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COMMERCIAL BANKS AS CREATORS OF "MONEY"

James Tobin

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## Commercial Banks as Creators of "Money"

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### I. THE OLD VIEW

Perhaps the greatest moment of triumph for the elementary economics teacher is his exposition of the multiple creation of bank credit and bank deposits. Before the admiring eyes of freshmen he puts to rout the practical banker who is so sure that he "lends only the money depositors entrust to him." The banker is shown to have a worm's eye's view, and his error stands as an introductory object lesson in the fallacy of composition. From the Olympian vantage of the teacher and the textbook it appears that the banker's dictum must be reversed: depositors entrust to bankers whatever amounts the bankers lend. To be sure, this is not true of a single bank; one bank's loan may wind up as another bank's deposit. But it is, as the arithmetic of successive rounds of deposit creation makes clear, true of the banking system as a whole. Whatever their other errors, a long line of financial heretics have been right in speaking of "fountain pen money," money created by the stroke of the bank president's pen when he approves a loan and credits the proceeds to the borrower's checking account.

In this time-honored exposition two characteristics of commercial banks--both of which are alleged to differentiate them sharply from other financial intermediaries--are intertwined. One is that their liabilities, --well at least their demand deposit liabilities--serve as widely acceptable

means of payment. Thus they count, along with coin and currency in public circulation, as "money." The other is that the preferences of the public normally play no role in determining the total volume of deposits or the total quantity of money. For it is the beginning of wisdom in monetary economics to observe that money is like the "hot potato" of a children's game; one individual may pass it to another, but the group as a whole cannot get rid of it. If the economy and the supply of money are out of adjustment, it is the economy that must do the adjusting. This is as true, evidently of money created by bankers' fountain pens as of money created by public printing presses. On the other hand, financial intermediaries other than banks do not create money, and the scale of their assets is limited by their liabilities, i.e., by the savings the public entrusts to them. They cannot count on receiving "deposits" to match every extension of their lending.

The commercial banks and only the commercial banks, in other words, possess the widow's cruse. And because they possess this key to unlimited expansion, they have to be restrained by reserve requirements. Once this is done, determination of the aggregate volume of bank deposits is just a matter of accounting and arithmetic: simply divide the available supply of bank reserves by the required reserve ratio.

The foregoing is admittedly a caricature, but I believe it is not a great exaggeration of the impressions conveyed by economics teaching concerning the roles of commercial banks and other financial institutions in the monetary system. In conveying this melange of propositions, economics has replaced the naive fallacy of composition of the banker with other half-

truths perhaps equally misleading. These have their root in the mystique of "money"--the tradition of distinguishing sharply between those assets which are and those which are not "money," and accordingly between those institutions which emit "money" and those whose liabilities are not "money." The persistent strength of this tradition is remarkable given the uncertainty and controversy over where to draw the dividing line between money and other assets. Time was when only currency was regarded as money, and the use of bank deposits was regarded as a way of economizing currency and increasing the velocity of money. Today scholars and statisticians wonder and argue whether to count commercial bank time and savings deposits in the money supply. And if so, why not similar accounts in other institutions? Nevertheless, once the arbitrary line is drawn, assets on the money side of the line are assumed to possess to the full properties which assets on the other side completely lack. For example, an eminent monetary economist, more candid than many of his colleagues, admits that we don't really know what money is, but proceeds to argue that, whatever it is, its supply should grow regularly at a rate of the order of 3 to 4 per cent per year.\*

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\*E. S. Shaw, "Money Supply and Stable Economic Growth," in United States Monetary Policy, American Assembly, New York, 1958, pp. 49-71.

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## II. THE "NEW VIEW"

A more recent development in monetary economics tends to blur the sharp traditional distinctions between money and other assets and between commercial banks and other financial intermediaries; to focus on demands for and supplies of the whole spectrum of assets rather than on the quantity and velocity of "money"; and to regard the structure of interest rates,

asset yields, and credit availabilities rather than the quantity of money as the linkage between monetary and financial institutions and policies on the one hand and the real economy on the other.\* In this essay I propose to look

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\*For a review of this development and for references to its protagonists, see Harry Johnson's survey article, "Monetary Theory and Policy," American Economic Review, LII, June 1962, pp. 335-384. I will confine myself to mentioning the importance, in originating and contributing to the "new view," of John Gurley and E. S. Shaw (yes, the very same Shaw cited in the previous footnote, but presumably in a different incarnation). Their viewpoint is summarized in Money in a Theory of Finance, Washington, Brookings Institution, 1960.

