FIGURE 75. EFFECT OF A CHANGE
IN THE TOTAL DEMAND FOR MONEY

stock increases from *0S* to *0S″*. At the new stock level there is an excess of stock, *AF*, over the total demand for money. Money will be sold at a lower PPM to induce people to hold it, and the PPM will fall until it reaches a new equilibrium point *G*. Conversely, if the stock of money is decreased, there will be an
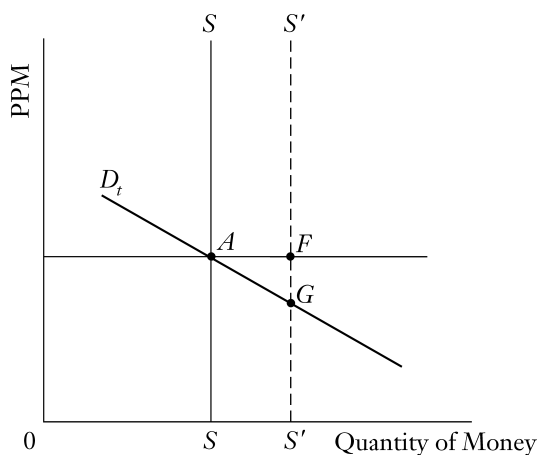

FIGURE 76. EFFECT OF A CHANGE IN
THE TOTAL STOCK OF MONEY

excess of demand for money at the existing PPM, and the PPM will rise until the new equilibrium point is reached.

The effect of the quantity of money on its exchange-value is thus simply set forth in our analysis and diagrams.

The absurdity of classifying monetary theories into mutually exclusive divisions (such as "supply and demand theory," "quantity theory," "cash balance theory," "commodity theory," "income and expenditure theory") should now be evident.[4] For all these elements are found in this analysis. Money *is* a commodity; its supply or quantity *is* important in determining its exchange-value; demand for money for the cash balance is also important for this purpose; and the analysis can be applied to income and expenditure situations.

4. Utility of the Stock of Money

In the case of consumers' goods, we do not go behind their subjective utilities on people's value scales to investigate why they were preferred; economics must stop once the ranking has been made. In the case of money, however, we are confronted with a different problem. For the utility of money (setting aside the *non*monetary use of the money commodity) depends solely on its prospective use as the general medium of exchange. Hence the subjective utility of money is dependent on the objective exchange-value of money, and we must pursue our analysis of the demand for money further than would otherwise be required.[5] The diagrams above in which we connected the demand for money and its PPM are therefore particularly appropriate. For other goods, demand in the market is a means of routing commodities into the hands of their consumers. For

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[4]A typical such classification can be found in Lester V. Chandler, *An Introduction to Monetary Theory* (New York: Harper & Bros., 1940).

[5]*See* Mises, *Theory of Money and Credit*, p. 98. The entire volume is indispensable for the analysis of money. *Also see* Mises, *Human Action*, chap. xvii and chap. xx.

money, on the other hand, the "price" of money is precisely the variable on which the demand schedule depends and to which almost the whole of the demand for money is keyed. To put it in another way: without a price, or an objective exchange-value, any *other* good would be snapped up as a welcome free gift; but money, without a price, would not be used at all, since its entire use consists in its command of other goods on the market. The sole use of money is to be exchanged for goods, and if it had no price and therefore no exchange-value, it could not be exchanged and would no longer be used.

We are now on the threshold of a great economic law, a truth that can hardly be overemphasized, considering the harm its neglect has caused throughout history. An increase in the supply of a producers' good increases, *ceteris paribus*, the supply of a consumers' good. An increase in the supply of a consumers' good (when there has been no decrease in the supply of another good) is demonstrably a clear *social benefit*; for someone's "real income" has increased and no one's has decreased.[6]

Money, on the contrary, is solely useful for exchange purposes. Money, *per se*, cannot be consumed and cannot be used directly as a producers' good in the productive process. Money *per se* is therefore unproductive; it is dead stock and produces nothing. Land or capital is always in the form of some specific good, some specific productive instrument. Money always remains in someone's cash balance.

Goods are useful and scarce, and any increment in goods is a social benefit. But money is useful not directly, but only in exchanges. And we have just seen that as the stock of money in society changes, the objective exchange-value of money changes inversely (though not necessarily proportionally) until the money relation is again in equilibrium. When there is less money, the exchange-value of the monetary unit rises; when

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[6]See chapter 12 below for a discussion of the concept of social benefit or social utility.

there is more money, the exchange-value of the monetary unit falls. We conclude that there is no such thing as "too little" or "too much" money, *that, whatever the social money stock, the benefits of money are always utilized to the maximum extent.* An increase in the supply of money confers no social benefit whatever; it simply benefits some at the expense of others, as will be detailed further below. Similarly, a decrease in the money stock involves no social loss. For money is used only for its purchasing power in exchange, and an increase in the money stock simply dilutes the purchasing power of each monetary unit. Conversely, a fall in the money stock increases the purchasing power of each unit.

David Hume's famous example provides a highly oversimplified view of the effect of changes in the stock of money, but in the present context it is a valid illustration of the absurdity of the belief that an increased money supply can confer a social benefit or relieve any economic scarcity. Consider the magical situation where every man awakens one morning to find that his monetary assets have doubled. Has the wealth, or the real income, of society doubled? Certainly not. In fact, the real income—the actual goods and services supplied—remains unchanged. What has changed is simply the monetary unit, which has been diluted, and the purchasing power of the monetary unit will fall enough (i.e., prices of goods will rise) to bring the new money relation into equilibrium.

One of the most important economic laws, therefore, is: *Every supply of money is always utilized to its maximum extent, and hence no social utility can be conferred by increasing the supply of money.*

Some writers have inferred from this law that any factors devoted to gold mining are being used unproductively, because an increased supply of money does not confer a social benefit. They deduce from this that the government should restrict the amount of gold mining. These critics fail to realize, however, that gold, the money-*commodity*, is used not only as money but

also for nonmonetary purposes, either in consumption or in production. Hence, an increase in the supply of gold, although conferring no *monetary* benefit, does confer a social benefit by increasing the supply of gold for direct use.

5. *The Demand for Money*

A. MONEY IN THE ERE AND IN THE MARKET

It is true, as we have said, that the only use for money is in exchange. From this, however, it must not be inferred, as some writers have done, that this exchange must be *immediate*. Indeed, the reason that a reservation demand for money exists and cash balances are kept is that the individual is keeping his money in reserve for *future* exchanges. That is the function of a cash balance—to wait for a propitious time to make an exchange.

Suppose the ERE has been established. In such a world of certainty, there would be no risk of loss in investment and no need to keep cash balances on hand in case an emergency for consumer spending should arise. Everyone would therefore allocate his money stock fully, to the purchase of either present goods or future goods, in accordance with his time preferences. No one would keep his money idle in a cash balance. Knowing that he will want to spend a certain amount of money on consumption in six months' time, a man will lend his money out for that period to be returned at precisely the time it is to be spent. But if no one is willing to keep a cash balance longer than instantaneously, there will be no money held and no use for a money stock. Money, in short, would either be useless or very nearly so in the world of certainty.

In the real world of uncertainty, as contrasted to the ERE, even "idle" money kept in a cash balance performs a use for its owner. Indeed, if it did not perform such a use, it would not be kept in his cash balance. Its uses are based precisely on the fact that the individual is not certain on what he will spend his money or of the precise time that he will spend it in the future.

Economists have attempted mechanically to reduce the demand for money to various sources.[7] There is no such mechanical determination, however. Each individual decides for himself by his own standards his whole demand for cash balances, and we can only trace various influences which different catallactic events may have had on demand.

B. SPECULATIVE DEMAND

One of the most obvious influences on the demand for money is *expectation of future changes in the exchange-value of money*. Thus, suppose that, at a certain point in the future, the PPM of money is expected to drop rapidly. How the demand-for-money schedule now reacts depends on the number of people who hold this expectation and the strength with which they hold it. It also depends on the distance in the future at which the change is expected to take place. The further away in time any economic event, the more its impact will be discounted in the present by the interest rate. Whatever the degree of impact, however, *an expected future fall in the PPM will tend to lower the PPM now.* For an expected fall in the PPM means that present units of money are worth more than they will be in the future, in which case there will be a fall in the demand-for-money schedule as people tend to spend more money now than at the future date. A general expectation of an imminent fall in the PPM will lower the demand schedule for money now and thus tend to bring about the fall at the present moment.

Conversely, an expectation of a rise in the PPM in the near future will tend to raise the demand-for-money schedule as people decide to "hoard" (add money to their cash balance) in expectation of a future rise in the exchange-value of a unit of their money. The result will be a *present* rise in the PPM.

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[7]J.M. Keynes' *Treatise on Money* (New York: Harcourt, Brace, 1930) is a classic example of this type of analysis.

An expected fall in the PPM in the future will therefore lower the PPM now, and an expected rise will lead to a rise now. The speculative demand for money functions in the same manner as the speculative demand for any good. An anticipation of a future point speeds the adjustment of the economy toward that future point. Just as the speculative demand for a good speeded adjustment to an equilibrium position, so the anticipation of a change in the PPM speeds the market adjustment toward that position. Just as in the case of any good, furthermore, errors in this speculative anticipation are "self-correcting." Many writers believe that in the case of *money* there is no such self-correction. They assert that while there may be a "real" or underlying demand for goods, money is not consumed and therefore has no such underlying demand. The PPM and the demand for money, they declare, can be explained only as a perpetual and rather meaningless cat-and-mouse race in which everyone is simply trying to anticipate everyone else's anticipations.

