rates to raise the aggregate demand schedule the value of existing capital must be increased. Given the sluggishness of wages, the price of "second hand" capital must rise relative to the construction costs of new capital. Under these circumstances a lower discount rate will change the ratio of the value of existing capital to the cost of new capital.

The value of existing tangible capital is not determined by discounting the value of future services at default free interest rates. The discount rate applicable to real capital is much higher, due to various risks which are inherent in inside capital. The applicable risk premium for any particular tangible asset reflects various types of uncertainties. Among the uncertainties that are relevant are those about of the economy, the particular market and the firm. The "expected" behavior of these three classes of uncertainties are not necessarily independent. For a decline in the default free rate to mean a rise in the present value of capital, the risk premiums cannot be inversely related to the default free rate.

Those risks that are classified as being due to the behavior of the economy can be imputed to cyclical instability.<sup>25</sup> Post war trends indicate that the premiums of government securities over higher grade private debt and of higher grade private debt over lower grade private debt have decreased. These changes in relative yields reflect the dependence of market risk premiums upon an extrapolation of the past of the economy.

If private investors assume that no depression will occur, their desired tangible capital-income ratio will be higher than if the contrary assumption is made. Successful contracyclical policy can uncover a large potential for capital deepening--which in turn will sustain investment demand.<sup>26</sup> Successful economic policy generates external benefits such as this capital deepening. The external benefits flowing from successful policy can be considered as a low cost substitute for insurance policies that risk averters would gladly buy but which no private organization will supply.<sup>27</sup>

Market risks are due to the behavior of the market in which the output produced by the capital goods will be sold. These may very well be correlated with cyclical risks--although they are in part independent. Risks due to the "competence and capabilities" of the firms management may be considered

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<sup>25</sup>In the theory of economic development, "economy" risks can be related to political stability. For a developed economy, we can ignore the risks due to political stability--although firm prospects may often be related to policy decisions.

<sup>26</sup>R.M. Goodwin in "The Non-Linear Accelerator and the Persistence of Business Cycles", Econometrics, January, 1951, has the accelerator turn down when income is at the ceiling. If anything can be expected to happen at the ceiling it is that the inducement to invest becomes more powerful. Realized investment may decline as a ratio to the change in income but that is ex-post not ex-ante and depends upon market processes.

<sup>27</sup>K. J. Arrow, "Uncertainty and the Welfare Economics of Medical Care", American Economic Review, Vol. LIII-5, Dec. 1963.



independent of the cyclical behavior of the economy, although the past sins of management often come to light during "hard times".

Using a stream of returns in perpetuity for our example, the present value (\$r) of a constant stream of returns of \$R per year is 
$$\$V = \frac{\$R}{r_1 + r_2 + r_3 + r_4}$$

where  $r_1$  is the default free interest rate,  $r_2$ ,  $r_3$ , and  $r_4$  are the discount premiums due to economy, market and firm risks. If the expected stream of returns is to grow at  $g\%$  per year, then with \$R as the next return the present value of this perpetuity is 
$$\$V_g = \frac{\$R}{r_1 + r_2 + r_3 + r_4 - g}.$$

Let us return to our initial situation: The aggregate demand schedule falls from  $D_1$  to  $D_2$ , the price of output and of capital goods do not decline, interest rates on "open market" paper falls as banks and other try to remain fully "invested". Presumably in time  $r_1$ , the rate on a default free perpetuity declines. Ignoring  $r_3$  and  $r_4$ , for the decline in  $r_1$  to certainly raise \$V or  $\$V_g$ ,  $r_2$  must not rise and \$R and  $g$  must not fall.

For  $r_2$  not to rise and  $g$  not to fall, the decline in demand must have been both anticipated and discounted. That is the decline in aggregate demand is a normal fully expected event. The economy views a cyclical growth pattern as the norm, and the observed decline in income falls within the range of a normal decline. Nevertheless there is a maximum to the initial decline in demand which will be considered as normal and not induce a further decline in the demand for accommodations by reducing the expected returns.

A decline in income must mean a decline in "profits": Hence the current and near R's must be lower than their expected normal or permanent value. If the combined discount rate  $r_1 + r_2 + r_3 + r_4 - g$  is large, then the current and near returns weigh heavily in determining present value.

Investment started this period has a gestation period. There is a lag

between the start and the capacity coming on stream. For such investments the near term  $R$ 's are zero, hence the cyclical stage is no real determinant of the value of these investments.

Open market operations would be effective in raising aggregate demand in a mild recession if the recession is considered to be a usual event and if investments such as described above are a large part of total capital formation. The demand for accommodations schedule which would result from such investments is elastic with respect to market interest rates and stable with respect to normal cyclical variation in income. In addition, as we are dealing with the demand for external financing, the investments must be those which are normally financed by emitting liabilities.