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briefly at the implications of this "new view" for the theory of deposit creation, of which I have above described or caricatured the traditional version. One of the incidental advantages of this theoretical development is to effect something of a reconciliation between the economics teacher and the practical banker.

According to the "new view," the essential function of financial intermediaries, including commercial banks, is to satisfy simultaneously the portfolio preferences of two types of individuals or firms.\*\* On one side are

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\*\*This paragraph and the three following are adapted with minor changes from the author's paper with William Brainard, "Financial Intermediaries and the Effectiveness of Monetary Controls," American Economic Review, LIII, May 1963, pp. 384-386.

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borrowers, who wish to expand their holdings of real assets--inventories, residential real estate, productive plant and equipment, etc.--beyond the

limits of their own net worth. On the other side are lenders, who wish to hold part or all of their net worth in assets of stable money value with negligible risk of default. The assets of financial intermediaries are obligations of the borrowers--promissory notes, bonds, mortgages. The liabilities of financial intermediaries are the assets of the lenders--bank deposits, insurance policies, pension rights.

Financial intermediaries typically assume liabilities of smaller default risk and greater predictability of value than their assets. The principal kinds of institutions take on liabilities of greater liquidity too; thus bank depositors can require payment on demand, while bank loans become due only on specified dates. The reasons that the intermediation of financial institutions can accomplish these transformations between the nature of the obligation of the borrower and the nature of the asset of the ultimate lender are these: (1) administrative economy and expertise in negotiating, accounting, appraising, and collecting; (2) reduction of risk per dollar of lending by the pooling of independent risks, with respect both to loan default and to deposit withdrawal; (3) governmental guarantees of the liabilities of the institutions and other provisions (bank examination, investment regulations, supervision of insurance companies, last-resort lending) designed to assure the solvency and liquidity of the institutions.

For these reasons, intermediation permits borrowers who wish to expand their investments in real assets to be accommodated at lower rates and easier terms than if they had to borrow directly from the lenders. If the creditors of financial intermediaries had to hold instead the kinds of

obligations that private borrowers are capable of providing, they would certainly insist on higher rates and stricter terms. Therefore, any autonomous increase--for example, improvements in the efficiency of financial institutions or the creation of new types of intermediaries--in the amount of financial intermediation in the economy can be expected to be, ceteris paribus, an expansionary influence. This is true whether the growth occurs in intermediaries with monetary liabilities--i.e., commercial banks--or in other intermediaries.

Financial institutions fall fairly easily into distinct categories, each industry or "intermediary" offering a differentiated product to its customers, both lenders and borrowers. From the point of view of lenders, the obligations of the various intermediaries are more or less close, but not perfect, substitutes. For example, savings deposits share most of the attributes of demand deposits; but they are not means of payment, and the institution has the right, seldom exercised, to require notice of withdrawal. Similarly there is differentiation in the kinds of credit offered borrowers. Each intermediary has its specialty--e.g., the commercial loan for banks, the real estate mortgage for the savings-and-loan association. But the borrowers' market is not completely compartmentalized. The same credit instruments are handled by more than one intermediary, and many borrowers have flexibility in the type of debt they incur. Thus there is some substitutability, in the demand for credit by borrowers, between the assets of the various intermediaries.\*

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\*These features of the market structure of intermediaries, and their implications for the supposed uniqueness of banks, have been emphasized by Gurley and Shaw, loc. cit. An example of substitutability on the deposit side is analyzed by David and Charlotte Alhadeff, "The Struggle for Commercial Bank Savings," Quarterly Journal of Economics, LXXII, February 1958, 1-22.