There *is*, however, a "real" or underlying demand for money. Money may not be physically consumed, but it is used, and therefore it has utility in a cash balance. Such utility amounts to more than speculation on a rise in the PPM. This is demonstrated by the fact that people *do* hold cash even when they anticipate a fall in the PPM. Such holdings may be reduced, but they still exist, and as we have seen, this must be so in an uncertain world. In fact, without willingness to hold cash, there could be no monetary-exchange economy whatever.

The speculative demand therefore anticipates the underlying nonspeculative demands, whatever their source or inspiration. Suppose, then, that there is a general anticipation of a rise in the PPM (a fall in prices) not reflected in underlying supply and demand. It is true that, at first, this general anticipation raises, *ceteris paribus*, the demand for money and the PPM. But this situation does not last. For now that a pseudo "equilibrium" has been reached, the speculative anticipators, who did not "really" have an increased demand for money, sell their money (buy

goods) to reap their gains. But this means that the underlying demand comes to the fore, and this is less than the money stock at that PPM. The pressure of spending then lowers the PPM again to the true equilibrium point. This may be diagramed as in Figure 77.
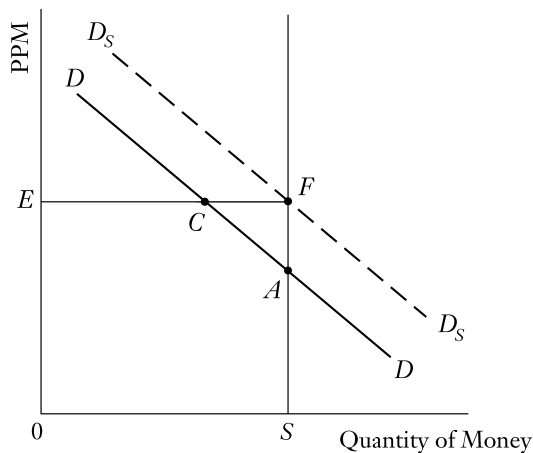

FIGURE 77. SELF-CORRECTION OF SPECULATIVE
ANTICIPATIONS OF THE DEMAND FOR MONEY

Money stock is *0S*; the true or underlying money demand is *DD*, with true equilibrium point at *A*. Now suppose that the people on the market erroneously anticipate that true demand will be such in the near future that the PPM will be raised to *0E*. The total demand curve for money then shifts to D_sD_s, the new total demand curve including the speculative demand. The PPM does shift to *0E* as predicted. But now the speculators move to cash in their gain, since their true demand for money really reflects *DD* rather than D_sD_s. At the new price 0E, there is in fact an excess of money stock over quantity demanded, amounting to *CF*. Sellers rush to sell their stock of money and buy goods, and the PPM falls again to equilibrium. Hence, in the field of money as well as in that of specific goods, speculative

anticipations are self-correcting, not "self-fulfilling." They speed the market process of adjustment.

C. SECULAR INFLUENCES ON THE DEMAND FOR MONEY

Long-run influences on the demand for money in a pro-gressing economy will tend to be manifold, and in both direc-tions. On the one hand, an advancing economy provides ever more occasions for new exchanges as more and more com-modities are offered on the market and as the number of stages of production increases. These greater opportunities tend greatly to increase the demand-for-money schedule. If an econ-omy deteriorates, fewer opportunities for exchange exist, and the demand for money from this source will fall.

The major long-run factor counteracting this tendency and tending toward a *fall* in the demand for money is the growth of the *clearing system*.[8] Clearing is a device by which money is economized and performs the function of a medium of exchange *without being physically present* in the exchange.

A simplified form of clearing may occur between two people. For example, A may buy a watch from B for three gold ounces; at the same time, B buys a pair of shoes from A for one gold ounce. Instead of two transfers of money being made, and a total of four gold ounces changing hands, they decide to per-form a clearing operation. A pays B two ounces of money, and they exchange the watch and the shoes. Thus, when a clearing is made, and only the *net* amount of money is actually trans-ferred, all parties can engage in the same transactions at the same prices, but using far less cash. Their demand for cash tends to fall.

There is obviously little scope for clearing, however, as long as all transactions are *cash* transactions. For then people have to exchange one another's goods *at the same time*. But the scope for

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[8]On the clearing system, *see* Mises, *Theory of Money and Credit*, pp. 281–86.

clearing is vastly increased when *credit* transactions come into play. These credits may be quite short-term. Thus, suppose that A and B deal with each other quite frequently during a year or a month. Suppose they agree not to pay each other immediately in cash, but to give each other credit until the end of each month. Then B may buy shoes from A on one day, and A may buy a watch from B on another. At the end of the period, the debts are canceled and cleared, and the net debtor pays one lump sum to the net creditor.

Once credit enters the picture, the clearing system can be extended to as many individuals as find it convenient. The more people engage in clearing operations (often in places called "clearinghouses") the more cancellations there will be, and the more money will be economized. At the end of the week, for example, there may be five people engaged in clearing, and A may owe B ten ounces, B owe C ten ounces, C owe D, etc., and finally E may owe A ten ounces. In such a case, 50 ounces' worth of debt transactions and potential cash transactions are settled without a single ounce of cash being used.

Clearing, then, is a process of reciprocal cancellations of money debts. It permits a huge quantity of monetary exchanges without actual possession and transfer of money, thereby greatly reducing the demand for money. Clearing, however, cannot be all-encompassing, for there must be some physical money which *could* be used to settle the transaction, and there must be physical money to settle when there is no 100-percent cancellation (which rarely occurs).

D. Demand for Money Unlimited?

A popular fallacy rejects the concept of "demand for money" because it is allegedly always unlimited. This idea misconceives the very nature of demand and confuses money with wealth or income. It is based on the notion that "people want as much money as they can get." In the first place, this is true for *all* goods. People would like to have far more goods than they can procure now. But *demand* on the market does not refer to all

possible entries on people's value scales; it refers to *effective* demand, to desires made effective by being "demanded," i.e., by the fact that something else is "supplied" for it. Or else it is reservation demand, which takes the form of holding back the good from being sold. Clearly, effective demand for money is not and cannot be unlimited; it is limited by the appraised value of the goods a person can sell in exchange and by the amount of that money which the individual wants to spend on goods rather than keep in his cash balance.

Furthermore, it is, of course, not "money" *per se* that he wants and demands, but money for its purchasing power, or "real" money, money in some way expressed in terms of what it will purchase. (This purchasing power of money, as we shall see below, cannot be *measured*.) More money does him no good if its purchasing power for goods is correspondingly diluted.

E. The PPM and the Rate of Interest

We have been discussing money, and shall continue to do so in the current section, by comparing equilibrium positions, and not yet by tracing step by step how the change from one position to another comes about. We shall soon see that in the case of the price of money, as contrasted with all other prices, the very path toward equilibrium necessarily introduces changes that will change the equilibrium point. This will have important theoretical consequences. We may still talk, however, as if money is "neutral," i.e., does not lead to such changes, because this assumption is perfectly competent to deal with the problems analyzed so far. This is true, in essence, because we are able to use a general concept of the "purchasing power of money" without trying to define it concretely in terms of specific arrays of goods. Since the concept of the PPM is relevant and important even though its specific content changes and cannot be measured, we are justified in assuming that money is neutral as long as we do not need a more precise concept of the PPM.

We have seen how changes in the money relation change the PPM. In the determination of the interest rate, we must now

modify our earlier discussion in chapter 6 to take account of al-locating one's money stock by adding to or subtracting from one's cash balance. A man may allocate his money to consump-tion, investment, or addition to his cash balance. His time pref-erences govern the *proportion* which an individual devotes to present and to future goods, i.e., to *consumption* and to *invest-ment*. Now suppose a man's demand-for-money schedule increases, and he therefore decides to allocate a proportion of his money income to increasing his cash balance. *There is no rea-son to suppose that this increase affects the consumption/investment proportion at all.* It could, but if so, it would mean a change in his *time preference* schedule as well as in his demand for money.

If the demand for money increases, *there is no reason why a change in the demand for money should affect the interest rate one iota.* There is no necessity at all for an increase in the demand for money to raise the interest rate, or a decline to lower it—no more than the opposite. In fact, there is no causal connection between the two; one is determined by the valuations for money, and the other by valuations for time preference.

Let us return to the section in chapter 6 on Time Preference and the Individual's Money Stock. Did we not see there that an increase in an individual's money stock *lowers* the effective time-preference rate along the time-preference schedule, and con-versely that a decrease raises the time-preference rate? Why does this not apply here? Simply because we were dealing with each individual's money stock and assuming that the "real" exchange-value of each unit of money remained the same. His time-preference schedule relates to "real" monetary units, not simply to money itself. If the social stock of money changes or if the demand for money changes, the objective exchange-value of a monetary unit (the PPM) will change also. If the PPM falls, then *more* money in the hands of an individual may not neces-sarily lower the time-preference rate on his schedule, for the more money may only just compensate him for the fall in the PPM, and his "real money stock" may therefore be the same as

before. This again demonstrates that the money relation is *neutral* to time preference and the pure rate of interest.

