

the economics of money and banking

LESTER V. CHANDLER/STEPHEN M. GOLDFELD

SEVENTH EDITION



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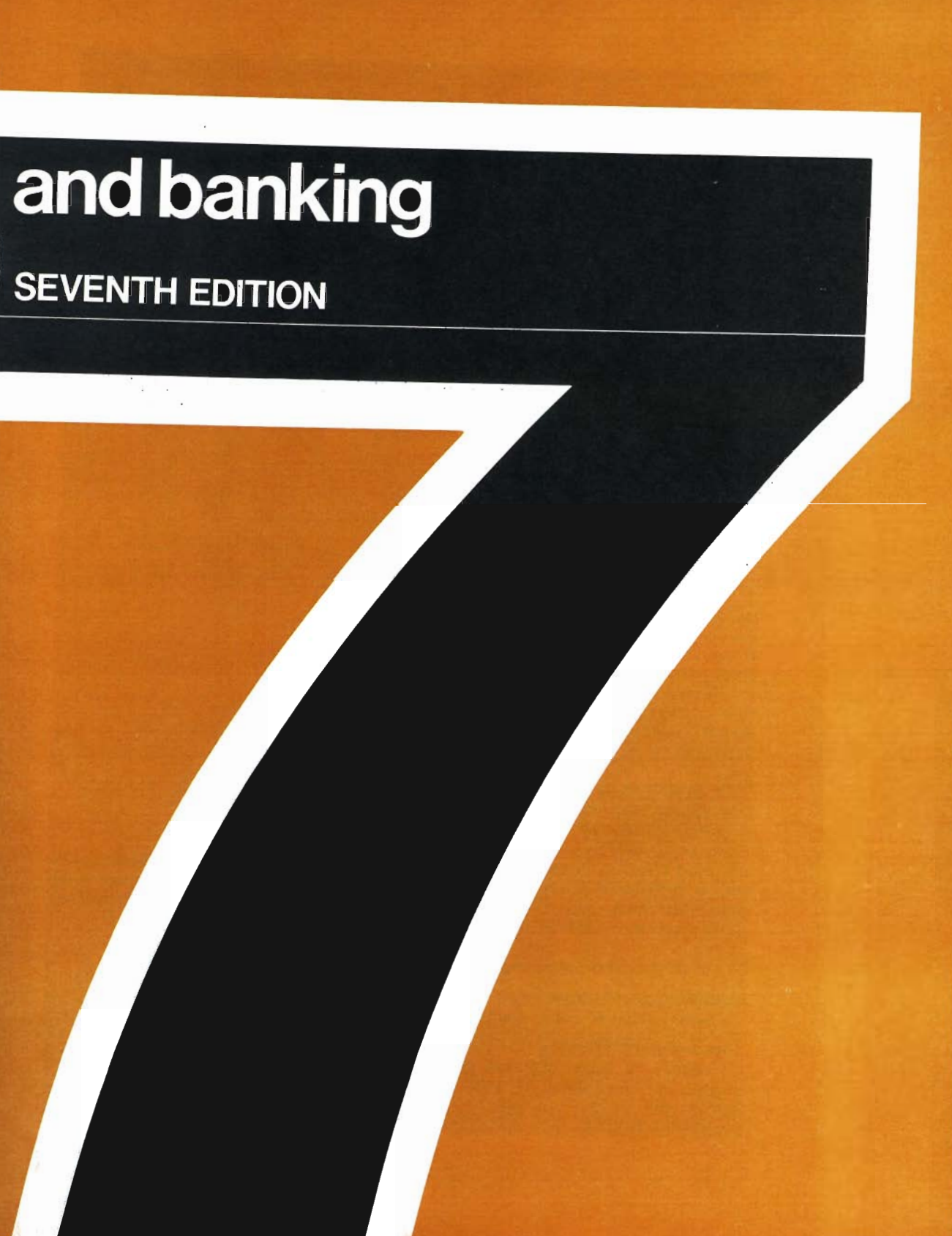
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1. COMPOSITION OF THE MONEY SUPPLY. Under unlimited gold coin standards, full-bodied gold coins and gold certificates typically made up a considerable part, although usually not all, of the actual circulating medium. Under modern limited gold bullion standards, neither gold coins nor gold certificates circulate. The entire money supply is credit money—checking deposits, paper money, and token coins. And the total money supply is typically a large multiple of the country's monetary gold.

2. MONETARY MANAGEMENT. Most of the earlier gold standards were not highly managed. Some countries, such as the United States, did not have central banks or other agencies for the purpose of monetary management, and some of the existing foreign central banks managed only intermittently and to a limited extent. Under these circumstances, the size of a nation's monetary gold stock was usually a strong, and sometimes a dominant, determinant of the size of its total money supply. In contrast, the gold standards of recent years were highly and continuously managed, and the money managers typically refused to allow changes in their monetary gold stocks to dominate their money supplies. To cite an extreme example, while the monetary gold stock of the United States fell by about 50 percent between 1950 and 1975, the total money supply rose by about 150 percent.

3. INTERNATIONAL RESERVE AND SOURCE OF INTERNATIONAL LIQUIDITY. Almost from the beginning of gold standards, gold served as an international monetary reserve and as a source of international liquidity. Nations used gold as a medium for meeting deficits in their balance of international payments and for buying their surplus supplies of money in foreign exchange markets, thus supporting their exchange rate. Historically, gold accounted for over 90 percent of the world's foreign exchange reserve assets. In a limited way, gold still serves in this role; in fact, this is its major remaining monetary function. However, even in this role its relative importance has declined—in 1975 it accounted for only 20 percent of the world's foreign exchange reserves—as supplements and substitutes have been invented and adopted. Among these are official holdings of claims against foreign moneys, such as the U.S. dollar and the British pound; borrowing arrangements with the International Monetary Fund (IMF) and among the leading central banks; and so on. One of the latest, and perhaps in the long-run the most significant, substitutes for gold is the system of paper gold that was initiated in the beginning of 1970. Known more formally as *special drawing rights* or SDRs, these units of paper gold are simply created claims against the IMF, with each unit declared to be equal to the gold value of one U.S. dollar. A total of nearly \$11 billion of this currency is now outstanding, and more SDRs will be created in subsequent years. Just as individual nations have become unwilling to allow their domestic money supplies to be dominated by gold, the community of nations is no longer willing to allow gold to dominate its supplies of international reserves and liquidity.

Such marked changes in the monetary roles of gold remind us that monetary systems, far from remaining static, are subject to continuous, and sometimes abrupt, changes in both form and functioning.

Although many countries, including the United States, have long used credit money and this credit money has often not been redeemable in gold, silver, or any other money with a substantial nonmonetary value, the feeling still persists in some quarters that pieces of money cannot be "good" or even generally acceptable unless they themselves have an equivalent value for nonmonetary purposes or are kept redeemable in other types of money that have an equivalent value for nonmonetary uses. At the risk of excessive repetition, we must reiterate that this view is erroneous. That token coins, paper money, and other circulating debts can be overissued, and on too many occasions have been, is undeniable. But if their issue is properly limited, they can be given a scarcity value and can circulate at least as satisfactorily as any full-bodied money. In fact, with proper management, their quantities can be adjusted to the needs of the economy better than can the quantities of a gold or silver full-bodied money whose supply often reflects the capriciousness of gold or silver mining and of nonmonetary demands for these metals.

Money can have a value simply because it is limited in supply and is demanded for use as money. Barter, as we have seen, is inconvenient. To escape these inconveniences, people want some kind of "tokens" or "tickets" that can be used as means of payment. In determining whether or not to accept such tickets in payment of debt or for goods and services, each person is interested in only one question: "Can I pass them along to someone else in exchange and without loss of value for the things I want to buy?" He is interested in their acceptability as money, not in their usability for some other purpose.

To describe how all this came about, we shall sketch some of the major forces that have strongly influenced the development of money and monetary institutions. As monetary history our discussion will not be complete, but the purpose is rather to concentrate on major forces and motivations.

coinage

Let us start with the use of uncoined metals, such as copper, gold, and silver, as circulating media. These metals probably came to be generally acceptable in payment because they were widely desired for religious and ornamental purposes, they did not deteriorate, their large value relative to their weight and bulk made them relatively easy to transport, and so on. At this stage, money was not differentiated from the material of which it was made; the metals flowed freely into and out of monetary uses. The use of bullion as money had serious disadvantages, however, especially if payers were not averse to short-weighting and adulteration. Precision weighing apparatus was not widely available and assaying was both laborious and inaccurate. Coinage solved both these problems. At first, coinage amounted merely to an official certification as to the weight and purity of a lump of metal. The imprint of a king's stamp meant in effect, "I hereby certify that this contains a certain weight of metal of a certain purity."

The names of many monetary units (such as pounds, lire, livres, and shekels), which were originally units of weight, attest to this fact.

Coinage was an important monetary innovation. It greatly expanded the use of metallic substances as money. More important, however, it was a long step toward the differentiation of money from its component material. Not metal, but *coined metal*, became money. People gradually ceased to think in terms of the *weights* of metal; they thought in terms of the *number of coins*—not the weight of silver in a payment, but the number of shekels or lire. Debts and other contracts came to be stated in monetary units. This habit often persisted after the pure metallic content of the coins was reduced through abrasion, clipping, sweating, or deliberate action of the sovereign. When coinage was limited, the value of the coins as money often rose above the commodity value of their reduced metallic content; token coins appeared.

the evolution of banking

Despite their other advantages, full-bodied gold or silver coins had some disadvantages for those who held them or used them to make payments.

1. DANGER OF THEFT AND ROBBERY. Safekeeping may have been easy for a king with an armed entourage or a wealthy businessman with strong vaults, but it could be a serious problem for others, especially when law enforcement left much to be desired.
2. COST AND RISK OF TRANSPORTING TO MAKE PAYMENTS OVER DISTANCES. Transport costs alone were high; even more onerous in many cases were risks of robbery. The bad guys who held up stage coachés, now so frequently portrayed in TV westerns, were by no means the first brigands to take their toll on roadways, and bad guys in ships were problems on many seas. Nor were the cattle barons the first members of nobility to encourage their men to pick up a little money on the side.
3. LOSS OF WEIGHT OF THE COINS THROUGH ABRASION, CLIPPING, CHIPPING, AND SWEATING. The payer lost nothing as long as the coins were acceptable at face value. But after coins had reached some stage of deterioration, payees might accept them only by weight, with losses to the payer.
4. ABSENCE OF INTEREST OR ANY OTHER RETURN ON THE MONEY. People began to look for ways to overcome these disadvantages.

Largely because of the danger of theft and robbery, the practice arose of leaving gold and silver in the custody of some reputable person (a wealthy merchant, a money changer, or a goldsmith) who owned a strong box or other means of safekeeping. At this stage, the “depositor” undoubtedly expected that the custodian would indeed hold all the specie intact. The custodian performed this service as a favor for his friends or made a charge for it. It is also probable that at this initial stage, a depositor who wished to make payments would himself go to the goldsmith or other custodian, get the required amount of coins, and use the coins themselves to make payment. But this was inconvenient; how much easier

it would be to transfer claims against the metal. And such claims were at hand, for the goldsmith or other custodian usually gave some sort of evidence to the depositor. One type was a receipt, which said in effect, "IOU so many florins." The next step was for payers to make payment by giving these IOUs to a payee. The latter could then claim the specie from the goldsmith, or use the IOU to make payments to others. As these IOUs came to be used in payments, the bank note was born. A bank note is simply a bank debt or promise to pay, evidenced by a piece of paper. The earliest bank notes may have been acceptable only because they were believed to be fully backed by specie. Nevertheless, this was an important step in the evolution of money, for the community was becoming accustomed to using in payment not the precious metals themselves but paper claims against those metals.

Another method of payment soon developed. The person leaving gold or silver with the "banker" would not receive a piece of paper representing the debt of the banker, but simply a "deposit credit" evidenced by an entry on the bank's books. The practice soon arose of making payments by writing an order on the banker to pay someone else. For example, Jones would write an order on the bank saying, "Pay Smith X florins and charge to my account." Smith might then claim the gold or silver. But as such orders became more widely acceptable in payment, it became increasingly common for payees to leave the specie with the goldsmith or other banker and to pay others by transferring claims to deposits. Thus, deposit claims, not specie itself, came to be used as a means of payment.

The high cost and risk of transporting precious metals over distances created an opportunity for profit that did not go unnoticed by shrewd goldsmiths and merchants. One can imagine a canny goldsmith-banker in Lübeck writing to his counterpart in Genoa:

As we both know, trade between our areas has grown rapidly in recent years. Large amounts of specie flow every month from my area to yours, at great cost to the merchants and great risk to property and life. At the same time, almost equally large amounts of specie flow from the Genoa area to the Lübeck area, at comparable cost and risk. We can easily abolish these unnecessary costs, spur the development of trade, and add to our own pitifully low incomes by cooperating with each other. When someone in your area wishes to make a payment in the Lübeck region, you get from him the required amount of specie and give him an order on me to give specie to the payee, and I will do so. Then, when someone in my area wishes to make payments in the Genoa region, I will collect from him the required amount of specie and give him an order on you, which I hope you will honor. We will have to ship specie between Lübeck and Genoa only to the extent that the payments I make for your account and the payments you make for my account do not balance out, and I forecast that the net shipments required will be very small indeed relative to the total payments effected by us. In fairness to our customers and in the interest of promoting our business we should not charge for these services as much as it would cost our customers to ship specie equal to the total value of all payments, but in fairness to ourselves and our families our charges should exceed our actual costs.

Such were the motivations that led to the establishment of business relationships among emerging bankers in the leading commercial centers. Bills of exchange or orders to pay became an increasingly popular way of effecting payments, and the things transferred were claims against goldsmith-bankers or merchant-bankers.

Up to this point, we have dealt with only two forces that contributed to the evolution of banking: the disadvantages of full-bodied coins because of their liability to theft and robbery and the high cost and risk of transporting them. But these two forces alone were sufficient to concentrate large amounts of the precious metals in the hands of an emerging class of bankers. At first these were primarily goldsmiths, money changers, or merchants who took on safekeeping of specie and related functions as a side line. Gradually, however, these functions increased in relative importance and profitability, and specialized bankers began to emerge. Note that in this earliest stage, all deposits and bank notes were fully backed by specie, and the income of the emerging bankers came from charges for safekeeping and for transmitting payments.

Then came a discovery that was to be momentous for the evolution of banking. The emerging bankers discovered that, to meet their promises to pay in specie on demand, they did not need to hold gold and silver equal to 100 percent of their outstanding debts in the form of deposits and bank notes. A banker who was in fact holding specie fully equal to the value of his deposit and bank note liabilities might have put it this way:

I do not need to hold all that specie because those people are not all going to demand payment at any one time or even over a short period. Of course, there will be withdrawals. Some will want gold or silver for circulation. Also, I must be prepared to pay gold or silver to other banks who acquire claims against me in the form of deposit and bank note claims that I have issued. But such outpayments will be largely balanced by new inflows of gold and silver. I could meet any net drain that is likely to occur if I held gold and silver equal to only a small fraction—perhaps only a tenth—of my outstanding note and deposit liabilities. To hold more is terribly wasteful. Look at all the gold and silver lying there, idle and earning nothing! I think I'll lend out some of it and earn some interest.

And if his conscience was troubled by his contemplated breach of trust, he may have soothed it by replying, "I didn't promise my customers in so many words that I would hold all the gold and silver; I merely promised that I would pay them gold and silver when they asked for it. If I keep the promise why should it be any concern of theirs if I increase my income a little?"

So were banks transformed from mere custodians holding specie reserves equal to 100 percent of the deposit and bank note liabilities into lenders who held specie equal to only a fraction of their liabilities. Fractional reserve banking was born. Such banking may indeed have originated as a surreptitious breach of trust. But the secret was soon out, and fractional-reserve banking gained widespread support. A banker could now say in effect to the public:

It will be to our mutual advantage if you leave most of your gold and silver with me and hold and use as money the bank notes and deposits. The advantage to me as a banker is obvious; I can make loans and earn an income. But I will share this with you by providing valuable services at little or no cost to you. If you want currency that is convenient to hold or transport, I will provide you with bank notes. If you want the convenience of checking facilities I will provide those too. I will hold your funds in safekeeping, provide you with checkbooks, make payments for you over long distances, and do much of your bookkeeping for you.

Many banks also paid interest on deposit balances, an advantage not carried by coins. Moreover, those who were depositors often received preferred treatment when they applied for loans.

In these various ways, the public was persuaded to hold more and more of its money in the form of bank notes and deposit claims against banks. Increasing proportions of the gold and silver money came to lodge in the banks, there to serve as a fractional reserve against the banks' note and deposit liabilities.

The fractional-reserve principle gave banks a great power that will be emphasized in later chapters—the power to increase and decrease the total money supply. Banks did not have this power when they issued bank notes and deposits only in exchange for an equal value of gold and silver; they merely substituted in the hands of the public one type of money for another. Suppose, for example, that the public has entrusted \$100 of gold and silver to the banks in exchange for bank notes and deposits. This will appear as follows on the balance sheets of the public and the banks:

balance sheet of the public		balance sheet of the bank	
assets	liabilities	assets	liabilities
Gold and silver	—\$100	Gold and silver	+\$100
Bank notes and deposits	+\$100		Note and deposit liabilities +\$100

The public's total holdings of money remain unchanged, its larger holdings of bank notes and deposits being offset by its smaller holdings of gold and silver. And the banks have issued note and deposit liabilities equal to only the \$100 of gold and silver surrendered by the public.

Suppose now that, starting from this situation in which both their gold and silver holdings and their note and deposit liabilities are \$100, the banks decide they can meet any likely demands for payments if they hold gold and silver reserves equal to only 10 percent of their liabilities. They come to believe that any gold and silver holdings in excess of 10 percent of their liabilities can be used as a basis for lending. Consider two extreme cases:

1. As the banks lend, the borrowers withdraw from the banks gold and silver equal to the full amount of the loans. If the banks lend \$90, their holdings of gold and silver will fall by that amount, and they will increase their assets in the form of outstanding loans (debt claims against borrowers) by the same amount. The banks' balance sheets will now appear as follows:

assets		liabilities	
Gold and silver	\$10	Note and deposit liabilities	\$100
Loans	90		

The effect of this transaction is to increase the public's money supply by \$90, the amount of the increase in loans. Thus, in addition to the \$100 of notes and deposits still held by the public, the borrowers now have the \$90 of gold and silver paid out by the banks. Thus, we find that by making loans or buying other assets, the banks can increase the public's money supply even if borrowers take all their loan proceeds in gold and silver.

However, once the public has become accustomed to using bank notes and deposits as money, borrowers are unlikely to withdraw gold and silver equal to the full amount of their borrowings. They are likely to accept bank notes or deposits instead. Let us therefore consider the other extreme case.

2. As the banks lend, the borrowers take all the loan proceeds in the form of bank notes and deposits, and there is no net drain of gold and silver from the banks. Suppose the banks lend \$900, giving note or deposit claims to the borrowers. The balance sheet of the banks will appear as follows:

assets		liabilities	
Gold and silver	\$100	Note and deposit liabilities	\$1,000
Loans	900		

In this process, the banks have increased the public's money supply by \$900, and have done so by issuing new note and deposit liabilities in exchange for debt claims against borrowers. The banks feel secure because their gold and silver reserves are still equal to 10 percent of their liabilities. In a sense, each \$1 of gold and silver is supporting, or serving as a basis for, \$10 of note and deposit liabilities. But most of these notes and deposits were created as banks purchased assets other than money itself. We shall later analyze these processes in more detail and also review the process through which banks decrease the total money supply by decreasing their holdings of loans and other debt claims. But have a try at explaining this yourself. What would happen to the money supply if, starting from

the last situation described previously, the banks decreased by \$500 their outstanding loans?

In broad outline, such are the processes through which the public came to hold much of its money in the form of claims against banks. Even when full-bodied gold and silver coins were available and the public could have refused to accept or hold anything else, it chose to hold much of its money in the form of bank notes and deposits, and the banks found it profitable to manufacture these claims. Thus, in large part, the development of credit or debt moneys reflected private choices – the public's choices among the various types of money and the choices of bankers as lenders and creators of money.

government and credit money

Although the composition of the money supply and the trend toward greater use of credit moneys have been greatly influenced by the choices of the public and the bankers, governments have exerted important influences in many ways. We shall mention here only a few of the most important.

1. Governments themselves have been issuers of credit money. In some cases, the purpose has been to provide more convenient types of money, such as token coins or paper money; in others, it has been to remedy an alleged shortage of money; and in still others, it has been to finance government expenditures. In the United States, government credit money is issued by the Treasury (coin and a minor fraction of the paper money) and the Federal Reserve, with Federal Reserve notes constituting most of the paper money.

2. Governments regulate the availability of full-bodied and representative full-bodied moneys and the redeemability of moneys in precious metals. As noted earlier, the trend has been toward more and more restricted redeemability in gold, thus encouraging the expansion and use of credit moneys, and in the United States we have had no full-bodied money or representative full-bodied money since 1933.

3. Governments also have the power to declare what types of money have full legal-tender powers. In the United States coin and currency have such properties. That is, they have the legal power to discharge debts; creditors may not insist on payments in any other type of money if the debt is stated in dollars. Although checking deposits are not themselves legal tender, the banks are obligated to redeem them on demand in legal-tender money. This lack of legal-tender power reduces the general acceptability of demand deposits only in periods when people doubt the banks' ability to pay their debts.

4. Governments influence the establishment and operation of banks in various ways. For example, they have both encouraged the establishment of banks and regulated their operations. At an early stage, they encouraged the issue of bank notes; later they moved toward the abolition of bank notes. And in various ways they regulate the volume of bank deposits. Indeed, one of the major functions of the Federal Reserve is to regulate money creation and money destruction by the banks.

Most of these points will be developed further in later chapters.

further evolution of the payments mechanism

Our discussion of the evolution of banking has traced the emergence of bank deposits as the primary medium of payments. However, recent advances in computer technology and the rapid growth in credit card usage have suggested to some that, just as coin and currency gradually gave way to the convenience and efficiency of checking deposits, such deposits may give way to yet another type of payments mechanism. Indeed, these days one hears the phrases “checkless society,” “cashless society,” and “electronic money” bandied about with increasing frequency. Furthermore, there is ample evidence that neither the banks nor the Federal Reserve is content with the payments mechanism as it now stands. A brief review of the reasons for this discontent will both provide us with some further insights as to the nature of money and allow us to indulge in a bit of speculation as to the form of future payments media.

As detailed earlier, a payments mechanism is merely a set of institutional arrangements by which exchanges of resources are accomplished. Barter, the use of coin or paper currency, and the use of checking deposits are all forms of payment mechanisms. As with any economic institution, the question naturally arises as to whether the existing payments mechanism is accomplishing its function as cheaply and as efficiently as possible. This is an important issue, since resources devoted to making payments tend to reduce the output of other goods and services that increase economic welfare.