In an economy where income growth is expected, utility and housing investments conform to the specifications discussed above, this is to even though both would be quite sensitive to a more than normal decline in income or a retardation in the growth rate. Inasmuch as the linkage between money and capital market conditions and the financing of mortgages was quite clear in the early post World War II period, it is not surprising that housing led in the upswings.

On the other hand if a larger than normal decline in income, or a retardation in the expected growth rate occurs, the rise in  $r_2$  or the decline in  $g$  will offset declines in  $r_1$ . Open market operations will not effectively expand demand, even if the appropriate financing terms are affected, if it is necessary to offset the effect upon risk of a more than normal decline in demand.

Open market operations will not necessarily increase the demand for outputs with short gestation periods, for the decline in the near period  $R$ 's will offset the decline in  $r_1$ . However if a large enough sector reacts to lower financing

terms by increasing its investment activity, - the initial shift of the curve will be offset in part by a movement along the curve - then the fall in income is checked. If income is maintained, even investments with short gestation periods and relatively long life might become desirable when the default free rate falls.

Open market operations may work, and then again they may not. They are a weak reed upon which to base policy, especially as their effectiveness when expansion is desired may be limited to situations in which demand is maintained close to capacity by other than monetary means.

## 2. Liability Structure.

Corporate finance is one starting place for monetary economics. A decision to invest is simultaneously a decision to spend; and the spending can be financed by some combination of cash generated by operations, drawing down of cash balances, sale of assets or sale of liabilities. A financial plan is as important to a firm as a facilities plan. Each economic unit is limited in the liabilities it can emit. A willingness to pay premium rates of interest often does not serve to broaden the range of liabilities a unit can emit.

For a risk averting business firm there exists a hierarchy of liability structures. A liability structure with only equity liabilities is less risky than one with debt instruments--in particular a firm without debt can survive adverse circumstances that would put a firm with debt into bankruptcy. On the other hand, the gains from leverage can induce risk taking--and the liability structure is a result of the "balancing of forces" and the interpretation of evidence.

The vulnerability of a firm to adverse market developments can be illustrated by means of conventional cost curve diagrams.

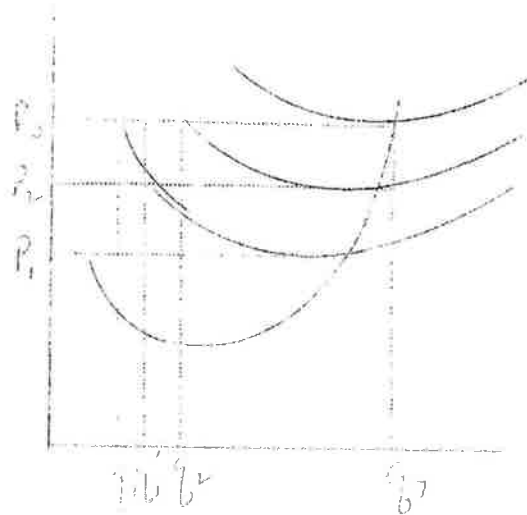
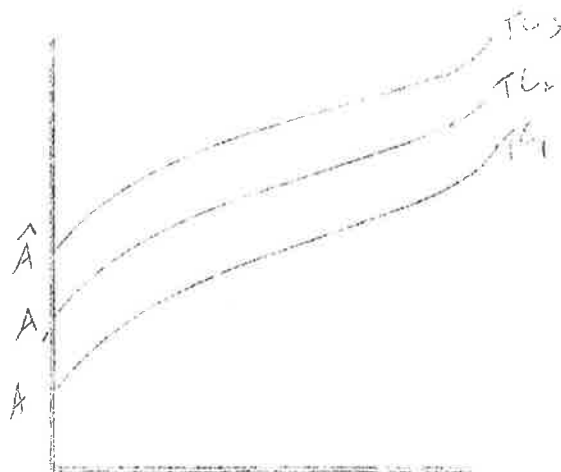


Diagram V

Total cost curve  $TC_1$  is the out of pocket costs and  $AC_1$  is the associated average cost curve.  $AA$  is the per period gross payment commitment due to debt financing,  $AC_2$  is the equivalent average cost curve.  $AA$  is the gross per period returns on the capital invested that are in some sense "normal".  $AC_3$  is the associated average cost curve. The investment in the firm is based upon an expectation of output  $q_3$  being sold at price  $p_3$ .

If price is maintained in the face of a fall in demand, then the firm with no debt can, on a cash flow basis, sustain a fall of output to  $q_1$ --on a maintenance of capital intact basis a fall of output to  $q_1'$  can be sustained. For a firm with debt as illustrated a fall in output below  $q_2$  would result in a default on financial commitments or forced borrowing. The probability of financial difficulty following a given shortfall in output depends upon the liability structure. As we can expect that small shortfalls are much more likely to occur than large shortfalls. Any decrease in the maximum price fall that can be withstood leads to a more than proportional increase in the probability of financial difficulties.

The complete investment decision involves estimates of both the profitability of the investment and the likelihood that at some date the cash flow from

operations will fall short of the requirements imposed by the financial obligations. The willingness to undertake a particular investment--financing combination depends in part upon estimates of the future stability of the economy. In general units will be more willing to undertake an investment if it can be financed by retaining earnings than if it requires external financing. Nevertheless the reluctance to use external debt financing depends upon estimates of the future-and expectational relations seem to conform to learning models.

Both the evaluation of the value of an investment and the willingness to external finance are related to the estimate of economy wide uncertainties. The result is that events that tend to decrease economy wise uncertainty, such as a prolonged period of steady growth, can lead to an investment boom and an increase in positions that are sensitive to income declines.

A rise in the value of additional capital to some set of firms will lead to a willingness to emit some particular set of liabilities. However each firm is a monopsonist in its own liabilities--a rise in the ratio of external financing will lead to higher borrowing rates. In addition to this objective phenomena, a rise in the ratio of external financing to income will lead to a rise in the subjective probability that financial difficulties will arise. Of course this subjective estimate of probability of difficulties does not depend solely upon the leverage factor, we expect that a run of successful periods will change the estimate of future behavior.

Be that as it may, the liability structure that firms are willing to assume entails the carrying of specified risks. Even if other financing instruments are available at apparently more favorable terms, a management may not of its own will accept them. Necessity can lead to an "undesired" liability structure, and such a liability structure can become a dominant factor in determining future behavior.

A "for example" might help make the above more precise. A firm undertakes an investment commitment which has say a two year gestation period. The financing plan includes cash flows from operations and the sale of debentures. During the first year the cash flow from operations falls short of what had been expected and the firm makes up the difference by bank borrowing. The liability structure is now different from the plan. The firms management has a number of alternatives, nevertheless one constraint upon their planning will be to develop a program that eliminates the undesired or unplanned bank debt. This constraint will affect the next determination of next year's investment.

Financing long position by short term liabilities is a very dangerous way to live unless guaranteed refinancing exists. If all units were guaranteed accommodations at some "discount window" no unit would pay a premium over a short term rate. In fact such guarantees do not exist. Thus to constrain "borrowers" risk payments due on acceptable contractual and contingent financial liabilities are related to the expected cash flow from operations.

Constraints upon the willingness to emit particular types of liabilities decreases the likelihood that monetary policy is an efficient way to call the tune. For a fall in interest rates to affect units which can finance investment by emitting only certain specified types of liabilities, it is necessary that the rate on these particular liabilities decrease. The contact between the particular financial market and the money market may be weak.

In addition, the improvement in the terms upon which external financing is available may have to offset the effect upon the desirability of undertaking a specific project of decline in cash flows--where the decline in cash flows has little or nothing to do with the expected value of the undertaking but is a constraint upon how it can be financed.

On the above interpretation, "money" is outside money.<sup>28</sup>

If the willingness to take risks depends upon the initial position, and if outside money is free of some uncertainty that inside money carries, then the greater the proportion of outside assets in portfolios the "lower" the LM curve.

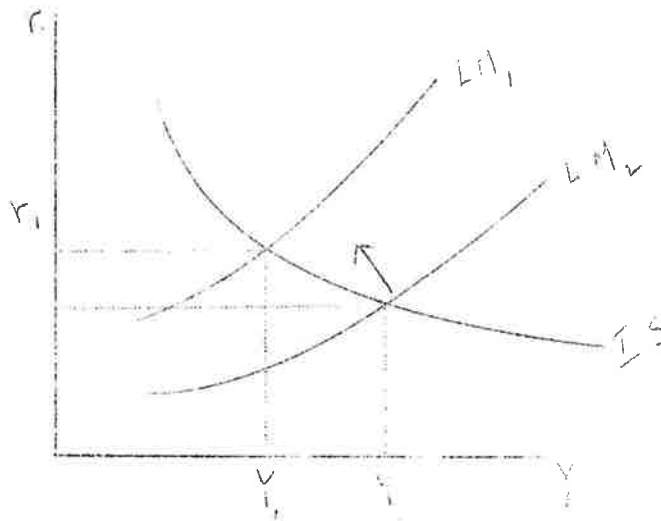


Diagram VI

In Diagram VI,  $LM_2$  reflects a larger amount of outside money than  $LM_1$ ; as a result financing terms are improved. In particular terms are so favorable that investing units are induced to emit those liabilities needed to finance the larger amount of investment necessary to generate  $Y_2$ . Both the asset acquiring and the asset emitting unit will take on more risks with the greater quantity of outside money than they would with the smaller amount.