An increased demand for money, then, tends to lower prices all around without changing time preference or the pure rate of interest Thus, suppose total social income is 100, with 70 allocated to investment and 30 to consumption. The demand for money increases, so that people decide to hoard a total of 20. Expenditure will now be 80 instead of 100, 20 being added to cash balances. Income in the next period will be only 80, since expenditures in one period result in the identical income to be allocated to the next period.[9] If time preferences remain the same, then the proportion of investment to consumption in the society will remain roughly the same, i.e., 56 invested and 24 consumed. Prices and nominal money values and incomes fall all along the line, and we are left with the same capital structure, the same *real* income, the same interest rate, etc. The only things that have changed are nominal prices, which have fallen, and the proportion of total cash balances to money income, which has increased.

A decreased demand for money will have the reverse effect. Dishoarding will raise expenditure, raise prices, and, *ceteris paribus*, maintain the real income and capital structure intact. The only other change is a *lower* proportion of cash balances to money income.

The only necessary result, then, of a change in the demand-for-money schedule is precisely a change in the same direction of the proportion of total cash balances to total money income and in the real value of cash balances. Given the stock of money, an increased scramble for cash will simply lower money incomes until the desired increase in real cash balances has been attained.

If the demand for money falls, the reverse movement occurs. The desire to reduce cash balances causes an increase in money

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[9]Since no one can receive a money *income* unless someone else makes a money *expenditure* on his services. (See chapter 3 above.)

income. Total cash remains the same, but its proportion to incomes, as well as its real value, declines.[10]

F. Hoarding and the Keynesian System

(1) *Social Income, Expenditures, and Unemployment*

To the great bulk of writers "hoarding"—an increase in the demand for money—has appeared an unmitigated catastrophe. The very word "hoarding" is a most inappropriate one to use in economics, since it is laden with connotations of vicious antisocial action. But there is nothing at all antisocial about either "hoarding" or "dishoarding." "Hoarding" is simply an increase in the demand for money, and the result of this change in valuations is that people get what they desire, i.e., an increase in the real value of their cash balances and of the monetary unit.[11] Conversely, if the people desire a *lowering* of their real cash balances or in the value of the monetary unit, they may accomplish this through "dishoarding." No other significant economic relation—real income, capital structure, etc.—need be changed at all. The process of hoarding and dishoarding, then, simply means that people want something, either an increase or a decrease in their real cash balances or in the real value of the

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[10]Strictly, the *ceteris paribus* condition will tend to be violated. An increased demand for money tends to lower money prices and will therefore lower money costs of gold mining. This will stimulate gold mining production until the interest return on mining is again the same as in other industries. Thus, the increased demand for money will also call forth new money to meet the demand. A decreased demand for money will raise money costs of gold mining and at least lower the rate of new production. It will not actually decrease the total money stock unless the new production rate falls below the wear-and-tear rate. Cf. Jacques Rueff, "The Fallacies of Lord Keynes' General Theory" in Henry Hazlitt, ed., *The Critics of Keynesian Economics* (Princeton, N.J.: D. Van Nostrand, 1960), pp. 238–63.

[11]See the excellent article by W.H. Hutt, "The Significance of Price Flexibility" in Hazlitt, *Critics of Keynseian Economics*, pp. 383–406.

monetary unit, and that they are able to obtain this result. What is wrong with that? We see here simply another manifestation of consumers' or individuals' "sovereignty" on the free market.

Furthermore, there is no theoretical way of defining "hoarding" beyond a simple addition to one's cash balance in a certain period of time. Yet most writers use the term in a normative fashion, implying that there is some vague standard below which a cash balance is legitimate and above which it is antisocial and vicious. But any quantitative limit set on the demand-for-money schedule would be completely arbitrary and unwarranted.

One of the two major pillars of the Keynesian system (now happily beginning to wane after sweeping the economic world in the 1930's and 1940's) is the proclamation that savings become equal to investment only through the terrible route of a decline in social income. The (implicit) foundation of Keynesianism is the assertion that at a certain level of total social income, total social expenditures out of this income will be lower than income, the remainder going into hoards. This will lower total social income in the next period of time, since, as we have seen, total income in one "day" equals, and is determined by, total expenditures in the previous "day."

The Keynesian "consumption function" plays its part in establishing an alleged law that there exists a certain level of total income, say *A*, *above which* expenditures will be less than income (net hoarding), and *below which* expenditures will be greater than income (net dishoarding). But the basic Keynesian worry is hoarding, when total income must decline. This situation may be diagramed as in Figure 78.

In this graph, money income is plotted on both the horizontal and the vertical axes. Hence, a 45-degree straight line between the axes is equal to social income.[12] To illustrate: A

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[12]The term generally used is "national" income. However, in a free-market economy the nation will no more be an important economic boundary than the village or region. It is more convenient, then, to set aside regional problems for other analysis and to concentrate on aggregate social
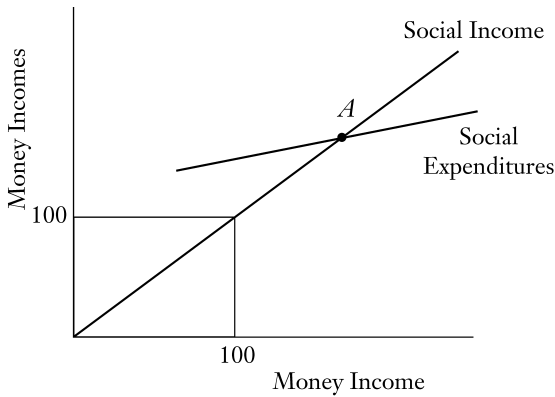
FIGURE 78. RELATION BETWEEN SOCIAL INCOME AND
SOCIAL EXPENDITURES ACCORDING TO KEYNES

[PUBLISHER'S NOTE: This is not how the Keynesian Cross diagram is usually labeled. The author's rationale for his unconventional labeling of the axes of the graph and the 45° line can be inferred from his discussion in the second full paragraph on page 863 and footnote 71 on page 864.]

social income of 100 on the horizontal axis will correspond to, and equal, a social income of 100 on the vertical axis. The co-ordinates of these figures will meet at a point equidistant between the two axes. The Keynesian law asserts social expenditures to be lower than social income above point *A*, and higher than social income below point *A*, so that *A* will be the equilibrium point for social income to equal expenditure. For if social income is higher than *A*, social expenditures will be lower than income, and income will therefore tend to decline from one day to the next until the equilibrium point *A* is reached. If social income is lower than *A*, dishoarding will occur, expenditures will be higher than income, until finally *A* is reached again.

Below, we shall investigate the validity of this alleged law and the "consumption function" on which it rests. But suppose that we now grant the validity of such a law; the only comment can

income; this is especially true since regions do not present a problem to economic theory until their governments begin intervening in the free market.

be an impertinent: So what? What if there is a fall in the national income? Since the fall need only be in *money* terms, and real income, real capital, etc., may remain the same, why any alarm? The only change is that the hoarders have accomplished their objective of increasing their real cash balances and increasing the real value of the monetary unit. It is true that the picture is rather more complex for the transition process until equilibrium is reached, and this will be treated further below (although our final conclusion will be the same). But the Keynesian system attempts to establish the perniciousness of the equilibrium position, and this it cannot do.

Therefore, the elaborate attempts of the Keynesians to demonstrate that free-market expenditures will be limited—that consumption is limited by the "function," and investment by stagnation of opportunities and "liquidity preference"—are futile. For even if they were correct (which they are not), the result would be pointless. There is nothing wrong with hoarding or dishoarding, or with "low" or "high" levels (whatever that may mean) of social money income.

The Keynesian attempt to salvage meaning for their doctrine rests on one point and one point alone—the second major pillar of their system. This is the thesis that *money social income and level of employment are correlated*, and that *the latter is a function of the former*. This assumes that a certain "full employment" level of social income exists below which there is correspondingly greater unemployment. This can be diagramed as in Figure 79.

On the previous diagram is superimposed a vertical *FF* line, which represents the point of alleged "full-employment" social income. If the intersection *A* is below (to the left of) the *FF* line, then there is permanent unemployment corresponding to the distance by which *A* falls short of that line.

Keynesians have also attempted, with little success, to give meaning to an equilibrium position where *A* falls to the right of the *FF* line, identifying this with inflation. Inflation, as we shall see below, is a dynamic process, the essence of which is change. The Keynesian system centers around the equilibrium position
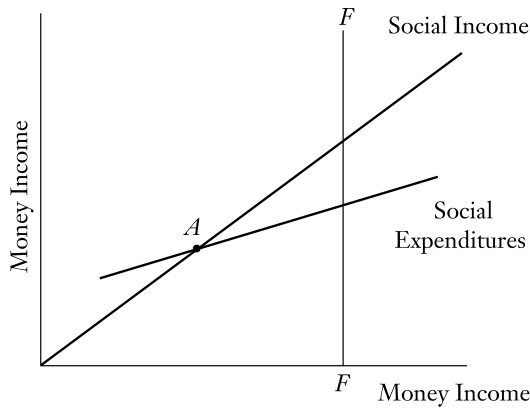
FIGURE 79. RELATION BETWEEN FULL EMPLOYMENT
AND SOCIAL INCOME AND SOCIAL EXPENDITURES
ACCORDING TO KEYNES

and therefore is hardly well equipped to analyze an inflationary situation.