The most obvious costs of the payments mechanism in the United States are the following: the costs of producing the supply of coin and paper currency; the costs of distributing and storing currency; and the costs of clearing checks. The first two categories include the expenses of operating the U.S. mint and the need for a stock of capital goods to safeguard the stock of currency. For example, it has been estimated that the total value of cash registers in the United States exceeds \$2.5 billion. Although these costs are hardly inconsequential, by far the most important costs are those involved in clearing checks. In 1970 over 22 billion checks were written in the United States, and it has been estimated that each check is handled an average of 10 times and passes through $2\frac{1}{3}$ banks before being returned to its source. The cost of this in 1970 has been put between \$3.5 and \$4.5 billion.

With prospects for continued growth in the volume of checks, both the banks and the Federal Reserve have become increasingly concerned over the substantial resources devoted to shuffling pieces of paper among various parts of the country. To stem this tide the Federal Reserve has urged the use of wire transfers to replace processing of vast quantities of paper. Toward this end, in 1972 it issued a set of guidelines for the implementation of “regional (check) clearing centers . . . provided with automated clearing and telecommunications capabilities to serve as a basis for transition to widespread checkless—electronic—fund transfers.” In addition, the Federal Reserve has also begun operation of a model facility of this type in Culpeper, Virginia.

Many economists see the natural evolution of these developments as leading to the ultimate emergence of an *electronic money transfer system* (EMTS). Al-

though the details of such a system are still quite speculative, some leading authorities foresee the following scenario:

Each economic unit in the society will have an account through which it can instantaneously effect funds transfers to any other member of the system. The EMTS will consist of a nationwide computer network which keeps track of individuals' credits and debits as trading occurs in the economy. Business firms and government offices will tie into the EMTS network using their own computers, while private individuals' means of access to the system will be a plastic identification card, quite similar to today's credit cards. Every retail establishment will have one or more on-line terminals which have the capacity to read identification cards and transmit sales and payment information to the local EMTS computer center.²

While the implementation of an EMTS clearly requires that many technical and legal problems be surmounted, it would seem that a system of this kind is a quite likely future possibility. Since there will be substantial costs of transition to any new payments system, it seems natural to expect that this will provide another area in which the federal government will become involved in a significant way.

For purposes of discussion, let us assume that at some point in the future we have made the transition to an electronic payments mechanism. What differences are we likely to observe in the operation of the system as compared with our present structure? At the most mundane level we would, of course, see a marked reduction in the use of the conventional checking instrument. But what of the volume of deposits and the appropriate definition of the supply of money? It seems plausible that many transactions would involve transferring funds out of interest-bearing savings accounts. This would further blur the distinction between demand and savings deposits (or money and near-money), a trend that we have observed is already taking place. Clearly, in such a world a broader definition of the money supply would be needed, although the most appropriate definition would depend on the precise details of the payments mechanism.

An electronic payments mechanism, would undoubtedly have other far-reaching implications for the operation of the financial system. For instance, if transactions are to be made from savings deposits, then savings banks and savings and loan associations, as well as commercial banks, would have to be an integral part of the payments network. This would undoubtedly change the nature of competition among these various institutions. In addition, it has been suggested that the vast array of financial information that would be available under an EMTS should, by reducing the costs of administration and the risks of default, lead to a greater availability of credit for consumers. Although it would take us too far afield to spell out all the possible consequences of an EMTS, if such a system emerges, it is clear that money and banking textbooks will take on a decidedly different structure. If nothing else, this should serve to reemphasize

² Mark J. Flannery and Dwight M. Jaffee, *The Economic Implications of an Electronic Monetary Transfer System*, Lexington, Mass., Heath, 1973, p. 5.

that appropriate definitions, such as that for money, are continually evolving and require constant review in the light of institutional changes in our economy.

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