Note that with  $LM_2$  realized saving investment and income are greater than with  $LM_1$ . This reflects what can be interpreted as a rise in productivity. This has taken place because the rise in security, due to the larger stock of

<sup>28</sup>Even though with central banking there can be some element of outside money in inside money, they are not identical. The inside bank assets do imply cash payments to the banks by some private units: Outside bank assets imposes no such constraints upon private units.

outside money, has lowered the implicit insurance premiums that are contained in the gross returns on investment.

In order to continue to generate the favorable supply conditions for private investment, part of the rise in net worth must take the form of a rise in outside assets. If no such increase takes place, over time the LM curve can be expected to swing up and the left as the arrow in Diagram VI indicates.

#### 4. Bank and Non-Bank Financial Intermediaries.

In the standard presentation a change in the conventionally defined money supply shifts the LM curve. The assumed process is almost always an open market chain that runs from an initial substitution of money for outstanding assets to an improvement in the terms upon which new investment can be financed. If this oozing chain does not increase willingness of units acquire the liabilities that can be emitted by potential investing units, no rise in investment need take place: Thus a rise in conventionally defined money need not shift the LM curve.

Banks and other financial intermediaries are risk absorbers. Whether this risk absorption takes place because of their professional skill in portfolio management, the workings of the law of large numbers, of the implicit (explicit) underwriting of their liabilities by government agencies need not concern us. Though banks and other financial intermediaries do not decrease the risks borne by liability emitters, they decrease the risk carried by the asset holder. Thus with a given net worth and stock of outside money, the greater the amount of risk absorbing intermediation, the more favorable the financing terms for new investment. In this way a rise in the amount of conventionally defined money will increase the willingness of units to absorb new liabilities emitted by investing units. In Diagram VI,  $LM_2$  can be interpreted as reflecting a greater absorption of lenders risks by financial intermediaries than  $LM_1$ , both  $LM_1$  and  $LM_2$  in this interpretation reflect the same amount of outside money and net worth.



Obviously the absorption of uncertainty by banks and other financial intermediaries depends upon the assets acquired. If "open market" operations are carried out in Treasury bills and similar instruments, then very little if any "risk" exists for the banks to absorb--the LM curve will shift out very little if at all with a rise in conventionally defined money by this path. If private business or household debt is acquired, then a relatively large amount of risk is absorbed, the shift will be greater. This is another "explanation" of the relative efficiency of commercial loan operations as against open market operations; it is not a substitute but rather a complement to the earlier argument.

Of all existing financial intermediaries, commercial banks historically have had the most powerful risk absorbing effects. Thus a given increase of nominal money will shift the LM curve more than an equal change in the liability of other financial intermediaries. Commercial bank time deposits, even though they are not means of payment, benefit from the risk absorption properties of commercial banks. This may be why definitions of money which includes such time deposits work well in some empirical investigations.

The introduction of a new "type" of financial intermediary, and the making of the implicit government underwriting of financial intermediaries explicit (having the automatic F.D.I.C. replace the discretionary Federal Reserve System) will swing the LM curve down and to the right. Vigorous financial innovation may be a substitute for a rapid growth in outside money in generating favorable supply of finance conditions.

## VI. CONCLUSION

The impact of money and financial variables upon aggregate demand is conditioned by the nature of the monetary or financial variables that change and the state of the economy as measured both by the ratio of income to capacity and by its past. The impact of money that is introduced into the system either to finance, or as a result of, an income generating operation is different from that of money that is introduced as a "portfolio change".

Inside and outside money are in part similar because banks and other financial institutions are risk absorbers. Financial institutions and instruments differ in the extent to which they diminish lenders risk. Banks are somewhat special in that they seem to absorb more of the risk--and hence time deposits at commercial banks can seem to be like money.

Inherent in any subjective evaluation of risks and of the absorptive powers of financial institutions is the possibility of overshoots due to waves of optimism and pessimism. As we tend to learn from the past and as horizons are short, a run of success or failure, will feed back quickly into the evaluation of risks.

For example, a run of success will release the animal spirits of entrepreneurs and property owners, will raise capital values and net worth relative to conventional income, and will act to increase investment. When modern capitalism takes off in this fashion, governments run surpluses and the stock of outside money is decreased. Even as the success of the system induces feelings of safety and security, making both borrowers and lenders willing to take greater changes, one of the objective determinants of the security and safety is being eroded; the quality of the insurance protection deteriorates.

Even though a balanced growth path on which outside money grows at the same rate as the system can be defined, as long as investment depends upon the

evaluation of risks and risks are determined in part by the past of the system such a path is unstable. For if success decreases risk premiums, this lowers the required quantity of outside money. Thus a change in the government's tax and spending schedules is needed.

The best we can hope for is not a rule but an awareness of how complex is the task of an authority possessing discretion.