The nub of the Keynesian critique of the free market economy, then, rests on the involuntary unemployment allegedly caused by too low a level of social expenditures and income. But how can this be, since we have previously explained that there can be no involuntary unemployment in a free market? The answer has become evident (and is admitted in the most intelligent of the Keynesian writings): The Keynesian "under-employment equilibrium" occurs only *if money wage rates are rigid downward*, i.e., if the supply curve of labor below "full employment" is infinitely elastic.[13] Thus, suppose there is a

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[13]Thus, see the revealing article by Franco Modigliani, "Liquidity Preference and the Theory of Interest and Money" in Hazlitt, *Critics of Keynesian Economics*, pp. 156–69. Also see the articles by Erik Lindahl, "On Keynes' Economic System—Part I," *The Economic Record*, May, 1954, pp. 19–32; November, 1954, pp. 159–71; and Wassily W. Leontief, "Postulates: Keynes' *General Theory* and the Classicists" in S. Harris, ed., *The New Economics* (New York: Knopf, 1952), pp. 232–42. For an empirical critique of the assumed Keynesian correspondence between aggregate

"hoarding" (an increased demand for money), and social income falls. The result is a fall in the monetary demand curves for labor factors, as well as in all other monetary demand curves. We would expect the general supply curve of labor factors to be vertical. Since only *money* wage rates are being changed while *real* wage rates (in terms of purchasing power) remain the same, there will be no shift in labor/leisure preferences, and the total stock of labor offered on the market will remain constant. At any rate, certainly no involuntary unemployment will arise.

How then can the Keynesian case arise? How can the supply of labor remain horizontal at the old money wage rate? In only two ways: (1) if people voluntarily agree with the unions, which insist that no one be employed at lower than the old money wage rate. Since selling prices are falling, maintaining the old money wage rate is equivalent to demanding a higher real wage rate. We have seen above that the unions' raising of real wage rates causes unemployment. But this unemployment is *voluntary*, since the workers acquiesce in the imposition of a higher minimum real wage rate, below which they will not undercut the union and accept employment. Or (2) unions or government coercively impose the minimum wage rate. But this is an example of a *hampered* market, not the free market to which we are confining our analysis here.

Situation (1) or (2) may be diagramed as in Figure 80.

The original demand curve for labor is *DD* (for simplicity of exposition we assume as meaningful the concept of "demand for labor" in general). Total stock of labor in the society is *0F*, or at least that is the stock put forward upon the market. Now an increase in the demand for money shifts all demand curves downward as all money prices fall. If wage rates are free to fall, the intersection point will move from *H* to *C* and nominal wage

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output and employment, *see* George W. Wilson, "The Relationship between Output and Employment," *Review of Economics and Statistics*, February, 1960, pp. 37–43.
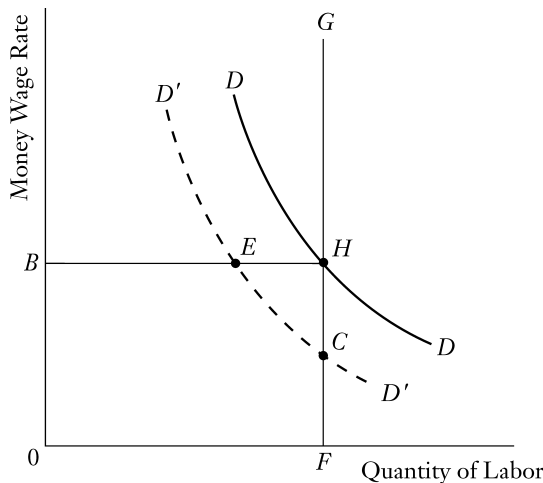
FIGURE 80. UNEMPLOYMENT RESULTING FROM FIXING
MONEY WAGES AT HIGHER THAN FREE-MARKET RATES

rates reduced accordingly, from *FH* to *FC*. There is still "full
employment" at level *0F*. Now suppose however, that a union
sets a minimum money wage rate of *0B* (or *FH*). Then the sup-
ply-of-labor curve becomes *BHG*; horizontal up to *FG* and ver-
tical from there on. The new demand curve *D′D′* will now in-
tersect the supply of labor at point *E* instead of point *C*. Total
amount of labor now employed is reduced to *BE*, and *EH* are
now unemployed as a result of the union action.

Keynes' own exposition tended to run in terms of real rather
than money magnitudes—real social income, real expenditures,
etc.[14] Such an analysis obscures dynamic considerations, since
transactions take place at least superficially in monetary terms
on the market. However, the essential conclusion of our analy-
sis remains unchanged if we pursue it directly in real terms. In-
stead of falling, demand curves in *real* terms will now remain the
same. This is true for the labor market as well. Instead of being

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[14]This is what Keynes' discussion of "wage units" amounted to. Cf.
Lindahl, "On Keynes' Economic System—Part I," p. 20.

depicted on a diagram as a horizontal line at existing wage rates, the effect of union action would have to be shown as a horizontally imposed *increase* in real wage rates (the result of keeping money wage rates constant while selling prices fall). The relevant diagram is shown in Figure 81. The facts depicted in this diagram are the same as in the previous diagram: unions causing unemployment (*EH*) by insisting on an excessively high money (and therefore real) wage (*0B*).
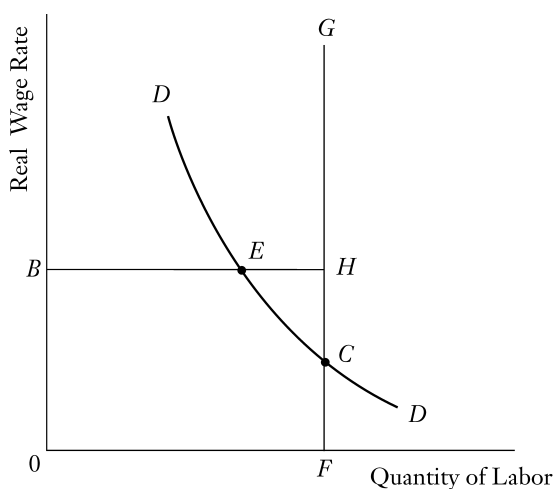

FIGURE 81. UNEMPLOYMENT RESULTING FROM FIXING
REAL WAGES AT HIGHER THAN FREE-MARKET RATES

The sum and substance of the "Keynesian Revolution" was the thesis that there *can* be an unemployment equilibrium on the free market. As we have seen, the only sense in which this is true was known years before Keynes: that widespread union maintenance of excessively high wage rates will cause unemployment.

Keynes believed that while other elements of the economic system, including prices, were set basically in real terms, workers bargained even ultimately only in terms of *money* wages—that unions insisted on minimum money wage rates downward, but

would passively accept falling real wages in the form of rising prices, money wage rates remaining the same. The Keynesian prescription for eliminating unemployment therefore rests specifically on the "money illusion"—that unions will impose minimum *money* wage rates, but are too stupid to impose minimum real wage rates *per se*. Unions, however, have learned about purchasing-power problems and the distinction between money and real rates; indeed, it hardly requires much reasoning ability to grasp this distinction.[15] Ironically, Keynes' advocacy of inflation based on the "money illusion" rested on the historical experience (which we shall treat more fully below) that, during an inflation, selling prices rise faster than wage rates. Yet an economy in which unions impose minimum wage rates is precisely an economy in which unions will be alive to any losses in their real, as well as their money, wages. Inflation, therefore, cannot be used as a means of duping unions into relieving unemployment.[16] Keynesianism has been touted as at least a "practical" system. Whatever its theoretical defects, it is alleged to be fit for the modern world of unionism. Yet it is precisely in the modern world that Keynes' doctrine is least appropriate or practical.[17]

The Keynesians object that to allow rigid money wage rates to become flexible downward would further lower monetary

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[15]Cf. Lindahl, "On Keynes' Economic System—Part I," pp. 25, 159 ff. Lindahl's articles provide a good summary as well as a critique of the Keynesian system.

[16]Furthermore, inflation is, at best, an inefficient and distortive substitute for flexible wage rates. For inflation affects the entire economy and its prices, while particular wage rates will fall only to the extent necessary to "clear" the market for the particular labor factor. Thus, freely flexible wage rates will fall only in those fields necessary to eliminate unemployment in those particular areas. Cf. Henry Hazlitt, *The Failure of the "New Economics"* (Princeton, N.J.: D. Van Nostrand, 1959), pp. 278 ff.

[17]Cf. L. Albert Hahn, *The Economics of Illusion* (New York: Squier Publishing Co., 1949), pp. 50 ff., 166 ff., and *passim*.

demand for goods, and therefore monetary income. But this completely confuses *wage rates* with *aggregate payroll*, or total income going to wages.[18] That the former falls does not mean that the latter falls. On the contrary, total income is, as we have seen, determined by total expenditures in the previous period of time. Lower wage rates will cause the hiring of those made unemployed by the old excessively high wage rates. The fact that labor is now cheaper relatively to land factors will cause investors to expend a greater proportion on labor vis-à-vis land than before. And the employment of unemployed labor increases production and therefore aggregate real income. Furthermore, even if payrolls also decline, prices and wage rates can adjust—but this will be taken up in the next section on liquidity preference.