The special attention given commercial banks in economic analysis is usually justified by the observation that, alone among intermediaries, banks "create" means of payment. This rationale is on its face far from convincing. The means-of-payment characteristic of demand deposits is indeed a feature differentiating bank liabilities from those of other intermediaries. Insurance against death is equally a feature differentiating life insurance policies from the obligations of other intermediaries, including banks. It is not obvious that one kind of differentiation should be singled out for special analytical treatment. Like other differentia, the means-of-payment attribute has its price. Savings deposits, for example, are perfect substitutes for demand deposits in every respect except as a medium of exchange. This advantage of checking accounts does not give banks absolute immunity from the competition of savings banks; it is a limited advantage that can be, at least in some part for many depositors, overcome by differences in yield. It follows that the community's demand for bank deposits is not indefinite, even though demand deposits do serve as means of payment.

### III. THE WIDOW'S CRUSE

Neither individually nor collectively do commercial banks possess a "widow's cruse." Quite apart from legal reserve requirements, commercial banks are limited in scale by the same kinds of economic processes that determine the aggregate size of other intermediaries.

One often cited difference between commercial banks and other intermediaries must be quickly dismissed as superficial and irrelevant. This is the fact that a bank can make a loan by "writing up" its deposit liabilities,



while a savings and loan association, for example, cannot satisfy a mortgage borrower by crediting him with a share account. The association must transfer means of payment to the borrower; its total liabilities do not rise along with its assets. True enough, but neither do the bank's for more than a fleeting moment. Borrowers do not incur debt in order to hold idle deposits, any more than savings and loan shares. The borrower pays out the money, and there is of course no guarantee that any of it stays in the lending bank. Whether or not it stays in the banking system as a whole is another question, about to be discussed. But the answer clearly does not depend on the way the loan was initially made. It depends on whether somewhere in the chain of transactions initiated by the borrower's outlays are found depositors who wish to hold new deposits equal in amount to the new loan. Similarly, the outcome for the savings and loan industry depends on whether in the chain of transactions initiated by the mortgage are found individuals who wish to acquire additional savings and loan shares.

The banking system can expand its assets either (a) by purchasing, or lending against, existing assets; or (b) by lending to finance new private investment in inventories or capital goods, or buying government securities financing new public deficits. In case (a) no increase in private wealth occurs in conjunction with the banks' expansion. There is no new private saving and investment. In case (b), new private saving occurs, matching dollar for dollar the private investments or government deficits financed by the banking system. In neither case will there automatically be an increase in savers' demand for bank deposits equal to the expansion in bank assets.

In the second case, it is true, there is an increase in private wealth. But even if we assume a closed economy in order to abstract from leakages of capital abroad, the community will not ordinarily wish to put 100 per cent of its new saving into bank deposits. Bank deposits are, after all, only about 15 per cent of total private wealth in the United States; other things equal, savers cannot be expected greatly to exceed this proportion in allocating new saving. So, if all new saving is to take the form of bank deposits, other things cannot stay equal. Specifically, the yields and other advantages of the competing assets into which new saving would otherwise flow will have to fall enough so that savers prefer bank deposits.

This is a fortiori true in case (a) where there is no new saving and the generation of bank liabilities to match the assumed expansion of bank assets entails a reshuffling of existing portfolios in favor of bank deposits. In effect the banking system has to induce the public to swap loans and securities for bank deposits. This can happen only if the price is right.

Clearly, then, there is at any moment a natural economic limit to the scale of the commercial banking industry. Given the wealth and the asset preferences of the community, the demand for bank deposits can increase only if the yields of other assets fall. The fall in these yields is bound to restrict the profitable lending and investment opportunities available to the banks themselves. Eventually the marginal returns on lending and investing, account taken of the risks and administrative costs involved, will not exceed the marginal cost to the banks of attracting and holding additional deposits. At this point the widow's cruse has run dry.

#### IV. BANKS AND OTHER INTERMEDIARIES COMPARED

In this respect the commercial banking industry is not qualitatively different from any other financial intermediary system. The same process limits the collective expansion of savings and loan associations, or savings banks, or life insurance companies. At some point the returns from additional loans or security holdings are not worth the cost of obtaining the funds from the public.

