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PART I

A theory of monetary institutions

I

The evolution of money and banking

One of the chief things which monetary theory ought to explain is the evolution of money. If we can reduce the main lines of that evolution to a logical pattern, we shall not only have thrown light upon history, we shall have deepened our understanding of money, even modern money, itself.

J. R. Hicks, *A Theory of Economic History*

Money – general purchasing power over goods – is surely among the most remarkable products of human civilization. Without it, the incredibly complex division of labor that provides us with the highest standard of living in human history would be unthinkable. I propose in this book to make the workings of the increasingly sophisticated and complex monetary system that is an integral part of our modern economy somewhat more comprehensible. That task can be made a bit less daunting if we follow J. R. Hicks's advice and begin by trying to understand the forces that determined the early evolution of money and banking. Once we understand those forces, we shall have gone a long way toward understanding more recent monetary developments.

From the earliest times, thinkers have been perplexed by this peculiar artifact of civilization. Although no one doubts the usefulness of money, why people began using money in the first instance is not at all obvious.

For an object – be it a coin, a banknote, a check, or government currency – to be a medium of exchange, people must find it acceptable in exchange. They must accept the object even though it has no use of its own except to be passed on to someone else in exchange for a commodity that does have a real use of its own.

Why do people accept money if it has no intrinsic use except to be exchanged again? Obviously because we all expect that we shall later be able to use the money to buy something else we want more urgently than we want whatever we are giving up now.

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But here is the problem. Since no one would expect to be able to use money in exchange unless everyone else was already accepting it, what made people start accepting it in the first place? How does money differ from a gigantic chain letter?

The most popular solution to this puzzle, going back to ancient times, has been to say that money was instituted by a sovereign authority who could force his subjects to accept whatever he designated as money. Plato and Aristotle both taught that money was instituted by the will of the sovereign lawgiver.¹ Other ancient and medieval philosophers and legal authorities followed their teaching that money was the creation of the sovereign.² The explanation was changed somewhat in form, but not really in substance, by Rousseau, who attributed all human institutions to a social contract individuals entered into when they abandoned a state of nature for a civil society. And at the beginning of the twentieth century, the German economist G. F. Knapp, adorning this explanation with the trappings of Hegelian philosophy, elaborated on it at excessive length in an unjustly famous book, *The State Theory of Money* (1905/1924).

These traditional accounts of the origins of money are refuted by both economic theory and historical research. Money was not deliberately invented by anyone, nor did it originate in a collective agreement that committed everyone to accept it in exchange for real goods. In fact, money emerged gradually and spontaneously. No one foresaw its beneficial effects for society. Rather, it emerged simply as an unintended consequence of the self-interested behavior of countless individuals.

But what about the paradox we just encountered? Why would people accept something that provides them no direct benefit in exchange for intrinsically useful commodities unless a prior agreement or edict assured them that everyone else would also accept the object in exchange?

The answer was first provided by the nineteenth-century economist Carl Menger (1892; 1871/1981, chap. 8). Menger's explanation follows directly from the insight that even in a premonetary economy with no single generally accepted medium of exchange, some commodities would still be more easily marketable than others.

1 Plato called money a "token for purposes of exchange" (*Republic* II.371). Aristotle held that money originated by convention, not by nature but by law (*Nicomachean Ethics* V.1133a.29–32). And in his *Politics* (i.9.1257a.36–40) he said that "men agreed to employ in their dealings with each other something . . . for example iron, silver, and the like," and proposed this as an explanation of the origin of money.

2 The Roman jurist Paulus wrote that to overcome the difficulties of barter, "a substance was selected whose *public* evaluation exempted it from the fluctuations of the other commodities, thus giving it an always stable external (nominal) value. A mark (of its external value) was stamped upon this substance by society. Hence its exchange value is based, not upon the substance itself, but upon its nominal value" (quoted in Menger 1871/1981, p. 316). Nicole Oresme, Bernardo Davanzatti, and numerous other medieval writers reiterated the classical position.

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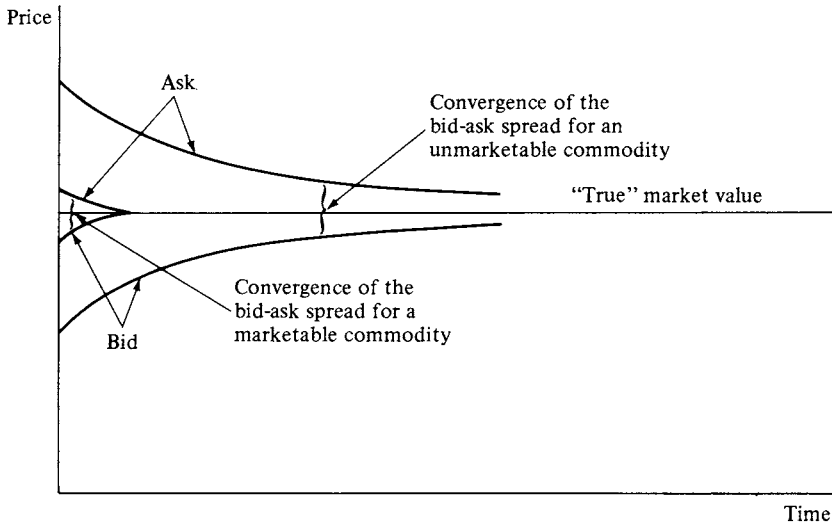


Figure 1. Convergence of the bid-ask spread

What do I mean by saying that some commodities are more marketable than others? All commodities are marketable in some degree, since one can always buy or sell a commodity in an instant if one will pay a high enough, or take a low enough, price for it. “Marketability” therefore refers to the spread between the prices at which any commodity can be bought or sold at any moment. That gap is known as the “bid-ask spread.” Ordinarily, a seller will obtain a higher price and a buyer will find a lower price by waiting or searching for additional offers rather than agreeing to the first offer made. The longer one waits or searches, the better one’s chance of trading at the best possible price. Thus the bid-ask spread for any commodity converges over time to its “true” or “equilibrium” market value.

For some commodities, though, the bid-ask spread is narrower, and converges to the equilibrium value faster, than for others (see Figure 1). The bid-ask spread for a thousand bushels of winter wheat on the Chicago Board of Trade is obviously narrower and converges faster (both absolutely and as a percentage of the true market value) than the bid-ask spread for, say, the Empire State Building. No one, I daresay, would deny that a thousand bushels of wheat are more marketable than the Empire State Building.

What characteristics make one commodity more marketable than another? Obviously, marketability is related to the number of potential buyers and sellers of a commodity and to how easily they can communicate with each other. The better communication is between the potential buyers

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and sellers of a given commodity, the more marketable that commodity is. Similarly, the more potential suppliers and demanders there are, the cheaper transportability and storability are, and the easier divisibility is, the greater the marketability of a commodity will be.

Think of what a premonetary economy must have been like. With no commodity generally used as money, trading was costly and time-consuming. In those circumstances, some alert people realized that they could benefit by holding greater stocks of the most marketable commodities than they had immediate use for. Thus they would accept highly marketable commodities in exchange even when they really wanted something else, because marketable commodities could be exchanged quickly on reasonable terms for what they did want. Extra stocks of highly marketable goods increased the chances of acquiring desired goods on favorable terms.

When some people began to realize the advantages of holding extra stocks of easily marketable commodities, two consequences followed. First, observing the success of their more alert and innovative neighbors, others began adding to their stocks of these commodities. Second, as more people began trading them, the commodities became even more marketable, so that the incentive to increase holdings of them kept growing.

We can now begin to see how one or, at most, a very few commodities would gradually and spontaneously emerge as money in any economy in which there is trade. A fascinating account of this process was given by R. A. Radford (1945), who described how cigarettes emerged as a medium of exchange in a POW camp in World War II. Moreover, the process reinforces itself because it constantly adds to the marketability of the most marketable commodities.

Money, therefore, did not originate in a deliberate decision taken at a particular moment by a single individual or by an entire community. It emerged as the unintended consequence of a multitude of individual decisions. What concerned people was the relative marketability of various commodities, the relative costs of trading them, and the relative costs of holding inventories of those commodities.

In primitive societies passing from a nomadic economy to agriculture, domestic animals seem to have served as money. They had a variety of uses, were demanded by almost everyone, were not too expensive to transport, were durable stores of value, and so long as cattle could be kept out of doors and land was freely available, were not too costly to hold. Even after precious metals displaced cattle as money, a remnant of earlier moneys was often preserved by stamping the image of an animal on minted coins. The origins of money are also evidenced in our language: The word “pecuniary” is derived from the Latin *pecu*, which means “cattle.”

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Whenever it became less costly to use and hold one potential medium of exchange than the others, the desire to minimize costs led to a switch in the commodity serving as money. When ancient societies began engaging in handicraft as well as simple agriculture, the increasing complexity of economic activity caused metals to replace cattle as media of exchange. The growing number of transactions increased the importance of divisibility as an attribute of money, enhancing incentives for people to use metals in exchange. Since holding cattle was more costly for city dwellers than for those in the country, the emergence of cities and towns greatly reduced the suitability of cattle as money. And as city dwellers began using metals as media of exchange, country folk gradually did too.

Copper and brass may have been the first of the metals to be used as media of exchange, but in the Mediterranean and most other areas, silver quickly became the most widely exchanged metal. Indeed, “silver” and “money” are denoted by the same word in several languages, such as French (*argent*), Greek (*argurion*), and Hebrew (*keseph*).

Only after precious metals had already emerged as media of exchange did coins begin to circulate. Coinage was a successful innovation because it reduced or eliminated costs borne when people traded uncoined metals. The costs were of two types. One was the cost of assaying the metal being exchanged to determine its purity and fineness. The other was that of weighing the metal and dividing it into a weight corresponding to the price agreed on. Because coined metal eliminated or reduced these costs, traders preferred coins to uncoined metal of equal weight and fineness. The role of the mint was, thus, to provide some assurance that the metal being traded was of a prescribed weight and fineness, so that the costs of determining its weight and fineness would not be incurred in each transaction. The premium that minted coin could command over unminted metal of equal fineness reflected this saving.

What gave rise to coinage was not the desire for a more efficient monetary system. It was simply the pursuit of the profit to be earned from the premium coins could command in the market. Nor did coinage arise immediately after precious metals came into use as money; it was only the last of a series of innovations calculated to lower the costs of weighing and identifying pieces of metal used in exchange.

At first, small globs of metal circulated as money. After assaying and weighing them, some merchants would affix markings indicating their weight and fineness. A merchant, seeing his own mark, or that of another merchant he knew, on a piece of copper or silver offered in exchange, avoided the cost of weighing and assaying pieces with no recognizable marking. From these markings followed more formal forms of stamping or “punching.” That is when specialized mints began making coins in something like their modern form, a practice which provided some, but

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scarcely total, safeguard against clipping and sweating (Burns 1927/1969, Selgin and White 1987).

There is a strong reason to suspect that private entrepreneurs began operating mints before governments did. The reason for state involvement was not to improve the monetary system but to raise revenue at a time when the power to tax was not at all well developed.

The role for law or the state in monetary affairs emerges only with the appearance of coinage. But ever since then, the state has sought to control coinage and the monetary system in general (Hicks 1969, pp. 65–66).³ Why this has been so and how it has influenced the evolution of monetary institutions are questions I address in the next chapter. For now, let me just note that the potential revenue the operator of a mint could collect was such that a private operator could finance a take-over of the primitive state. So it is likely either that private mint owners took over sovereignty themselves or that the incumbent sovereign took over minting in self-defense (Burns 1927/1969, pp. 82–83).

But to show that a special state role, beyond enforcing property rights and contracts, is not essential to the emergence or the functioning of a monetary system, I shall proceed here without considering the role of the state. Coinage was a service that provided a better, more useful money with which people could conduct their business. It required that some agency in whose integrity people had confidence certify that pieces of metal had the stipulated weight and fineness.

Although the desire for profit would have induced private individuals to mint coins of assured weight and fineness, the state might still have had an advantage over private mints in circulating coins. The assurance of the sovereign that his coins were of a stipulated weight and fineness may have been more credible than the promises of private mints. On the other hand, the ban on private mints is itself evidence that they could have competed successfully – perhaps too successfully – with governments had they not been barred from the market.

THE EMERGENCE OF BANKING

Economic development always increases the number and variety of transactions. The greater the number of transactions, the stronger the incentives for reducing the cost of transacting by incurring the start-up costs for various arrangements that facilitate trade. Economic development is thus a major stimulus to monetary innovation. But causation runs in

³ See Kraay (1964). Kraay argued that it was because the state insisted that taxes be paid in coin from its own mint that state-operated mints became dominant. This is an idea which will become important for us in later chapters.

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both directions here, for monetary innovation is a major factor in economic development (Cameron et al. 1967).

Banking was a successful monetary innovation because it reduced the cost of using and holding money by substituting abstract claims to the concrete physical objects that had previously served as money for the physical objects themselves. As these abstract claims became more widely used, they became money in their own right. This substitution, which continues even now, went along with the evolution of banking – an evolution that can, in fact, be described as a continuing substitution of claims to the primary money for the primary money itself. The substitution allows payments to be made by bookkeeping entries within or between banks instead of between the transactors themselves.

Just when and how banking got started is something we don't know for sure. There is evidence that banks held deposits in ancient Greece and Rome, but we know little about them. Whether they were actually creating deposits or just holding coins and other valuables for safekeeping is still in doubt.⁴ But when economic activity in Western Europe and the Mediterranean contracted after the fall of Rome and the Islamic conquests, banking of any kind probably ceased. Eventually, toward the end of the twelfth century, as the Mediterranean trade recovered, banking began to reemerge in Italy, which was then the most economically advanced part of Europe (de Roover 1948, pp. 247–48).⁵

Historians agree that medieval banking grew out of money changing. The word “bank” is itself derived from *bancum* or *bancherium*, both of which mean “table” – a reference to the table behind which money changers used to do business. Many of the Italian city-states, such as Venice, Genoa, and Florence, operated their own mints, and people in one city would frequently receive payment in the coins of another.

Dealing with more than one currency was not the only problem people had to cope with. The currencies were often incoherent mixtures of gold, silver, and copper coins. The disparate coins making up a currency were generally defined in terms of an abstract money of account – a ghost money that legally the various coins were different denominations of (Einaudi 1953). If the market exchange rate between gold and silver was

4 Will Durant (1939, p. 590; 1942, pp. 331–32) suggests that banking in both Greece and Rome was highly developed, that banks were sources of credit, paid interest on deposits, had introduced checks, and were making payments on behalf of their customers via book entries. M. I. Finley (1973, pp. 141–42), on the other hand, denies that banks were doing anything other than acting as bailees for their customers.

5 Concrete evidence that deposit banking was being carried on in Italy before 1200 is presented in Reynolds (1938). Reynolds showed that it was customary for merchants to have bank accounts, that they could borrow from bankers by overdrawing their accounts, that credit on the books of banks was transferable, and that there were interbank arrangements that allowed payments to be effected by the transfer of credits between banks.

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near the ratio implied by their legal definition, there was no problem. But the market rate usually diverged from the legal rate so that either gold or silver coins were overvalued. “Overvalued” means that the legal value of a coin in discharging an obligation denominated in the money of account exceeded the market value of the metal contained in the coin. In that case, people would seek to pay their obligations in overvalued coins and to hoard undervalued coins. The undervalued coins would tend to disappear from circulation. This tendency is commonly known as “Gresham’s Law.”

Many people found it convenient to change any coins they received into the particular currency or accounting unit in which they kept their records. This the money changer could do for them. But rather than receive actual coins of that unit, the customer would often prefer to receive a credit for an equal number of currency units on the money changer’s books. Since they dealt with many customers, money changers could often discharge payments between customers by transferring credits on their books from the account of one to that of another. Moreover, transfer by book credit saved the time and effort required to inspect and count all the coins required to settle a given transaction.⁶ Besides saving the cost of inspecting and counting coins – and, when they were of more than one denomination, agreeing on their value – banks also allowed customers to save the costs of transporting coin or specie, including the cost of safeguarding against robbery or theft.

Once they began accepting, or creating, deposits, it was natural for money changers to begin extending credit also. At first, a money changer might have done no more than create a deposit in, say, ducats, in exchange for florins, even though he did not actually have an equal number of ducats on hand. But, believing that his stock of ducats would enable him to withstand any likely demand by depositors for ducats, the money changer probably perceived little risk in creating the ducat deposit. And the money changer would probably not have felt it risky to allow his best customers occasionally to overdraw their accounts.

6 De Roover (1948, p. 250) aptly describes the difficulties of cash transactions in the Middle Ages: “Mediaeval trade would have been greatly hampered if it had been necessary for all payments to be made in cash. The Venetian Senator Tommaso Contarini goes even so far as to say that trade would have been well-nigh impossible. Because of the great variety of coins in circulation, it was not practical to pay out or to receive large sums without expert advice. If a money-changer were called in for consultation, he would charge a fee for his services. It should also not be forgotten that there existed no bank-notes of large denominations in the Middle Ages. As a result, money-telling, when large sums were involved, represented a considerable waste of time. The businessmen of yesterday, as well as those of today, were pressed for time and were therefore glad to take advantage of the book-transfer system devised by the money-changers. . . . Moreover, the books of the money-changers were public records and there was no need to give acquittance, to have witnesses, or to draw up legal instruments. This facility was great, indeed, and it is not surprising that it was extensively used.”

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So money changers gradually developed the business of creating deposits that were not held strictly for safekeeping but were general obligations to pay depositors, or those they designated, on demand. Recognizing that all depositors would not make such demands simultaneously, bankers created deposit entries on their books that exceeded in value the cash reserves they held to redeem them.

The benefits of holding deposits that could be used to make payments obviously increased along with the number of people holding bank deposits and making payments by transfer of bank credits. The more often payments were made in bank by book transfer, the easier it became for people to avoid holding substantial amounts of coin for transactions with people who did not have bank accounts.

At first, such transfers could not be executed unless both parties to the transaction were clients of the same banker. The transfers also had to be made orally in the presence of both parties and the banker (Usher 1943, pp. 6–8). One might have thought that this constraint on the transferability of deposits would have been a serious obstacle to developing a system of payment based on the transfer of book entries in banks and, hence, to the usefulness of bank deposits as a medium of exchange. However, the early banks stood ready to create accounts for the recipients of their clients' payments. Those recipients could then use the new accounts to make payments or withdraw cash until their accounts were exhausted (Usher, pp. 184–85).

As their numbers increased, banks began opening accounts with each other. By doing so, they not only facilitated the mutual clearing of liabilities, they gave each other access to their reserves in times of financial stress (Usher pp. 185–86). Even before the negotiability of bank checks and banknotes was recognized, correspondent accounts enabled banks to clear mutual liabilities and helped to create a system of payment transfers among banks.

Without negotiability, when say Lorenzo di Medici wrote a check to the order of Leonardo da Vinci, only Leonardo, but not Leonardo's bank, could collect from the Medici bank. Direct interbank clearing was not possible. But if Leonardo's bank, say, the Pazzi bank, and the Medici bank held correspondent accounts with each other, the same result could be achieved through a more roundabout process. Lorenzo the Magnificent and Leonardo would appear at the Medici bank and, at Lorenzo's direction, the bank would debit his account to a newly created account in Leonardo's name. Then Leonardo, in the presence of a representative of the Pazzi bank, would direct the Medici bank to debit his newly opened account and credit the Pazzi bank's correspondent account at the Medici bank. On its own books, the Pazzi bank would then debit the Medici bank's correspondent account with it and credit Leonardo's account (de