(2) *"Liquidity Preference"*

Those Keynesians who recognize the grave difficulties of their system fall back on one last string in their bow—"liquidity preference." Intelligent Keynesians will concede that involuntary unemployment is a "special" or rare case, and Lindahl goes even further to say that it could be only a *short*-run and not a long-run equilibrium phenomenon.[19] Neither Modigliani nor Lindahl, however, is thoroughgoing enough in his critique of the Keynesian system, particularly of the "liquidity preference" doctrine.

The Keynesian system, as is quite clear from the mathematical portrayals of it given by its followers, suffers grievously from the mathematical-economic sin of "mutual determination." The use of mathematical functions, which are reversible at will, is appropriate in physics, where we do not know the causes of the observed movements. Since we do not know the causes, any

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[18]Cf. Hutt, "Significance of Price Flexibility."

[19]Cf. Lindahl's critique of Lawrence Klein's *The Keynesian Revolution* in "On Keynes' Economic System—Part I," p. 162. *Also see* Leontief, "Postulates: Keynes' *General Theory* and the Classicists."

mathematical law explaining or describing movements will be reversible, and, as far as we are concerned, any of the variables in the function is just as much "cause" as another. In praxeology, the science of human action, however, we *know* the original cause—motivated action by individuals. This knowledge provides us with true axioms. From these axioms, true laws are deduced. They are deduced step by step in a logical, cause-and-effect relationship. Since first causes are known, their consequent effects are also known. Economics therefore traces unilinear cause-and-effect relations, not vague "mutually determining" relations.

This methodological reminder is singularly applicable to the Keynesian theory of interest. For the Keynesians consider the rate of interest (*a*) as *determining* investment and (*b*) as being determined by the demand for money to hold "for speculative purposes" (liquidity preference). In practice, however, they treat the latter *not* as determining the rate of interest, but as *being determined* by it. The methodology of "mutual determination" has completely obscured this sleight of hand. Keynesians might object that all demand and supply curves are "mutually determining" in their relation to price. But this facile assertion is not correct. Demand curves are determined by utility scales, and supply curves by speculation and the stock produced by given labor and land factors, which is ultimately governed by time preferences.

The Keynesians therefore treat the rate of interest, *not* as they believe they do—as determined by liquidity preference—but rather as some sort of mysterious and unexplained force imposing itself on the other elements of the economic system. Thus, Keynesian discussion of liquidity preference centers around "inducement to hold cash" as the rate of interest rises or falls. According to the theory of liquidity preference, a fall in the rate of interest increases the quantity of cash demanded for "speculative purposes" (liquidity preferences), and a rise in the rate of interest lowers liquidity preference.

The first error in this concept is the arbitrary separation of the demand for money into two separate parts: a "transactions demand," supposedly determined by the size of social income, and a "speculative demand," determined by the rate of interest. We have seen that all sorts of influences impinge themselves on the demand for money. But they are only influences working *through* the value scales of individuals. And there is only *one* final demand for money, because each individual has only one value scale. There is no way by which we can split the demand up into two parts and speak of them as independent entities. Furthermore, there are far more than two influences on demand. In the final analysis, the demand for money, like all utilities, cannot be reduced to simple determinants; it is the outcome of free, independent decisions on individual value scales. There is, therefore, no "transaction demand" uniquely determined by the size of income.

The "speculative demand" is mysterious indeed. Modigliani explains this "liquidity preference" as follows:

> we should expect that any fall in the rate of interest . . . would induce a growing number of potential investors to keep their assets in the form of money, rather than securities; that is to say, we should expect a fall in the rate of interest to increase the demand for money as an asset.[20]

This is subject to the criticism, as we have seen, that the rate of interest is here *determining*, and is not *itself* explained by any cause. Furthermore, what does this statement mean? A fall in the rate of interest, according to the Keynesians, means that less interest is being earned from bonds, and therefore there is a greater inducement to hold cash. This is correct (as long as we allow ourselves to think in terms of the interest rate as *determining* instead of *being determined*), but highly inadequate. For

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[20]Modigliani, "Liquidity Preference and the Theory of Interest and Money," pp. 139–40.

if a lower interest rate "induces" greater cash holdings, it also induces greater *consumption*, since consumption also becomes more attractive. In fact, one of the grave defects of the liquidity-preference approach is that the Keynesians never think in terms of *three* "margins" being decided at once. They think only in terms of two at a time. Hence, Modigliani: "Having made his consumption-saving plan, the individual has to make decisions concerning the assets he owns"; i.e., he then allocates them between money and securities.[21] In other words, people first decide between consumption and saving (in the sense of not consuming); and *then* they decide between investing and hoarding these savings. But this is an absurdly artificial construction. People decide on all three of their alternatives, weighing one against each of the others. To say that people first decide between consuming and not consuming and *then* choose between hoarding and investing is just as misleading as to say that people first choose how much to hoard and then decide between consumption and investment.[22]

People, therefore, allocate their money among consumption, investment, and hoarding. *The proportion between consumption and investment reflects individual time preferences.* Consumption reflects desires for present goods, and investment reflects desires for future goods. An increase in the demand-for-money schedule does *not* affect the rate of interest if the proportion between consumption and investment (i.e., time preference) remains the same.

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[21]*Ibid.*, p. 137.

[22]See the critique of the Keynesian doctrine by Tjardus Greidanus, *The Value of Money* (2nd ed.; London: Staples Press, 1950), pp. 194–215, and of the liquidity-preference theory by D.H. Robertson, "Mr. Keynes and the Rate of Interest" in *Readings in the Theory of Income Distribution*, pp. 439–41. In contrast to Keynes' famous phrase that the rate of interest is "the reward for parting with liquidity," Greidanus points out that buying consumers' goods (or even producers' goods in Keynes' sense of "interest") sacrifices liquidity and yet earns no interest "reward." Greidanus, *Value of Money*, p. 211. *Also see* Hazlitt, *Failure of the "New Economics,"* pp. 186 ff.

The rate of interest, we must reiterate, is *determined* by time preferences, which also determine the proportions of consumption and investment. To think of the rate of interest as "inducing" more or less saving or hoarding is to misunderstand the problem completely.[23]

Admitting, then, that time preference determines the proportions of consumption and investment and that the demand for money determines the proportion of income hoarded, does the demand for money play a role in determining the interest rate? The Keynesians assert that there is a relation between the rate of interest and a "speculative" demand for cash. Should the schedule of the latter rise, the former rises also. But this is not necessarily true. A greater proportion of funds hoarded can be drawn from three alternative sources: (*a*) from funds that formerly went into consumption, (*b*) from funds that went into investment, and (*c*) from a mixture of both that leaves the old consumption-investment proportion unchanged. Condition (*a*) will bring about a *fall* in the rate of interest; condition (*b*) a *rise* in the rate of interest, and condition (*c*) will leave the rate of interest unchanged. Thus hoarding may reflect either a rise, a fall, or no change in the rate of interest, depending on whether *time preferences* have concomitantly risen, fallen, or remained the same.

The Keynesians contend that the speculative demand for cash depends upon and determines the rate of interest in this way: if people expect that the rate of interest will rise in the near future, then their liquidity preference increases to await this rise. This, however, can hardly be a part of a long-run *equilibrium* theory, such as Keynes is trying to establish. Speculation, by its very nature, disappears in the ERE, and hence no fundamental causal theory can be based upon it. Furthermore, what *is* an interest rate? One grave and fundamental Keynesian error is to persist in regarding the interest rate as a contract rate on loans, instead of the price spreads between stages of production. The former, as we have seen, is only the reflection of the latter.

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[23]Mises, *Human Action*, pp. 529–30.

A strong expectation of a rapid rise in interest rate means a strong expectation of an increase in the price spreads, or rate of net return. A fall in prices means that entrepreneurs generally expect that factor prices will fall *further* in the near future than their selling prices. But it requires no Keynesian labyrinth to explain this phenomenon; all we are confronted with is a situation in which entrepreneurs, expecting that factor prices will soon fall, cease investing and wait for this happy event so that their return will be greater. This is *not* "liquidity preference," but *speculation on price changes.* It involves a modification of our previous discussion of the relation between prices and the demand for money, caused by a fact that we shall explore soon in detail, namely, that prices do not change equally and proportionately.

The expectation of falling factor prices speeds up the movement toward equilibrium and hence toward the pure interest relation as determined by time preference.[24]

If, for example, unions keep wage rates artificially high, "hoarding" will increase as unions keep wage rates ever higher than the equilibrium rate at which "full employment" can be maintained. This induced hoarding lowers the money demand for factors and increases unemployment still further, but only because of wage-rate rigidity.[25]

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[24]Hutt concludes that equilibrium

> is secured when all services and products are so priced that they are (i) brought within the reach of people's pockets (i.e., so that they are purchasable by existing money incomes) or (ii) brought into such a relation to predicted prices that no postponement of expenditure on them is induced. For instance, the products and services used in the manufacture of investment goods must be so priced that anticipated future money incomes will be able to buy the services and depreciation of new equipment or replacement. (Hutt, "Significance of Price Flexibility," p. 394)

[25]"Postponements (in purchases) arise because it is judged that a cut in costs (or other prices) is less than will eventually have to take place, or because the rate of fall of costs is insufficiently rapid." *Ibid.*, p. 395.