There are of course some differences. First, it may well be true that commercial banks benefit from a larger share of additions to private savings than other intermediaries. Second, according to modern American legal practice, commercial banks are subject to ceilings on the rates payable to their depositors--zero in the case of demand deposits. Unlike competing financial industries, commercial banks cannot seek funds by raising rates. They can and do offer other inducements to depositors, but these substitutes for interest are imperfect and uneven in their incidence. In these circumstances the major readjustment of the interest rate structure necessary to increase the relative demand for bank deposits is a decline in other rates. Note that neither of these differences has to do with the quality of bank deposits as "money."

In a world without reserve requirements the preferences of depositors, as well as those of borrowers, would be very relevant in determining the volume of bank deposits. The volume of assets and liabilities of every intermediary, both nonbanks and banks, would be determined in a competitive equilibrium, where the rate of interest charged borrowers by each kind

of institution just balances at the margin the rate of interest paid its creditors. Suppose that such an equilibrium is disturbed by a shift in savers' preferences. At prevailing rates they decide to hold more savings accounts and other nonbank liabilities and less demand deposits. They transfer demand deposits to the credit of nonbank financial institutions, providing these intermediaries with the means to seek additional earning assets. These institutions, finding themselves able to attract more funds from the public even with some reduction in the rates they pay, offer better terms to borrowers and bid up the prices of existing earning assets. Consequently commercial banks release some earning assets--they no longer yield enough to pay the going rate on the banks' deposit liabilities. Bank deposits decline with bank assets. In effect, the nonbank intermediaries favored by the shift in public preferences simply swap the deposits transferred to them for a corresponding quantity of bank assets.

#### V. FOUNTAIN PENS AND PRINTING PRESSES

Evidently the fountain pens of commercial bankers are essentially different from the printing presses of governments. Confusion results from concluding that because bank deposits are like currency in one respect--both serve as media of exchange--they are like currency in every respect. Unlike governments, bankers cannot create means of payment to finance their own purchases of goods and services. Bank-created "money" is a liability, which must be matched on the other side of the balance sheet. And banks, as businesses, must earn money from their middlemen's role. Once created, printing press money cannot be extinguished, except by reversal of the budget policies which led to its birth. The community

cannot get rid of its currency supply; the economy must adjust until it is willingly absorbed. The "hot potato" analogy truly applies. For bank-created money, however, there is an economic mechanism of extinction as well as creation, contraction as well as expansion. If bank deposits are excessive relative to public preferences, they will tend to decline; otherwise banks will lose money. The burden of adaptation is not placed entirely on the rest of the economy.

#### VI. THE ROLE OF RESERVE REQUIREMENTS

Without reserve requirements, expansion of credit and deposits by the commercial banking system would be limited by the availability of assets at yields sufficient to compensate banks for the costs of attracting and holding the corresponding deposits. In a regime of reserve requirements, the limit which they impose normally cuts the expansion short of this competitive equilibrium. When reserve requirements and deposit interest rate ceilings are effective, the marginal yield of bank loans and investments exceeds the marginal cost of deposits to the banking system. In these circumstances additional reserves make it possible and profitable for banks to acquire additional earning assets. The expansion process lowers interest rates generally--enough to induce the public to hold additional deposits but ordinarily not enough to wipe out the banks' margin between the value and cost of additional deposits.

It is the existence of this margin--not the monetary nature of bank liabilities--which makes it possible for the economics teacher to say that additional loans permitted by new reserves will generate their own deposits.

The same proposition would be true of any other system of financial institutions subject to similar reserve constraints and similar interest rate ceilings. In this sense it is more accurate to attribute the special place of banks among intermediaries to the legal restrictions to which banks alone are subjected than to attribute these restrictions to the special character of bank liabilities.

But the textbook description of multiple expansion of credit and deposits on a given reserve base is misleading even for a regime of reserve requirements. There is more to the determination of the volume of bank deposits than the arithmetic of reserve supplies and reserve ratios. The redundant reserves of the thirties are a dramatic reminder that economic opportunities sometimes prevail over reserve calculations. But the significance of that experience is not correctly appreciated if it is regarded simply as an aberration from a normal state of affairs in which banks are fully "loaned up" and total deposits are tightly linked to the volume of reserves. The thirties exemplify in extreme form a phenomenon which is always in some degree present: The use to which commercial banks put the reserves made available to the system is an economic variable depending on lending opportunities and interest rates.

An individual bank is not constrained by any fixed quantum of reserves. It can obtain additional reserves to meet requirements by borrowing from the Federal Reserve, by buying "Federal Funds" from other banks, by selling or "running off" short term securities. In short, reserves are available at the discount window and in the money market, at a price. This cost the bank

must compare with available yields on loans and investments. If those yields are low relative to the cost of reserves, the bank will seek to avoid borrowing reserves and perhaps hold excess reserves instead. If those yields are high relative to the cost of borrowing reserves, the bank will shun excess reserves and borrow reserves occasionally or even regularly. For the banking system as a whole the Federal Reserve's quantitative controls determine the supply of unborrowed reserves. But the extent to which this supply is left unused, or supplemented by borrowing at the discount window, depends on the economic circumstances confronting the banks--on available lending opportunities and on the whole structure of interest rates from the Fed's discount rate through the rates on mortgages and long term securities.

The range of variation in net free reserves in recent years has been from -5 per cent to +5 per cent of required reserves. This indicates a much looser linkage between reserves and deposits than is suggested by the textbook exposition of multiple expansion for a system which is always precisely and fully "loaned up." (It does not mean, however, that actual monetary authorities have any less control than textbook monetary authorities. Indeed the net free reserve position is one of their more useful instruments and barometers. Anyway they are after bigger game than the quantity of "money"!)

Two consequences of this analysis deserve special notice because of their relation to the issues raised earlier in this paper. First, an increase--of, say, a billion dollars--in the supply of unborrowed reserves will, in general, result in less than a billion dollar increase in required

reserves. Net free reserves will rise (algebraically) by some fraction of the billion dollars--a very large fraction in periods like the thirties, a much smaller one in tight money periods like those of the fifties. Loans and deposits will expand by less than their textbook multiples. The reason is simple. The open market operations which bring about the increased supply of reserves tend to lower interest rates. So do the operations of the commercial banks in trying to invest their new reserves. The result is to diminish the incentives of banks to keep fully loaned up or to borrow reserves, and to make banks content to hold on the average higher excess reserves.

Second, depositor preferences do matter, even in a regime of fractional reserve banking. Suppose, for example, that the public decides to switch new or old savings from other assets and institutions into commercial banks. This switch makes earning assets available to banks at attractive yields--assets that otherwise would have been lodged either directly with the public or with the competing financial institutions previously favored with the public's savings. These improved opportunities for profitable lending and investing will make the banks content to hold smaller net free reserves. Both their deposits and their assets will rise as a result of this shift in public preferences, even though the base of unborrowed reserves remains unchanged. Something of this kind has occurred in recent years when commercial banks have been permitted to raise the interest rates they offer for time and savings deposits.



## VII. CONCLUDING REMARKS

The implications of the "new view" may be summarized as follows:

1. The distinction between commercial banks and other financial intermediaries has been too sharply drawn. The differences are of degree, not of kind.
2. In particular, the differences which do exist have little intrinsically to do with the monetary nature of bank liabilities.
3. The differences are more importantly related to the special reserve requirements and interest rate ceilings to which banks are subject. Any other financial industry subject to the same kind of regulations would behave in much the same way.
4. Commercial banks do not possess, either individually or collectively, a widow's cruse which guarantees that any expansion of assets will generate a corresponding expansion of deposit liabilities. Certainly this happy state of affairs would not exist in an unregulated competitive financial world. Marshall's scissors of supply and demand apply to the "output" of the banking industry, no less than to other financial and nonfinancial industries.
5. Reserve requirements and interest ceilings give the widow's cruse myth somewhat greater plausibility. But even in these circumstances, the scale of bank deposits and assets is affected by depositor preferences and by the lending and investing opportunities available to banks.

I draw no policy morals from these observations. That is quite another story, to which analysis of the type presented here is only the preface. The reader will misunderstand my purpose if he jumps to attribute

to me the conclusion that existing differences in the regulatory treatment of banks and competing intermediaries should be diminished, either by relaxing constraints on the one or by tightening controls on the other.