

A Study on the Evolution of Market Monetary Institutions

Soon-Dan Lee *

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| 目 次 | |
| I . The Mystery of Money | III. Bank-issued Money |
| II. From Simple Commodity Money to Coins | IV. The Path to Fiat Money |

I . The Mystery of Money

The Austrian economist, Carl Menger(1892), developed the classic explanation of the origin of money. Menger showed how money can emerge from barter without anyone inventing it, or to use Adam Smith's phrase, "as if by an invisible hand." In his account, money emerges through a series of steps, each based on self-seeking actions by individual traders, without the resulting social order(monetary exchange) being part of anyone's intention. This is a satisfying mode of explanation because it does not require heroic assumptions about the knowledge possessed by any trader.

A number of writers before Menger expressed the idea that money was an undesigned or spontaneously emerged institution. Among them are Adam Smith, the French economists Etienne de Condillac and Destutt de Tracy, and the British monetary pamphleteers, Thomas Hodgskin and Samuel Bailey. Menger was certainly aware of Smith's writings, though he does not cite Smith in this context. However, none of these earlier writers spelled out the emergence of money step by

* Adjutant Professor of Business Administration, Pacific Western University, U. S. A.

step. The typical modern textbook discussion of the origin of money is plainly inadequate.¹⁾ It lists the problems of barter exchange, and shows that monetary exchange overcomes these problems. A prototype can be found in Aristotle "All the things which we exchange need to be comparable. This need led to the invention of money to serve as a medium giving value to every thing." Unfortunately, the simple contrast between problems and solution does not explain how the solution(money) was arrived at, any more than a list of the advantages of standard time zones would explain how they came about. One is left with the impression that barterers, one morning, suddenly became alert to the benefits of monetary exchange, and, by that afternoon, were busy using some good as money. In one version of the story, a wise head of state introduced the idea that a certain commodity was to be sanctioned as a general medium of exchange.

Taken seriously as a theory of the origin of money, this account would suggest that the idea of money was fully grasped before money existed. Money would be an invention, like the telephone, which existed in someone's mind before a prototype was produced. In fact, money is not a product of technological advance brought forth by a single mind or a research laboratory. This is evident from the fact that gold dust or salt, used as money, is not technologically different from gold dust or salt, not used as money. What transforms gold dust or salt into a money is not some physical change, but rather the development of a social convention concerning the use of that good. The use of particular item as money is a social convention, in the same sense that the use of particular utterances or gestures to communicate particular ideas is a social convention. Each of us calls a certain fruit an "apple" because that is what everyone around us calls it, and we wish to communicate with them. Likewise, each of us uses item x as a medium of exchange because nearly all others in our society do, and we wish to trade with them.

A money could not spring forth full-blown from barter unless people throughout a society simultaneously arrived at the idea of using x as a medium of exchange, and each person knew that he could count on others to do so too. Such a scenario begs too many questions. It invokes the realization of money in the attempt to explain how money was realized. It attributes knowledge of the benefits of money to people who would not have such knowledge in barter economy.

Menger begins by emphasizing the "mystery" of money : why is everyone willing to trade truly useful goods and services for mere tokens? In Menger's day(a century ago), these tokens were otherwise practically useless disks of gold and silver, or slips of paper(banknotes) representing claims to such disks. Today, the mystery is even greater, as the tokens are otherwise completely useless

1) Notable exceptions are McCulloch(1982) and Goodhart(1989).

disks of cupro-nickel and slips of paper interchangeable with them.²⁾

Menger's approach does not apply only to commodity money, though it was originally framed to explain such money. It emphasized that the use of a commodity money has a "conventional" aspect, the convention being one that develops through a historical process. By extension, the use of a fiat money rests on the prior development of a commodity money convention, because fiat money is lunched by suspending the redeemability of claims to a commodity money. However, we are getting ahead of the story.

It is worthwhile restating Menger's theory in detail for several reasons. Our immediate interest, here, is its usefulness in explaining the origin of money. Later, we will return to the theory because it has implication for the viability of projects to establish a new money, or a payments system without money. The theory also draws out certain "essential features" of money that have implications for the macroeconomic properties of a monetary economy (Yeager 1968). Finally, the theory holds a general interest to students of the social sciences because it provides a paradigmatic example of an invisible-hand explanation of a social institution.³⁾

II. From Simple Commodity Money to Coins

An evolutionary or neo-Mengerian perspective can help to explain the emergence of gold and silver as the predominant commodity monies in the world, and the later emergence of such monetary institutions as coinage and bank-issued paper money.

The earliest form of money, following Menger's account, must have been a useful commodity. A

2) In recent years, a number of monetary economists have offered non-evolutionary models of money as solutions to the mystery of a positive value being accorded to "intrinsically useless" and inconvertible fiat money: in particular, the overlapping generations model (Wallace 1980) and search-theoretic models (Kiyotaki and Wright 1989, Ritter 1995). Menger's solution is different, and is less subject to the cogent criticisms made of the overlapping generations model (Tobin 1980, McCallum 1983), of other general equilibrium models of money (Bryant and Wallace 1980), and of search-theoretic models (Selgin 1997). Of course, it is subject to other criticisms.

3) It has been cited as such by Nozick (1974, p.18), though Nozick actually cites a restatement of Menger's theory.

good must have acceptability in barter before it can acquire wider acceptability as a medium of exchange. It must have some usefulness as a commodity to be accepted in barter. Anthropological evidence indicates that the goods that became monies in several cultures originally had ornamental uses(Melitz 1974).⁴⁾ This was true of Pacific and African shell monies, North American wampum, and, also, gold and silver. Other primitive monies have been foodstuffs, like grain or salt.

The eventual predominance of gold and silver as money, over other commodities which early on would have had equally wide acceptability, can be explained by at least four(partly physical) characteristics that promoted their ready marketability and convenience(low usage costs) as media of exchange. These characteristics were a staple subject of discussion in money-and-banking texts during the era of metallic monetary standards.

- (1) Good like livestock or tabacco, whose quality is variable and difficult to assess, are more troublesome to exchange than goods of uniform and easily recognized quality.⁵⁾ Pure gold and silver, as chemical elements, are absolutely uniform. The purity(fineness) of a particular piece of gold or silver can be tested at low cost by biting it, sounding it, or(with a bit more trouble) by assaying it. Traders were will be discussed below, coinage arose to relieve the difficulties created by the non-uniformity of gold and silver in rawer forms(nuggets or dust or ingots).
- (2) Gold and silver are durable, so that there are no extra carrying costs due to spoilage. The deterioration of goods like grain and olive oil makes them costly to hold in inventory. The possibility of deterioration also creates the above-mentioned problem of exchange being encumbered by the need for costly verification of the goods' current quality.
- (3) The precious metals are easily divisible and fusible, so that payment can be tailored to purchase size. Large pieces can easily be split into small pieces, and small pieces can be unite to form larger pieces. This is not true of jewels or, certainly, of livestock.
- (4) Finally, gold and silver are portable, that is, have high ratio of value to bulk. Portability means a low cost of taking the medium of exchange from the site where it is acquired to the

4) I used to add "or ceremonial uses," until I discovered that "ceremonial use" is the anthropologist's shorthand for "we have no idea what it was used for."

5) Armen Alchian's account(1977) of "Why Money?" relies exclusively on low authentication costs for selecting which commodity will become money. See also King and Plosser(1986). Other things equal, this characteristic can be decisive but, more generally, it is only one characteristic among several that can play a part in promoting a commodity's use as a medium of exchange.

site where it is spent. Commodities like salt lost their suitability as media of exchange when their value per pound became too low. The copper money of seventeenth-century Sweden, a non-precious metallic money, was notoriously cumbersome. Individual pieces of copper "plate money" eventually weighed up to 20 kilograms(44 pounds). Strong young men had to be employed to carry the copper necessary to make an ordinary-sized commercial purchase. Finally, Swedes stopped may have promoted the historical dominance of gold over silver in international payments of large sums : it was less costly to send one boat laden with gold than to send fifteen laden with silver.⁶⁾

The displacement of one money by another can follow the general Mengerian logic of a self-reinforcing convergence process. As individuals from two regions with different commodity monies come into contact and begin to trade, an entryway is created for the better of the two monies to spread to the other region. Traders on the margin, not only those physically adjacent to the border but also merchants who do a large fraction of their trade with users of the foreign money, will favor the foreign money, if it is markedly better in some of the four areas listed above. Merchants and border-dwellers will accept the favored money on somewhat better terms, and can use it among themselves where, before, they used the local money. The margin can then spread : those who deal substantially with these merchants, and those who live adjacent to the areas adjacent to the border, can find it advantageous to be paid in the foreign money. Its sphere of acceptance can snowball, following the Mengerian logic, until a single money unites the two regions.

Coinage, the practice of fashioning monetary metal into standardized marked discs, though it involves technical advances and not merely the formation of a social convention, also developed in step-by-step fashion. Where nuggets or gold dust served as money, merchants had to assess weight and quality when accepting payment. It made sense for a merchant to mark a piece of assessed gold, so as to avoid the costs of re-assessment when paying the piece out later. Other traders who trusted this merchant could then also rely on his mark. To prevent the possibility of shaving off gold around the marked area, the piece could be covered with marks. Punching, stamping, and finally modern methods of minting developed as low-cost methods of fashioning reliably marked pieces of

6) Fleming(1994) finds, however, that the general historical switch from silver to gold standards was not market-driven. It was, in fact, mainly due to the legal overvaluation of gold relative to silver by the governments of Britain and the US, which set Gresham's Law in motion(the legally overvalued or "bad" money drove out the legally undervalued or "good" money). Other nations deliberately followed suit in a sort of bandwagon effect.

gold. Historical examples of these stages can be observed in the money of ancient Lydia(Burns 1927: Cribb 1986).

Mints arose spontaneously, then, to meet the demand for authentication services. With the development of coinage, the marketability of coined metal became discontinuously greater than of uncoined metal(in this context, branded bars of bullion may be thought of as large coins). Gold miners found it much easier to spend coined than uncoined gold, and, therefore, were willing to pay for the service of minting their raw gold into coins. Numismatic publications indicate that more than twenty private gold and silver mints operated during the gold and silver rushes in nineteenth-century America(Kagin 1981), and one in Australia(McDonald 1987, p.122).

In practice, governments have typically monopolized the coinage industry, but there are no signs that coinage is a natural monopoly. There are ample signs that governments have wanted to exercise monopoly over money production so as to reap the monopoly profits known as seigniorage(Selgin and White 1999).

III. Bank-issued Money

The next step to consider, in the evolution of monetary institutions, is the emergence of money issued by commercial banks. Full-bodied coins(and other types of full-bodied commodity money, like shells) originate outside of any commercial banking system. We may call them “outside” money, whereas bank-issued money is “inside” money. Outside money is an asset for its holder but not a liability of, or financial claim against, anyone else. The media of exchange produced by a commercial bank, by contrast, are claims against it. A large literature attempts to explain why banks exist as intermediaries between savers and borrowers(Santomero 1984).⁷⁾ Our object here is, rather, to explain why banks participate in the payments system, by offering a logical evolutionary account

7) An intermediary is an institution that issues financial claims(debt or equity) against itself, and uses that proceeds to acquire financial claims on other agents. Because it is irredeemable and not a financial claim, fiat money is outside rather than inside money, and an institution that issues it(typically a central “bank”) is not, in that respect, acting as an intermediary. The text’s distinction between outside and inside money is different from the one used by Gurley and Shaw(1960).

of why and how claims against banks came to be used as money.

The earliest bank liabilities were claims to outside money deposited with bankers. Historical records indicate that bankers in medieval Italy began as money-changers, but by AD1200 had moved into accepting time and demand deposits(de Roover 1974). In a region of numerous city-states, each with its own distinct coinage, money-changers provided the service of trading local coins for the less spendable foreign coins brought by inbound merchants and other travelers, and of trading the reverse way with outbound travelers. A simple explanation of why money-changers became deposit-takers is that merchants found it easier to leave money with them "on account", to be called for when needed, rather than to take away domestic coin equal in value to the foreign coin tendered(or vice versa) on every occasion. Essentially, this means that the money-changers' vaults were being used for temporary safekeeping of coin. In this respect, the development of deposit banking in Italy was similar to its development in England where, according to numerous accounts, early deposits were taken by goldsmiths whose vaults provided safekeeping.

Bank deposits began to play a monetary role when they became a medium of exchange, that is, when transfer of deposit balances became an accepted method of payment among bank customers. The practice of deposit transfer evolved by steps. Where a bank provided safekeeping services, depositors no doubt discovered cases in which party Alice planned to withdraw coins from the vault and laboriously transfer them to party Bob, who in turn planned to lug them back to the same vault and redeposit them. At the end of the day, the coins were back where they started, Alice's deposit balance had been reduced, and Bob's balance had been enlarged by the same amount. Only a little imagination was needed for Alice and Bob to recognize that an easier method of accomplishing this result would be for them to meet in the banker's office(in the coin-lugging method, both had to go to there anyway) and there persuade the banker simply to transfer the desired amount of deposit balances on his books. Alice and Bob thereby avoid physical lugging around of coins, which simply stay in the vault. Early banking documents, studied by de Roover(1974), record such there-way meeting among payer, payee, and banker to authorize deposit transfers.

Later developments made transfers still easier to accomplish. Written slips for authorizing transfers made it unnecessary for both parties to travel to the banker's office.(In a checking system, Alice hands Bob a check, and only Bob goes to the bank, to deposit it : in a "giro" system, only Alice goes to the bank, to authorize the transfer into Bob's account.) Today, we see the growing use of electronic funds transfer, that is, methods of authorizing deposit transfers using electronic messages(sent using a telephone, home computer, automatic teller machine, or debit card and

point-of-sale terminal) in place of slips of paper. These methods do not change the nature of the payment system as one of deposit transfer. The “front end” of the deposit transfer is different from writing a check, but not the “back end”(what happens on the bank’s balance sheet). Nor — despite excited predictions that the future holds “a world without money” — do they threaten the definition, or real existence, of money. The depositor’s bank balance, not the transfer-authorization device(e.g. the check), is money.

In addition to deposits, bank-issued claims in currency form were important historically, and may soon become important again. Banknotes are bank-issued claims to outside money that are not in any customer’s name, but are payable to(redeemable by) whoever happens to be the bearer. Such bearer claims are transferable without the bank’s knowledge or involvement and can change hands repeatedly before being redeemed. Today some version of “smart card” payments, namely those like Mondex which allow transfer of balances directly from card to card without the bank’s knowledge or involvement, amount to the reintroduction of banknotes in digital form.

Banknotes may have evolved from the practice of making payment by signing over a deposit receipt or cashier’s check. When such payments are foreseen, depositors could ask for deposit receipts in round denominations for convenience, and in bearer form, to streamline and certify the payment. Payment was streamlined because signing over is no longer necessary. It was certified in the sense that the bearer note is a claim against the bank only, and not against any account that might have insufficient funds, nor against any subsequent endorser. No one who accepts a banknote — needs to worry that the goodness of the claim depends on the funds of those who have previously held it, or that he or she might be called upon to make good on it for those who hold it subsequently. A banker is happy to comply with requests to issue such claims, as a way of increasing his circulation and profits. According to several accounts, this was the path by which goldsmith’s deposit receipts historically evolved into banknotes(Usher 1943, Richards 1965).

The widespread use of banknotes historically preceded the widespread use of checking accounts(Bagehot 1873). For most British banks, note circulation exceeded deposits up to 1850. For banks in order countries, the date at which deposits began to exceed notes in circulation came even later. If banknotes evolved from deposit receipts, however, deposits on some scale must have preceded the use of banknotes.

Banknotes historically have paid no interest, even in competitive settings where deposits have, because there seems to be no easy way to pay interest on a bearer instrument whose convenience rests on its circulating at face value.

IV. The Path to Fiat Money

At this point, we can take stock of the spontaneously or “naturally” developed monetary system so far described. The definitive money is specie. Except in interbank settlements, transactors commonly make payments using bank-issued currency and transferable deposits. A specie unit is the unit of account. Bank-issued money is denominated in the specie unit, and is widely accepted at par. All banks are linked into a unified system by one or more clearinghouses. These outcomes are not purely theoretical, but could be seen historically in banking systems that were free of significant legal restrictions.⁸⁾

Is there a spontaneous or market-driven path from this system to the non-commodity, or fiat, standards that prevails today? No. If any single bank in the system were unilaterally to stop redeeming, it would have breached its contracts with its customers. If it were to announce in advance that it would stop redeeming next month, holders of its notes and deposits would redeem them all before next month, and would take their business elsewhere. Alternatively, if the bank tried to replace ordinary open-ended notes and deposits with new liabilities whose redeemability was scheduled to expire on a specified date, nobody would take the liabilities as the date approached.

The other banks and the public would reject the irredeemable liabilities because without redeemability at par for specie, there would be no assurance of continued par value in terms of the specie unit of account.

The forces that lead to convergence on a common monetary standard, as in Menger’s account, continue to operate once a standard is reached. Nobody wants to make trading harder by offering or accepting only a non-standard money, different from that routinely accepted and offered by others. Consequently, nobody would want to go first in switching to a completely novel monetary standard, even if he were persuaded that, in theory, it would work better supposing that everyone switched.

If all the banks, together, could coordinate a simultaneous switchover to a fiat standard(a very big “if”, but banks did coordinate the beginnings and ends of temporary systemwide suspensions of payments during a few of the nineteenth-century US banking panics) the new standard might stick. However, it is not clear what market forces would compel banks to want to make such a move.

8) See Dowd(1992) for case studies.

Also, if it meant breaching pre-existing redemption contracts, it would not be a voluntary switch by the users of money.

In historical practice, a nation's switch to fiat money was typically made by the central government first granting a legal monopoly of note-issue to a single institution, a central bank, whose liabilities became as widely accepted as specie, and displaced specie as the reserves for other banks. The government then suspended, permanently, the redemption of the central bank's liabilities. With their permanent suspension, central bank notes and deposits became a fiat base money. The fiat-money unit correspondingly became the unit of account. Typically, the central bank for continuity's sake retained the old specie unit name(e.g. "dollar"), which was printed on the notes in circulation at the moment of suspension, while severing its specie definition. The now-irredeemable notes can continue to circulate because they are familiar, and the practice of accept them is self-reinforcing : it is not in any one trader's self-interest to refuse them if she expects others to continue accepting them.⁹⁾

Thus, fiat money is possible where paper banknotes had previously gained common acceptance as redeemable notes.¹⁰⁾ Likewise, to launch a new fiat money today, it must at first be made redeemable for the prevailing money(the ruble). Selgin(1994) likens initial redeemability to a "launching vehicle" that can fall away once the new currency gets into orbit.

9) In addition, the government can reinforce their continued acceptance by making the now-irredeemable central bank liabilities

1. publicly receivable — taking them for tax payments and for purchases from state enterprises;
2. legal tender for payment of old debts contracted in the unit of account;
3. forced tender in all domestic exchanges, including spot transactions that traders would rather conduct in another currency and repayment of old debts specifically denominated in metallic units.

As a final step, the government can, as the US government did, require the public to turn in its specie.

10) Two historical cases are instructive here. When the Bank of England suspended payments from 1797 to 1819, Northern Ireland remained on a specie standard because banknotes did not yet commonly circulate there. For the same reason, California remained on a specie standard while the rest of the Union went on to an irredeemable "greenback" dollar standard during the American Civil War.

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産業研究

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국문요약

시장통화제도의 진화에 관한 연구

이 순 단 *

통화제도의 진화에 관한 이론적 설명은 최초의 통화가 비통화적, 즉 물물교환경제에서 어떻게 등장하게 되었는가를 설명하려는 시도에서 시작된다. 오스트리아의 경제학자인 칼 멩거는 화폐의 원천에 관한 고전적 설명을 발전시켰다. 멩거의 이론은 통화의 진화론적 탄생의 결과인 통화경제의 중요한 특징을 이해하는데 도움을 주었다. 멩거는 다음과 같은 세가지 점을 강조하였다.

- (1) 통화경제 속에서 모든 사람들은 화폐를 일상적으로 받아들이며, 소비재를 얻기전에 생산품이나 물려받은 상품을 화폐와 교환하려고 일상적으로 노력한다.
- (2) 상품을 '현행가격'으로 화폐를 주고 살 수 있는 능력은 어떤 익명의 판매자와 거래하는 것이 예상되어도 전혀 의심을 받지 않는다. 화폐 받기를 거부하거나 그것을 할인을 해서만 받으려는 판매자를 만날 위험은 거의 없다.
- (3) 판매자들은 화폐보다 시장성이 낮은 상품을 받기를 꺼려하기 때문에 화폐가 될 수 있는 상품의 시장성은 다른 어떤 상품의 그것보다 월등히 높다. 구매자들은 판매자보다 경제적 가격에 가까운 값으로 거래하는데 어려움이 훨씬 적다.

역사적 관점에서 보면, 어떤 국가가 법정통화로 옮겨가는 것은 처음에 단일 기관인 중앙은행에 은행권 발행의 법정 독점권을 주는 중앙정부에 의해 상시되는 것이 대표적이었다. 정부는 중앙은행의 부채상환을 영구적으로 정지시켰다. 이러한 영구적인 정리로 중앙은행의 은행권과 예금은 법정 본원통화가 되었고, 그에 따라 법정통화의 단위는 계산단위가 되었다.

* 겸임교수, 페시픽 웨스턴 대학교 경영학부, 경영학박사