The final Keynesian bogey is that people may acquire an unlimited demand for money, so that hoards will indefinitely increase. This is termed an "infinite" liquidity preference. And this is the only case in which neo-Keynesians such as Modigliani believe that involuntary unemployment can be compatible with price and wage freedom. The Keynesian worry is that people will hoard instead of buying bonds for fear of a fall in the price of securities. Translating this into more important "natural" terms, this would mean, as we have stated, not investing because of expectation of imminent increases in the natural interest rate. Rather than act as a blockade, however, this expectation *speeds* the ensuing adjustment. Furthermore, the demand for money could not be infinite since people must always continue consuming, whatever their expectations. Of necessity, therefore, the demand for money could never be infinite. The existing level of consumption, in turn, will require a certain level of investment. As long as productive activities are continuing, there is no need or possibility of lasting unemployment, regardless of the degree of hoarding.[26]

A demand for money to hold stems from the general uncertainty of the market. Keynesians, however, attribute liquidity preference, not to *general* uncertainty, but to the specific uncertainty of future bond prices. Surely this is a highly superficial and limiting view.

In the first place, this cause of liquidity preference could occur only on a highly imperfect securities market. As Lachmann pointed out years ago in a neglected article, Keynes' causal pattern—"bearishness" causing "liquidity preference" (demand for cash) and high interest rates—could take place only in the absence of an organized forward or *futures* market for securities.

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[26]As Hutt points out, if we can conceive of a situation of infinitely elastic liquidity preference (and no such situation has ever existed), then "we can conceive of prices falling rapidly, keeping pace with expectations of price changes, but never reaching zero, with full utilization of resources persisting all the way." *Ibid*., p. 398.

If such a market existed, both bears and bulls on the bond market

> could express their expectations by forward transactions which do not require any cash. Where the market for securities is fully organized over time, the owner of 4% bonds who fears a rise in the rate of interest has no incentive to exchange them for cash, for he can always "hedge" by selling them forward.[27]

Bearishness would cause a fall in forward bond prices, followed immediately by a fall in spot prices. Thus, speculative bearishness would, of course, cause at least a temporary rise in the rate of interest, but accompanied by *no* increase in the demand for cash. Hence, any attempted connection between liquidity preference, or demand for cash, and the rate of interest, falls to the ground.

The fact that such a securities market has not been organized indicates that traders are not nearly as worried about rising interest rates as Keynes believes. If they were and this fear loomed as an important phenomenon, then surely a futures market would have developed in securities.

Furthermore, as we have seen, interest rates on loans are merely a reflection of price spreads, so that a prediction of higher interest rates really means the expectation of lower *prices* and, especially, lower costs, resulting in a greater demand for money. And all speculation, on the free market, is self-correcting and speeds adjustment, rather than a cause of economic trouble.

G. The Purchasing-Power and Terms-of-Trade Components in the Rate of Interest

Many economists, beginning with Irving Fisher, have asserted that the market rate of interest, in addition to containing specific entrepreneurial components superimposed on the

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[27]L.M. Lachmann, "Uncertainty and Liquidity Preference," *Economica*, August, 1937, p. 301.

pure rate of interest, also contains a "price" or a "purchasing-power component." When the purchasing power of money is generally expected to rise, the theory asserts that the market rate of interest falls correspondingly; when the PPM is expected to fall, the theory declares that the market rate of interest rises correspondingly.

These economists erred by concentrating on the *loan rate* rather than on the natural rate (the rate of return). The reasoning behind this theory was as follows: If the purchasing power of money is expected to change, then the pure rate of interest (determined by time preference) will no longer be the same in "real terms." Suppose that 100 gold ounces exchange for 105 gold ounces a year from now—i.e., that the rate of interest is 5 percent. Now, suddenly, let there be a general expectation that the purchasing power of money will increase. In that case, a *lower* amount to be returned, say 102 ounces, may yield 5 percent real interest in terms of purchasing power. A general expectation of a rise in purchasing power, therefore, will lower the market rate of interest at present, while a general expectation of a fall in purchasing power will raise the rate.[28]

There is a fatal defect in this generally accepted line of reasoning. Suppose, for example, that prices are generally expected to fall by 50 percent in the next year. Would someone lend 100 gold ounces to exchange for 53 ounces one year from now? Why not? This would certainly preserve the real interest rate at 5 percent. But then why should the would-be lenders not simply hold on to their money and *double* their real assets as a result of the price fall? And that is precisely what they would do; they certainly would not give money away, even though their real assets would be greater than before. Fisher simply shrugged off this point by saying that the purchasing-power premium could never make the interest rate negative. But this flaw vitiates the entire theory.

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[28]Irving Fisher, *The Rate of Interest* (New York, 1907), chap. v, xiv; *idem*, *Purchasing Power of Money*, pp. 56–59.

The root of the difficulty consists in ignoring the natural rate of interest. Let us consider the interest rate in those terms. Then, suppose 100 ounces are paid for factors that will be transformed in one year into a product that sells for 105 gold ounces, for an interest gain of five and an interest return of 5 percent. Now a general expectation arises of a general *halving* of prices one year from now. The selling price of the product will be 53 ounces in a year's time. What happens now? Will entrepreneurs buy factors for 100 and sell at 53 merely because their real interest rate is preserved? Certainly not. They will do so only if they do not at all anticipate the change in purchasing power. But to the extent that it *is* anticipated, they will hold money rather than buy factors. This will *immediately* lower factor prices to their expected future levels, say from 100 to 50.

What happens to the *loan rate* is analytically quite trivial. It is simply a reflection of the natural rate and depends on how the expectations and judgment of the people on the loan market compare with those on the stock and other markets. For the free economy, there is no point in separately analyzing the loan market. Analysis of the Fisher problem—the relation of the interest rate to price changes—should concentrate on the *natural* rate of interest. Discussion of the relation between price movements and the (natural) rate of interest should be divided into two parts: first, assuming "neutral money"—that all prices change equally and at the same time—and second, analyzing conditions where factor and product change at different rates. And these changes should first be analyzed without considering that they had been *anticipated* by people on the market.

Suppose, first, that all prices change equally and at the same time. Instead of thinking in terms of 100 ounces borrowed on the loan market, let us consider the natural rate. An investor buys factors in period 1 and then sells the product, say in period 3. Time, as we have seen, is the essence of the production structure. All the processes take time, and capitalists pay money to owners of factors in advance of production and sale.

Since factors are bought before products are sold, what is the effect of a period of rising general prices (i.e., falling PPM)? The result is that the entrepreneur reaps an apparent extra profit. Suppose that he normally purchases original factors for 100 and then sells the product for 120 ounces two years later, for an interest return of 10 percent per annum. Now suppose that a decrease in the demand for money or an increase of money stock propels a general upward movement in prices and that all prices double in two years' time. Then, just because of the passage of time, an entrepreneur who purchases factors for 100 now will sell for 240 ounces in two years' time. Instead of a net return of 20 ounces, or 10 percent per annum, he reaps 140 ounces, or 70 percent per annum.

It would seem that a rise in prices creates an inherent tendency for large-scale profits that are not simply individual rewards for more accurate forecasting. However, more careful analysis reveals that this is not an extra profit at all. For the 240 ounces two years from now is roughly equivalent, in terms of purchasing power, to 120 ounces now. The *real* rate of net return, based on money's services, is the same 10 percent as it has always been. It is clear that any lower net return would amount to a decline in real return. A return of a mere 120 ounces, for example, would amount to a drastic negative real return, for 100 ounces would then be invested for the equivalent gross return of only 60 ounces. It has often been shown that a period of rising prices misleads businessmen into thinking that their increased money profits are also real gains, whereas they only maintain real rates of return. Consider, for example, "replacement costs"—the prices which the businessmen will *now* have to pay for factors. The capitalist who earns 240 ounces on a 100-ounce investment neglects to his sorrow the fact that his factor bundle now costs 200 ounces instead of 100. Businessmen who under such circumstances treat their monetary profits as real profits and consume them soon find that they are really consuming their capital.

The converse occurs in the case of falling prices. The capitalist buys factors in period 1 and sells the product in period 3, when all-around prices are lower. If prices are to fall by a half in two years, an investment of 100, followed by a sale at 60, does not really involve the terrific loss that it appears to be. For the 60 return is equivalent in real terms, both in generalized purchasing power and in replacement of factors, to 120 previous ounces. His real rate of return remains the same. The consequence is that businessmen will be likely to *overstate their losses* in a period of price contraction. Perhaps this is one of the major reasons for the deep-seated belief of most businessmen that they always gain during a general price expansion and lose during a period of general contraction. This belief is purely illusory.

In these examples, the natural interest rate on the market has contained a *purchasing-power component*, which corrects for real rates, positively in money terms during a general expansion, and negatively during a general contraction. The loan rate will be simply a reflection of what has been happening in the natural rate. So far, the discussion is similar to Fisher's, except that these are the effects of *actual*, not anticipated, changes and the Fisher thesis cannot take account of the negative interest rate case. We have seen that rather than take a monetary loss, even though their real return will be the same, entrepreneurs will hold back their purchases of factors until factor prices fall immediately to their future low level. But this process of anticipatory price movement does not occur only in the extreme case of a prospective "negative" return. *It happens whenever a price change is anticipated.* Thus, suppose all entrepreneurs generally anticipate that prices will double in two years. The fact of an anticipated rise will lead to an increase in the price level *now* and an approach immediately toward a doubled price level. An anticipated fall will lead to an immediate fall in factor prices. If all changes were anticipated by everyone, there would be no room for a purchasing-power component to develop. Prices would simply fall immediately to their future level.

The purchasing-power component, then, is *not* the reflection, as has been thought, of *expectations* of changes in purchasing power. It is the reflection of the change itself; indeed, *if the change were completely anticipated, the purchasing power would change immediately, and there would be no room for a purchasing-power component in the rate of interest*. As it is, partial anticipations speed up the adjustment of the PPM to the changed conditions.

So far we have distinguished three components of the natural rate of interest (all reflected in the loan rate of interest). One is the *pure rate* of interest—the result of individual time preferences, tending to be uniform throughout the economy. Second are the specific entrepreneurial rates of interest. These differ from firm to firm and so are not uniform. They are anticipated in advance, and they are the rates that an investor will have to anticipate receiving before he enters the field. A particularly "risky" venture, if successful at all, will therefore tend to earn more in net return than what is generally anticipated to be a "safe" venture. The third component of the natural rate of interest is the purchasing-power component, correcting for general PPM changes because of the inevitable time lags in production. This will be positive in an expansion and negative in a contraction, but will be ephemeral. The more that changes in the PPM are anticipated, the *less* important will be the purchasing-power component and the more rapid will be the adjustment in the PPM *itself*.

There is still a fourth component in the natural rate of interest. This exists to the extent that money changes are *not* neutral (and they never are). Sometimes product prices rise and fall faster than factor prices, sometimes they rise and fall more slowly, and sometimes their behavior is mixed, with some factor prices and some product prices rising more rapidly. Whenever there *is* a general divergence in rates of movement between the prices of the product and of original factors, a *terms-of-trade* component emerges in the natural rate of interest.

Historically, it has often been the case that product prices rise more rapidly and fall more rapidly than the prices of original

factors. In the former case, there is, during the period of transition, a favorable change in the terms of trade to the general run of capitalists. For selling prices are increasing *faster* than the buying prices of original factors. This will increase the general rate of return and constitute a general positive terms-of-trade component in the natural rate of interest. This, of course, will also tend to be reflected in the loan rate of interest. In the case of a contraction, a more sluggish fall in the prices of factors creates a general negative terms-of-trade component in the interest rate. The components are precisely the reverse whenever factor prices change more rapidly than product prices. Whenever there is no general change in the "terms of trade" to capitalist-entrepreneurs, no terms-of-trade component will appear in the interest rate.

Changes in terms of trade discussed here are only those resulting purely from differences in the speed of reaction to changing conditions. They do *not* include basic changes in the terms of trade resulting from changes in time preferences, such as we have discussed above.

It is clear that all the interest-rate components aside from the pure rate—entrepreneurial, purchasing power, and terms of trade—are "dynamic" and the result of uncertainty. None of these components would exist in the ERE, and therefore the market interest rate in the ERE would equal the pure rate determined by time preferences alone. In the ERE the only net incomes would be a uniform pure interest return and wages to labor (ground land rents being capitalized into an interest return).

6. The Supply of Money

A. THE STOCK OF THE MONEY COMMODITY

The total stock of money in a society is the total number of ounces of the money commodity available. Throughout this volume we have deliberately used "gold ounces" instead of "dollars" or any other name for money, precisely because on

the free market the latter would only be a confusing term for *units of weight* of gold or silver.

The total stock, from one period to another, will increase from new production and decrease from being used up—either in industrial production as a nonmonetary factor or from the wear and tear of coins. Since one of the qualities of the money commodity is its durability, the usual tendency is a long-run increase in the money supply and a resulting gradual long-run decline in the PPM. This furthers social utility only in so far as more gold or silver is made available for *nonmonetary* purposes.

We saw in chapter 3 that the physical form of the monetary commodity makes no difference. It can be in nonmonetary use as jewelry, in the form of bars of bullion, or in the form of coins. On the free market, transforming gold from one shape to another would be a business like any other business, charging a market price for its service and earning a pure interest return in the ERE. Since gold begins as bullion and ends as coin, it would seem that the latter would command a small premium over the equivalent weight of the former, the bullion often being a capital good for coin. Sometimes, however, coins are remelted back into bullion for larger transactions, so that a premium for coin over bullion is not a certainty. If, as generally happens, minting coins costs more than melting, coins will command the equivalent premium over bullion. This premium is called *brassage*.

It is impossible for economics to predict the details of the structure of any market. The market for privately issued gold bars or coins might develop as homogeneous, like the market for wheat, or the coins might be stamped and branded by the coinmakers to certify to the quality of their product. Probably the public would buy only branded coins to ensure accurate quality.

One argument against permitting free private coinage is that compulsory standardization of the denominations of coins is more convenient than the diversity of coins that would ensue under a free system. But if the market finds it more convenient, private mints will be led by consumer demand to mint certain

standard denominations. On the other hand, if greater variety is preferred, consumers will demand and obtain a more varied number of coins.[29]

B. Claims to Money: The Money Warehouse

Chapter 2 described the difference between "claims to present goods" and "claims to future goods." The same analysis applies to money as to barter. A claim to future money is a *bill of exchange*—an evidence of a credit transaction. The holder of the bill—the creditor—redeems it at the date of redemption in exchange for money paid by the debtor. A claim to present money, however, is a completely different good. It is *not* the evidence of an *uncompleted* transaction, an exchange of a present for a future good, as is the bill; it is a simple *evidence of ownership of a present good*. It is not uncompleted, or an exchange on the time market. Therefore, to present this evidence for redemption is not the *completion* of a transaction or equivalent to a creditor's calling his loan; it is a simple *repossessing* of a man's own good. In chapter 2 we gave as examples of a claim to present goods warehouse receipts and shares of stock. Shares of

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[29]For an exposition of the feasibility of private coinage, *see* Spencer, *Social Statics*, pp. 438–39; Charles A. Conant, *The Principles of Money and Banking* (New York: Harper & Bros., 1905), I, 127–32; Lysander Spooner, *A Letter to Grover Cleveland* (Boston: B.R. Tucker, 1886), p. 79; B.W. Barnard, "The Use of Private Tokens for Money in the United States," *The Quarterly Journal of Economics*, 1916–17, pp. 617–26.

Recent writers favorable to private coinage include: Everett Ridley Taylor, *Progress Report on a New Bill of Rights* (Diablo, Calif.: the author, 1954); Oscar B. Johannsen, "Advocates Unrestricted Private Control over Money and Banking," *The Commercial and Financial Chronicle*, June 12, 1958, pp. 2622 f.; and Leonard E. Read, *Government—An Ideal Concept* (Irvington-on-Hudson, N.Y.: Foundation for Economic Education, 1954), pp. 82 ff. An economist hostile to market-controlled commodity money has recently conceded the feasibility of private coinage under a commodity standard. Milton Friedman, *A Program for Monetary Stability* (New York: Fordham University Press, 1960), p. 5.

stock, however, cannot be redeemed in parts of a company's fixed assets because of the rules of ownership that the companies themselves set up in their co-operative venture. Furthermore, there is no guarantee that such assets will have a fixed money value. We shall therefore confine ourselves to *warehouse receipts*, which are also more relevant to the supply of money.

When a man deposits goods at a warehouse, he is given a receipt and pays the owner of the warehouse a certain sum for the service of storage. He still retains ownership of the property; the owner of the warehouse is simply guarding it for him. When the warehouse receipt is presented, the owner is obligated to restore the good deposited. A warehouse specializing in money is known as a "bank."

Claims to goods are often treated on the market as equivalent to the goods themselves. If no fraud or theft is suspected, then evidence of ownership of a good in a warehouse is considered as equivalent to the good itself. In many cases, individuals will find it advantageous to exchange the claims or evidences— the *goods-substitutes*—rather than the goods themselves. Paper is more convenient to transfer from person to person, and the expense of moving the goods is eliminated. When Jones sells Smith his wheat, therefore, instead of moving the wheat from one place to another, they may well agree simply to transfer the warehouse receipt itself from Jones to Smith. The goods remain in the same warehouse until Smith needs them or until the receipt is transferred to someone else. Of course, Smith may prefer, for one reason or another, to keep the goods in his own warehouse, in which case they are moved from one to the other.

Let us take the case of a warehouse owned by the Trustee Warehouse Company. It holds various goods in its vaults for safekeeping. Suppose that this company has developed a reputation for being very reliable and theft-free. Consequently, people tend to leave their goods in the Trustee Warehouse for a considerable length of time and, in the case of goods that they do not use frequently, will even tend to transfer the *goods-certificates*

(the warehouse receipts, or evidences of ownership of the goods) and not redeem the goods themselves. Thus, the goods-certificates act as goods-substitutes in exchange. Suppose that the Trustee Company sees this happening. It realizes that a good opportunity for fraud presents itself. It can take the depositors' goods, the goods that it holds for safekeeping, and lend them out to people on the market. It can earn interest on these loans, and as long as only a small percentage of depositors ask to redeem their certificates at any one time, no one is the wiser. Or, alternatively, it can issue pseudo warehouse receipts for goods that are not there and lend these on the market. This is the more subtle practice. The pseudo receipts will be exchanged on the market on the same basis as the true receipts, since there is no indication on their face whether they are legitimate or not.

It should be clear that this practice is outright fraud. Someone else's property is taken by the warehouse and used for its own money-making purposes. It is not *borrowed*, since no interest is paid for the use of the money. Or, if spurious warehouse receipts are printed, *evidences of goods* are issued and sold or loaned without any such goods being in existence.

Money is the good most susceptible to these practices. For money, as we have seen, is generally not used directly at all, but only for exchanges. It is, furthermore, a widely homogeneous good, and therefore one ounce of gold is interchangeable with any other. Since it is convenient to transfer paper in exchange rather than carry gold, money warehouses (or banks) that build up public confidence will find that few people redeem their certificates. The banks will be particularly subject to the temptation to commit fraud and issue pseudo money certificates to circulate side by side with genuine money certificates as acceptable money-substitutes. The fact that money is a homogeneous good means that people do not care whether the money they redeem is the original money they deposited. This makes bank frauds easier to accomplish.

"Fraud" is a harsh term, but an accurate one to describe this practice, even if not recognized as such in the law, or by those

committing it. It is, in fact, difficult to see the economic or moral difference between the issuance of pseudo receipts and the appropriation of someone else's property or outright embezzlement or, more directly, counterfeiting. Most present legal systems do not outlaw this practice; in fact, it is considered basic banking procedure. Yet the libertarian law of the free market would have to prohibit it. The purely free market is, by definition, one where theft and fraud (implicit theft) are illegal and do not exist.

To part with goods or money held in trust or to issue spurious warehouse receipts is, of course, a dangerous business, even when the law permits it. If the warehouse once failed to meet its contractual obligations, its fraud would be discovered, and a general panic "run" on the warehouse or bank would ensue. It would then be quickly plunged into bankruptcy. Such a bankruptcy, however, would not be similar to the failure of an ordinary speculative business enterprise. It is rather similar to the absconder who gets caught before he has returned the funds he has "borrowed."

Even if the receipt does not say on its face that the warehouse guarantees to keep it in its vaults, such an agreement is *implicit* in the very issuance of the receipt. For it is obvious that if any pseudo receipts are issued, it immediately becomes impossible for the bank to redeem all of them, and therefore fraud is immediately being committed. If a bank has 20 pounds of gold in its vaults, owned by depositors, and gold certificates redeemable on demand for 30 pounds, then notes to the value of 10 pounds are fraudulent. *Which* particular receipts are fraudulent can be determined only *after* a run on the bank has occurred and the later claimants are left unsatisfied.

In a purely free market where fraud cannot, by definition, occur, all bank receipts will be genuine, i.e., will represent only actual gold or silver in the vaults. In that case, all the bank's *money-substitutes* (warehouse receipts) will also be *money certificates*, i.e., each receipt genuinely certifies the actual existence of the money in its vaults. The amount of gold kept in bank vaults

for redemption purposes is called its "reserves," and the policy of issuing only genuine receipts is therefore a policy of "100-percent reserves" of cash to demand liabilities (liabilities that must be paid on demand).[30] However, the term "reserve" is a misleading one, because it assumes that the *bank* owns the gold and independently decides how much of it to keep on hand. Actually, it is not the bank that owns the gold, but its depositors.[31]

An enormous literature has developed dealing with the physical form of the money receipts, and yet the physical form is of no economic importance. It may be in the form of a *paper note*, a *token coin* (essentially a note stamped on coin instead of paper), or a book credit (*demand deposit*) in the bank. The demand deposit is not tangibly held by the owner, but can be transferred to anyone he desires by written order to the bank. This order is called a *check*. The depositor has a choice of which form of receipt to take, according to his convenience. Which form he chooses makes no economic difference.

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[30]Time deposits are, legally, future claims, since banks have a legal right to delay payment 30 days. Moreover, they do not pass as final media of exchange. The latter fact is not determining, however, since a secure claim to a money-substitute is itself part of the money supply. "Idle" cash balances are kept as "time deposits," just as gold bullion is a more "idle" form of money than coins. The deciding factor, perhaps, is that the 30-day limit is virtually a dead letter, for if a "savings" bank should impose it, a bankrupting "run" on the bank would ensue. Furthermore, actual payments are sometimes made by "cashiers' checks" on time deposits. Thus, "time" deposits now function as *demand* deposits and should be treated as part of the money supply. If banks wished to act as genuine *savings* banks, borrowing and lending *credit*, they could issue I.O.U's for specified lengths of time, due at definite future dates. Then no confusion or possible "counterfeiting" could arise.

[31]Such items as bills of lading, pawn tickets, and dock warrants have been warehouse receipts rooted in the specific objects deposited, in contrast to the loose "general deposits" where a homogeneous good can be returned. *See* W. Stanley Jevons, *Money and the Mechanism of Exchange* (16th ed.; London: Kegan Paul, Trench, Trübner & Co., 1907), pp. 201–11.

C. MONEY-SUBSTITUTES AND THE SUPPLY OF MONEY

Since money-substitutes exchange as money on the market, we must consider them as part of the supply of money. It then becomes necessary to distinguish between money (*in the broader sense*)—the common medium of exchange—and *money proper.* Money proper is the ultimate medium of exchange or *standard money*—here the *money commodity*—while the supply of money (in a broader sense) includes all the standard money plus the money-substitutes that are held in individuals' cash balances. In the cases cited above, gold was the money proper or standard money, while the receipts—the demand claims to gold—were the money-substitutes.

The relation between these elements may be illustrated as follows: Assume a community of three persons, A, B, C, and three money warehouses, X, Y, Z. Suppose that each person has 100 ounces of gold in his possession and none on deposit at a warehouse. For the community, then:

Total supply of money proper   = 300 ounces (A's + B's + C's)
Total supply of money-substitutes = 000 ounces
_____
Total supply of money
(in the broader sense)   = 300 ounces

The total supply of money is here identical with the total supply of money proper.

Now assume that A and B each deposits his 100 ounces of gold at warehouses X and Y respectively, while C keeps his gold on hand. The total supply of money is always equal to the total of individual cash balances. Its composition now is:

A—100 ounces of X-Money-Substitute
B—100 ounces of Y-Money-Substitute
C—100 ounces of Gold Money Proper

Total supply of money (in the broader sense) = Total cash balances = 200 ounces of money-substitutes + 100 ounces of money proper.

The effect of the deposit of money proper in the warehouses or banks is to change the *composition* of the total supply of money in cash balances; the total amount, however, remains unchanged at 300 ounces. Money-substitutes of various banks have replaced most of the standard money in individual cash holdings. Similarly, if A and B were to redeem their deposits, the total amount would remain unchanged, while the composition would revert to the original pattern.

What of the 200 ounces of gold deposited in the vaults of the banks? These are no longer part of the money supply; they are held in *reserve* against the outstanding money-substitutes. While in reserve, they form no part of any individual's cash balance; the cash balances consist not of the gold, but of evidences of ownership of the gold. Only the money proper outside of bank reserves forms part of individuals' cash balances and hence part of the community's supply of money.

Thus, as long as all money-substitutes are full money certificates, an increase or decrease in the money-substitutes outstanding can have no effect on the total supply of money. Only the *composition* of that supply is affected, and such changes in composition are of no economic importance.

However, when banks are legally permitted to abandon a 100-percent reserve and to issue pseudo receipts, the economic effects are quite different. We may call the money-substitutes that are not genuine money certificates, *uncovered* money-substitutes, since they do not genuinely represent money. The issue of uncovered money-substitutes adds to individuals' cash balances and hence to the total supply of money. Uncovered money-substitutes are not offset by new money deposits and so constitute net additions to the total supply. *Any increase or decrease in the supply of uncovered money-substitutes increases or decreases to the same extent the total supply of money (in the broader sense).*

Thus, the total supply of money is composed of the following elements: *supply of money proper outside reserves + supply of money*

certificates + supply of uncovered money-substitutes. The supply of money certificates has no effect on the size of the supply of money; an increase in this factor only decreases the size of the first factor. The supply of money proper and the factors determining its size have already been discussed. It depends on annual production compared to annual wear and tear, and thus, on the unhampered market, the supply of money-proper changes only slowly. As for uncovered money-substitutes, since they are essentially a phenomenon of the hampered rather than the free market, factors governing their supply will be further discussed below, in chapter 12.

In the meanwhile, however, let us analyze a little further the difference between a 100-percent-reserve and a fractional-reserve bank. The Star Bank, let us suppose, is a 100-percent-reserve bank; it is established with 100 gold ounces of capital invested by its stockholders in building and equipment. In the familiar balance sheet, with assets on the left-hand side and liabilities and capital on the right-hand side, the condition of the bank now appears as follows:

I. Star Bank

Assets	Liabilities
Equipment . . . . 100 oz.	
	Capital . . . . 100 oz.

The Star Bank is ready to begin operations. Several people now come and deposit gold in the bank, which in return issues warehouse receipts giving the depositors (the true owners of the gold) the right to redeem their property on demand at any time. Let us assume that after a few months 5,000 gold ounces have been deposited and stored in the bank's vaults. Its balance sheet now appears as follows: