

Towards an Explanation of Credit Money Financial Innovation¹

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“there is only one test to which monetary theories can be subjected, and which they must pass, and that is the test of history” (Mitchell Innes, 1914: 155)

Fernand Braudel in his accounting of the evolution of capitalism notes that classical definitions of money “leave out the essential point - the monetary economy itself, the real reason for the existence of money. Money only becomes established where men need it and can bear the cost. Its flexibility and complexity are functions of the flexibility and complexity of the economy that it brings into being. There will ultimately be as many types of money and monetary systems as there are economic rhythms, systems and situations.” (1991: 439)

Hyman Minsky (1969: 225) evokes a similar idea: “Capitalism requires that financial institutions and instruments exist which permit flexibility in financing. Before the impact and efficacy of money can be traced it is necessary to specify the financial institutions; monetary economics cannot escape being institutional economics. Once the problem of monetary theory is identified as revolving around the financing of positions in the stock of assets and the financing of additions to the stock, then a portfolio or asset-management view of the monetary process is natural.”

Keynes follows a similar method of analysis, eschewing a descriptive definition of money in favour of identifying the characteristics of “monetary production” in which, following Braudel, types of money have different consequences depending on what he called “essential properties”.

Such an approach differs from the traditional criticisms of the classical definitions of money which are based on the absence of historical evidence of barter exchange, or the more telling criticism of absence of historical evidence of a commodity money used as a medium of exchange and measure of value. With respect to the former, it is not so much the absence of an historical evidence of barter exchange, but rather the failure to identify the unequal monetary penetration of different levels of production and exchange in an evolving capitalism that is lacking. Indeed, one of the main points of Braudel’s account is the simultaneous existence of barter alongside monetary market-based exchange.

As example, he notes that “Commodities were commonly exchanged for one another in Naples in the eighteenth century, all parties agreeing to abide by prices which the authorities

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fixed later (prices called *alia voce*). Then each consignment of merchandise was valued in money, and exchanged according to the ratio of these values.” (op. cit. 470) The point is not that barter exchange in kind did not exist, and thus that a commodity money could not have resulted from the supposed inefficiencies of barter, but to explain why they existed simultaneously.

With respect to the latter, Braudel a similar simultaneous existence of both commodity and non-commodity money in Europe at the time: “in circulation alongside metallic money ... were both fiduciary money (bank notes) and scriptural money (created by the process of book-keeping, by transferring money from one bank account to another: a practice known to the Germans as *Buchgeld* ... as early as the sixteenth century).” (op. cit. 470)

Indeed, Mitchell Innes (1913:378) goes further and marshals a legion of evidence against the historical existence of any commodity or metallic money that actually served as a standard of value or “means of exchange in the economic sense of a commodity, in terms of which the value of all other things is measured.” In sum, the classical explanation of the evolution of a physical commodity-based money system is the search for a solution to a problem that did not exist, by means of a solution that did not exist.

“All forms of money are identical in their nature” (Mitchell Innes, 1914: 154)

The classical or quantity theory explanations of the emergence of a commodity standard money come in various versions. They are all based on the determination of a theory of value produced via maximization in market exchange, taking as given specialization in production. In simple terms this is Smith’s problem of how the transition from the early and rude state of society of self-sufficient producers moves from swapping deer and beaver to division of labour in which the butcher has to get the goods of the baker and the candlemaker via market exchange. From which emerges the solution to the supposed problem created by the necessity of the double coincidence of wants to make exchange feasible. It is the efficiency dominance of a system with $n-1$ exchange ratios between the commodity standard and the n goods over the $n(n-1)/2$ ratios required for bilateral exchange ratios across all n goods.

Menger provides a more insightful analysis and explanation and solution to the problem: “Think, indeed, of the peculiar difficulties obstructing the immediate barter of goods in those cases, where supply and demand do not quantitatively coincide; where, e.g., an indivisible commodity is to be exchanged for a variety of goods in the possession of different person, or indeed for such commodities as are only in demand at different times and can be supplied only by different persons! ... These difficulties would have proved absolutely insurmountable obstacles to the progress of traffic, and at the same time to the production of goods not commanding a regular sale, had there not lain a remedy in the very nature of things, to wit, the *different degrees of saleableness (Absatzfahigkeit) of commodities*. The difference existing in this respect between articles of commerce is of the highest degree of significance for

the theory of money, and of the market in general. And the failure to turn it adequately to account in explaining the phenomena of trade, constitutes not only as such a lamentable breach in our science, but also one of the essential causes of the backward state of monetary theory. *The theory of money necessarily presupposes a theory of the saleableness of goods.*"

Menger suggests that "we can only come fully to understand the origin of money by learning to view the establishment of the social procedure, with which we are dealing, as the spontaneous outcome, the unpremeditated resultant, of particular, individual efforts of the members of a society, who have little by little worked their way to a discrimination of the different degrees of saleableness in commodities."

Menger's definition of highest degree of "saleableness" as determining what is money is equivalent the lowest (or zero) bid-ask spread, or zero transaction costs: a commonly used measure of market liquidity! Money is the commodity with zero transactions costs and allows it to be used to meet quantitative and intertemporal imbalances in market supplies and demands. Money is the equivalent of the zero cost wholesale merchant or intermediary in market exchange. Money is liquidity! Which is why it is subject to Braudel's criticism of the historical evolution of market exchange from trade fairs², to itinerant peddlars to local market squares, to botteghe oscure; each one represents a set of market institutions determining trade, and each requiring a different monetary system and different money to provide liquidity.

The implicit criticism of Mengerian description of money is that the provision of market liquidity can be solved in any number of different ways -- a centralized system of buffer stocks, or the equivalent of a stock exchange specialist, and auctioneer or a socialist central planning of production and distribution. Indeed, Marshall and Walras/Edgeworth all attempted to provide more formal explanations of this idea of market liquidity in the determination of equilibrium market prices. For the former it is the constancy of the marginal utility of money traded by speculators in continuous trading markets and for the latter the existence of recontracting in a periodic call auction market. (Cf. Kregel, 1992)

"a sale and purchase is the exchange of a commodity for a credit and not for a piece of metal of any other tangible property." (Mitchell Innes: 159)

But there is one other solution, that appeared in providing liquidity, initially for exchange in kind and then more generally. Consider this description of the United States in 1791 in a book by Claviere and Brisso quoted by Braudel which highlights the persistence of

² Braudel (1982: 91 notes the natural evolution of the fairs from financing trading in goods to full-fledged liquidity machines. Piacenza, the last of the great fairs met "Four times a year, ...No merchandise came to the fair, and very little cash, but literally masses of bills of exchange, which in fact represented the entire wealth of Europe, ... About sixty businessmen attended,... They were members of a club to which one could not be admitted without paying a very heavy caution (3000 ecus). These privileged men fixed the conto, that is the exchange rate for liquidation at the end of each fair. This was the big moment of these meetings, which were secretly frequented by foreign exchange dealers, cambiatori and representatives of large merchant firms. There was a total of perhaps 200 initiates, behaving with great discretion and handling vast amounts of business, perhaps 30 to 40 million ecus' worth at each fair... "

non-monetary exchange: “it is the practice here for country people to satisfy their needs by direct reciprocal exchanges. The tailor and bootmaker go and do the work of their calling at the home of the farmer who requires it and who, most frequently, provides the raw material for it and pays for the work in goods. These sorts of exchanges cover many objects; they write down what they give and what they receive on both sides and at the end of the year they settle with a very small quantity of coin, a large variety of exchanges, something which could only be done with a considerable quantity of money in Europe. [Thus] a means of wide circulation without coin . . . [is created]. This eulogy of barter and services paid for in kind, as a progressive innovation of young America, is amusing. In the seventeenth century, and even in the eighteenth, payments in kind were very frequent in Europe; they were the relics of a past in which they had been the general rule.” (Braudel, op. cit.: 447)

Here the solution is not a commodity intermediary with a zero bid-ask spread, but in “writing down” as debts and credit of physical quantities exchanged in what was presumably a common set of accounts which were eventually converted into a common measure or unit with a final balance to be liquidated with a common commodity or coin. Here all that is required is a common balance sheet and a common unit of account to achieve a solution to Menger’s problem. With the expansion of the emission of coined metal, Braudel (464) notes “The intermingling of currencies made it necessary to invent moneys of account or 'notional' units of currency. Some form of common measure was a logical requirement. Moneys of account are units of measurement, like the hours, minutes and seconds on a clock (the English guinea is one modern example).” Liquidity can also be created by means of balance sheet entries of exchanges in a notional unit of account – money is not needed.

Historical evidence: Bankers as Bookkeepers

There is historical evidence of the evolution of such a system in medieval banking practice “[t]he mere acceptance of deposits of coined money involves no banking activity, even if the money is used in trade. In such a case, too, there is merely a transfer of purchasing power. Banking begins only when loans are made in bank credit.” ... “Descriptions of the fairs in the early thirteenth century show that many of the transactions were cleared by book transfers. ... At the fairs there was no positive obligation to pay until the end of the fair. The promise to pay through the banker, thus, did not involve any loan on the part of the banker. The banker merely guaranteed payment. The effect was about equivalent to the endorsement of a modern promissory note. This business, however, carried the bankers towards true credit activities.” A.P. Usher (1934: 399, 407)

“Fragments dated 1211 of the account book of a Florentine banker present the earliest known evidence of the double entry-system. From this time the art of bookkeeping began to bud and continued to grow in the fertile soil of commercial practice in Italy.” (Inoue 1978: 51).

Usher (op. cit.) also notes that “until the sixteenth century the use of the written contract was restricted ... The verbal contracts of mediaeval commerce were thus made before

a notary and witnesses. The transaction was recorded in the register of the notary and became a matter of public record. The record was accepted as competent evidence of the content of the contract, ...because the contract required the presence of both parties to make the formal statement of the contract and to accept the contract. ...The Journals of the early banks were given the legal status of a notarial register.”

“The 1211 accounts are equally interesting as witnesses to the existence in thirteenth-century Italian of specialized vocabulary of bookkeeping, ... The most significant terms are those relating to positive and negative movements in the balance of the account, ... of which two pairs may be distinguished [give-have given and receive-have received]. From the first pair is derived the modern Italian usage of [debit and credit] ... The thirteenth-century bookkeeper did not think of them as direct opposites, but regarded ‘have given’ as opposed to ‘gave’ and ‘have received’ as opposed to ‘receive,’ that is, he thought on the one hand of a loan to someone, and its repayment. ... The medieval ledger-keeper also became familiar with the procedures of offsetting the balance of a customer’s loan account against that of his deposit account, and of using a transfer from a debtor’s deposit account to his creditor’s deposit account, or against his creditor’s loan account (with the agreement of both customers), as a means of settling their reciprocal indebtedness.” (Lee 1973: 141)

Raymond de Roover (1943: 149) confirms the existence of a system of clearing amongst Florentine bankers in which “[i]n order to pay by transfer, it was not necessary for the assignor and the assignee to have their bank accounts in the same bank. Since all the local banks were in account with each other, it was easy enough to transfer credit from the account of Mr. A, customer of banker X, to the account of Mr. B, customer of banker Y. An example of a transaction of this sort is found as early as 1200 in the records of a Genoese notary. The account books of two Bruges money-changers of the fourteenth century also contain many examples which prove the existence of clearing arrangements among the banks.”

He also notes that Paciolo's famous 1494 treatise presenting double-entry accounting advises bank clients to “ask the bank for a receipt whenever a deposit is made,” but adds immediately that “Such receipts are not customary, because... the books of a bank are always public and authentic records. This passage, ... explains why so much importance was attached to the journal, since it was the only record of otherwise oral agreements.” (de Roover 1943). Both authors note the use of client accounts, but the absence of cheques or the issue of a liability by the banker in the form of a receipt or even evidence of credit.

The main activity of the medieval banker was thus as a bookkeeper and this created the possibility that “[t]he banker might allow a customer to overdraw his demand account in the ledger on the security afforded by a credit due from a third party in the record of conditioned deposits, or against an engagement of the borrower to repay the banker at a stated time. This operation would have the same effect as the discounting of a negotiable bill of exchange or promissory note, although different in form. ... The loans made by these early bankers

commonly resembled the modern overdraft. The loan was created by transfers or withdrawals from the ledger account in excess of the credit... The non-negotiable bill of exchange, which came into extensive use in the second half of the fourteenth century, was an important factor in the credit business of banks. ... Bills might also serve, indirectly, as a basis for a loan. A merchant could not, however, raise money directly on an accepted bill, but a banker could permit the merchant to overdraw his current account, with or without a supplementary engagement as to the details of repayment.” (Usher, op. cit. : 414)

“The theory of an abstract standard is not so extraordinary as it first appears.” (Mitchell Innes, 1914: 155)

The generic role of the unit of account in the development of market trading is first highlighted in the 17th century by Wm Petty in his “Dialogue of Diamonds” which makes the simple point that beneficial trading requires prices to be comparable and thus have a common dimension. Given the plethora of circulating coin this meant using some common and notional unit of account.

The primary role of unit of account in arranging bank transfers in monetary theory is noted by Sir James Steuart (1966: 408) in the 18th century. He distinguishes between metal coin and “[m]oney, which I call of account, is no more than an arbitrary scale of equal parts, invented for measuring the respective value of things vendible” for the operation of bank transfers. He compares the operation of two different types of banks distinguished by the two means of circulation: “those which only transfer the credit written down in their books from one person to another ... I call banks of deposit,” in contrast to banks of circulation “which issue notes payable in coin to the bearer.” (ibid.: 476)

Luigi Einaudi also notes the importance of money as a unit of account without physical properties in his explanation of “imaginary money,” which is a non-physical unit of account as the basis of the determination of prices and thus as the basis of market exchange and financial practices in the seventeenth and eighteenth centuries.

Modern Criticism of Commodity Money: Quantity theory resistance

At the beginning of the 20th century the American born Hamburg banker Friedrich Bendixen (Das Wesen des Geldes) had already provided the criticism of the now traditional Austrian-neoclassical historical explanation of why gold metal came to play the role of money as the standard in money exchange by dominating two-way barter exchange well before Mitchell Innes debunked the historiography. Referring to Knapp he notes that “The metalist theory, which has been dominant until today defines the unit of value (mark, franc, guilder, ruble) as a certain amount of metal, cannot explain every monetary system, and is therefore not general, and therefore, false. ... The unit of value is not defined “metallically, but nominally, equivalently in countries on the gold standard and those with paper currency. ... The great

importance of the new theory is the assertion that even in countries on the gold standard, the unit of value of nominal.” He indicates Austria as a country with a functioning payments system that works without gold or other metallic commodity.

Keynes takes a similar position in his *Treatise on Money*: “A Money-of-Account comes into existence along with Debts, which are contracts for deferred payment, and Price-Lists, which are offers of contracts for sale or purchase. Such Debts and Price-Lists, whether they are recorded by word of mouth or by book entry on baked bricks or paper documents, can only be expressed in terms of a Money-of-Account.”

“*Banks are the clearing house of commerce.*” (Mitchell Innes: 1914: 168)

In the United States, the role of bankers keeping book in unit of account is best represented by Colwell’s (1859: 188–89) *The Ways and Means of Payment*,³ where he defines banking as “a system by which men apply their credits to the extinguishment of their debts. ... This is in direct contrast with the cash or money system, in which every article is either paid for in the precious metals at the time of delivery, or at some time afterwards. These two systems work side by side.”

He notes that since commercial exchange may be represented as the exchange of goods sold for a credit note on the books of the seller and a debt note for the goods received by the purchaser, the rise of banking can be described in a similar way to Usher’s medieval banks: “A class of men is formed, who make it their business to deal in these securities, or evidences of debt. If a banker or broker purchases the two notes given by the merchant and his customer, it is obvious that both receive the means from him to pay the notes of which he has become holder and owner. The process of payment between them will be very simple, if the banker merely give each of the two parties credit on his books for the proceeds of the notes purchased of them their respective checks on these credits pay off the whole indebtedness ...” (ibid.). Thus, “[b]anks become, in this way, substantially book-keepers for their customers” (ibid: 9), and “[t]he books of the banks furnish, thus, a mode of adjustment by which the customers are enabled to apply their credits to the payment of their debts” (ibid: 10). “*No currency can be more suited to pay a man with than that which he has issued himself.*” (ibid: 8, italics supplied)

This appears to have been a common position amongst US banking writers at least through the turn of the century. In a subsection on “Credit Documents,” Kinley (1904: 202) writes “[o]ut of credit transactions arise various kinds of credit paper, or instruments. ... Each piece of credit paper represents the purchase, or sale, of a certain amount of goods, whose value is expressed in terms of money on the face of the instrument. Credit instruments, therefore, are simply a means of facilitating the exchange of goods, and the obligations created

³ Not easy reading and long, but a told to the children version is available in Robey, for a time part of the New Deal Brains trust as part of Willis’s group at Columbia University.

by these credit instruments are met, in the main, by the cancellation, or offsetting, of the instruments against each other.”

It would thus appear that actual practice in banking already preceded Wicksell’s 1898 idea of a notional “pure credit” economy as an hypothetical foil against which to judge the quantity theory. For Wicksell (1936: 68), “[t]here is no real need for any money at all if a payment between two customers can be accomplished by simply transferring the appropriate sum of money in the books of the bank. It can be written off the account of the debtor (the buyer) and credited to the account of the creditor (the seller). Suppose now that this system, which is known by the name of the Virement, Giro, or cheque system, is developed up to the point where everybody possesses a banking account. Then all payments could be effected by such bookkeeping transfers, except possibly those for which small change suffices. It is true that a substantial amount of capital would be required to instill confidence and to meet unavoidable risks. But whether the banks are branches of one single monetary institution serving the whole country (like the Austrian Post Office Savings Bank) or independent establishments connected by a common clearing house (on the English or American pattern), they would require no stock of cash—not at any rate for purely domestic business.”

The importance of the offsetting of debits and credits is also central to the tradition exemplified by Hawtrey’s *Currency and Credit*. In opening his discussion of the difference between money and credit, Hawtrey (1919: 4) states simply: “A dealer in debts or credits is a Banker.” He then goes on to describe how an economy could function without “money,” solely on bankers’ credit. He is in turn echoing McCleod’s (1894) description of banking found, for example, in his *Theory of Credit*.⁴

This approach to banking was codified by the British financial journalist Hartley Withers (1906: 46) who noted that “[m]ost of the money that is stored by the community in the banks consists of book-keeping credits lent to it by its bankers. It is usually supposed that bankers take money from one set of customers and then lend it to other customers; but in most cases the money taken by one bank has been lent by itself or another bank,” and that “the greater part of the banks’ deposits consist, not of cash paid in, but of credits borrowed. For every loan makes a deposit.” (ibid.: 51)

This eventually became accepted academic discourse with Phillips (1920: 13) who noted that “[t]he lending functions of a commercial bank are so radically different from those of the money lender, putting out only his own funds, that it will be desirable at the outset to consider carefully the nature of banking, the essence of which consists in the practice of extending loans far in excess of either the capital or cash holdings of the bank in question.” How this occurs

⁴ Virtually all authors, post-Colwell, draw their inspiration from McCleod. Cf. Innes (1914: 63): “The present writer is not the first to enunciate the Credit Theory of Money. This distinction belongs to that remarkable economist H.D. McCleod ... the only economist known to me who had scientifically treated of banking and credit, [but] was unable to formulate the basic theory that a sale and purchase is the exchange of a commodity for a credit and not for a piece of metal or any other tangible property. In that theory lies the whole essence of money.”

Phillips (1920: 34) calls “the riddle of banking,” represented by the fact that “the acquisition of additional primary deposits enables an individual bank to expand its loan item by little more than the amount of such deposits.” The answer is achieved by drawing “a sharp line of distinction between credit extension by an individual bank and that of banks taken in aggregate” (ibid: 32)

Aside from his earlier collaboration with Robertson on the latter’s *Banking Policy and the Price Level*, and an essay linked to the discussion around that book: “How far are bankers responsible for the alterations of crisis and depression?” (Keynes 1973 [1913]) Keynes in chapter 2 of the *Treatise* suggests that a “bank may create a claim against itself in favour of a borrower, in exchange for his promise of subsequent reimbursement; i.e. it may make loans or advances,” referring the reader to Phillips. He could well have referred to Robertson: “we can, without serious risk of error, speak as though these deposits were the only form of money, ignoring the existence of paper notes and metal coins. ... this bank- money comes into existence mainly as the result of loans and investments made by the banking-system, ... Historically, there seems to me no question that the bulk of the bank-money in existence has come into existence in this way. banks create money predominantly by way of loan: and just as the White King required two messengers, one to fetch and one to carry, so custom requires two parties in a loan transaction-one to lend and one to borrow.” (Robertson, 1928: 132-3)

The ability of bankers to create purchasing power was a widely shared view amongst Austrian cycle theorists, particularly L. Albert Hahn. Even Hayek’s (1933 [1929 in the German original]: 190–91) *Monetary Theory and Trade Cycle* is based on the fact that bank credit allows investment to take place independently of saving. He notes that if bankers’ ability to create purchasing power were to be limited so as to conform to loanable funds theory, “it remains very questionable whether many would wish to put it into effect if they were clear about its consequences. The stability of the economic system would be obtained at the price of curbing economic progress. ... The utilization of new inventions and the 'realization of new combinations' would be made more difficult, and thus there would disappear a psychological incentive towards progress, whose importance cannot be judged on purely economic grounds. It is no exaggeration to say that not only would it be impossible to put such a scheme into practice in the present state of economic enlightenment of the public, *but even its theoretical justification would be doubtful.*”

The idea is also present in Mises (1953 [1912]: 282–83), who notes that debts “can also be settled in part by offsetting if claims are transferred within a group until claims and counter-claims come into being between the same persons, these being then cancelled against each other, or until the claims are acquired by the debtors themselves and so extinguished. ... The use of money is avoided because claims to money are transferred instead of actual money. This process is continued until claim and debt come together, until creditor and debtor are united in

the same person. Then the claim to money is extinguished, since nobody can be his own creditor or his own debtor.”

This general approach is summarized by Mitchell Innes (1914: 168) has provided a similar explanation of the activity of bankers: “A banker is one who centralizes the debts of mankind and cancels them against one another. Banks are the clearing house of commerce. ... The value of credit does not depend on the existence of gold behind it, but on the solvency of the debtor.”

And echoed in Minsky (1986: 258) “Banking is not money lending; to lend, a money lender must have money. The fundamental banking activity is accepting, that is, guaranteeing that some party is creditworthy. A bank, by accepting a debt instrument, agrees to make specified payments if the debtor will not or cannot. Such an accepted or endorsed note can then be sold in the open market. A bank loan is equivalent to a bank's buying a note that it has accepted.”

In Schumpeter’s (1912) *Theory of Economic Development*, the bankers’ ability to create purchasing power is not linked to any particular monetary instrument, e.g. bank notes, exchange bills, deposits, etc. because Schumpeter (2014: 134) looked upon the clearing function based on unit of account as the basis for the concept of money as represented in what he presented as the generalized concept of the “current account relation ... the idea that everyone’s economic act is recorded on a real or imaginary current account. ... Each service, whether it consists in money, money claims, or goods and services charged in money, is to be credited to each person’s current account, while every receipt of money, money claims, goods, services, is to be charged to it.” For Schumpeter, the role of the unit of account is to permit the operation of an “account-settlement” system under the individual decision-making characteristic of capitalism and in contrast to the central planning of a socialist system. The result was a conflation of the role of the unit of account in making bookkeeping settlements with the physical currency as a means of settling transactions—the blending of the physical and imaginary, something that has caused immense confusion to both layman and monetary experts.

Thus Mitchell Innes’s pronouncement of the credit theory was nothing new or revolutionary, but a simple distillation of the original, historical solution to the Menger problem: “Such is the fundamental theory, but in practice it is not necessary for a debtor to acquire credits on the same persons to whom he is debtor. We are both buyers and sellers, so we are all at the same time both debtors and creditors of each other, and by the wonderfully efficient machinery of the banks to which we sell our credits, and which thus become the clearing houses of commerce, the debts and credits of the whole community are centralized and set off against each other. In practice, therefore, any good credit will pay any debt.” (Mitchell Innes: 1914: 152)

Alternative types of liquidity – alternative monies

We thus have as a general principle that money is an abstract, notional account entry on a balance sheet administered by the financial system which provides the liquidity to its liabilities because of its due diligence in insuring the overall matching of debits and credits. But, following Braudel, Schumpeter, Minsky, if money may be considered as liquidity there are alternative in the provision of liquidity appropriate to different stages in the development of capitalism and this liquidity may be provided by various institutional arrangements. The problem before us is then the provide and explanation of financial innovation in the provision of liquidity in Keynes's Monetary production economy or what Mitchell Innes called the credit theory of money.

For Minsky, "A financial innovation is equivalent to the introduction of a new technique or a new product. ... As a result of the existence of financial innovations and learning the relation between money -- or the money base— and economic activity changes. (226) While economists have been seized by the importance of financial innovation in production of goods (and to a lesser extent services), until the 1980s little attention has been given to innovation in finance. But financial engineering did not start with the breakdown of the Bretton Woods system and the rise of foreign currency derivatives, or the deconstruction of financial flows that accompanied the increased power of internal rate of return calculations provided by hand held Hewlett Packard 12 CP computers. As Braudel reminds us, derivative contracts populated medieval finance and options contracts were part and parcel of financial markets in the 19th if not the 18th century.

Alternative Monies Alternative Means of Creating liquidity

As the evolution of what we may call the bookkeeping bankers system advanced historically two basic explanations of liquidity creation prevailed. For Colwell liquidity was created by the simple bookkeeping operation of matching debts and credits. What Mitchell Innes would subsequently call "credit". More recent is the banks' emission of their own liabilities in the form of bank notes and then sight deposits. This is Withers's image of banks as "manufacturers of money", and after the imposition of reserves, fractional reserve banking. Keynes employed the former in his proposal for a Clearing Union, rather than the ability to create purchasing power on the basis of fractional reserve lending.⁵

This difference may be represented by the difference between the Bank of England, which introduced the "innovation" of bank notes, and the Bank of Amsterdam, which operated an internal payments system based on a notional unit of account. Sir John Clapham (1945, I: 5), in his classic history of the Bank of England, observes that note "issue was the last of the classical banking functions to evolve spontaneously in England, and it was England's main contribution to the evolution of European banking. Deposit in some form or another, if only in the form of leaving your valuables with a man whom you trust who has a strong room, is very

⁵ He did, however, create some confusion by also referring to his proposal as based on the "banking principle" by which he seems to have meant the use of an economising substitute for gold. Cf. Kregel, 2019.

ancient; money lending perhaps more ancient still. Discount, the purchase of bills of exchange, goes back to the twelfth century in Europe and was well known in England in the later Middle Ages. But the combination of all these functions in one pair of hands, which constituted modern banking, and the supplementing of deposit by use of the 'write-off' from one account to another, and of the cheque for making payments to anyone, only took place finally in England between 1630 and 1670." The Bank of Amsterdam, on the other hand was what we might call today a "giro" bank which accepted gold deposits of coin or bullion against credits denominated in "bank money," a notional unit of account with a specific gold content, and which would be used to make internal payments by means of offsetting debits and credits. (See Dunbar 1909).

It is important to distinguish between these two approaches because, as noted by Clapham, they have become inextricably linked in modern banking practice, and the result is a major source of financial instability. The basic activity of the commercial banker in the Colwell–Hawtrey approach is to provide a financial service, viz. to "*make payments*" on behalf of the clients by organising an internal clearing system for executing private payments by offsetting debts and credits, rather than providing an alternative to coin as a "*means of payment*" to clients in the form of a banker's own liability that allows the bank client to extinguish liabilities. It is represented in Minsky's emphasis on the "acceptance" function of banking, and the important role played by exchange bills.⁶

In the former view the banker provides a financial service, by acquiring the credits necessary to match its client's debts. The banker does not provide a substitute "means of payment" to its clients to be used indiscriminately to discharge obligations. The evolution of the commercial banking system may be viewed as the description of how bankers provide the bookkeeping systems that allow them to provide netting of client assets and liabilities, or what is more easily understood as provision of a "Clearing house" for debts and credits. What the commercial banker provides is a *payments system*, rather than issuing liabilities (notes or deposits) that serves as a *means of payment*. In this view, bankers do not create money, nor substitutes for what Keynes called "money proper."

Compare Mises (1953 [1912]: 286): "The modern organization of the payment system makes use of institutions for systematically arranging the settlement of claims by off-setting processes. There were beginnings of this as early as the Middle Ages, but the enormous development of the clearing-house belongs to the last century. In the clearing-house, the claims continuously arising between members are subtracted from one another and only the balances remain for settlement by the transfer of money or fiduciary media. The clearing system is the most important institution for diminishing the demand for money in the broader sense. In the

⁶ Braudel (1982: 113) notes that the scarcity of coin led Europe to "very quickly find the solution, or rather several solutions. In Genoa, Florence and Venice, the great innovation, dating from the thirteenth century, was the bill of exchange which may only have penetrated trade slowly, but penetrate it did. In Beauvais, the first mention of bills of exchange in wills only occurs in 1685, the year of the Revocation of the Edict of Nantes.⁴⁶⁸ But Beauvais was only a provincial centre."

literature of the banking system it is not as a rule customary to draw a sufficient distinction between the diminution of the demand for money in the broader sense which is due to the operations of the clearing-houses and the diminution of the demand for money in the narrower sense which is due to the extension of the use of fiduciary media. This is the cause of much obscurity.”

If banks act as agents, offering payments services via the offset of their clients’ credit and debit positions, as Keynes noted, there is no need for bank capital since there is little credit or liquidity exposure as long as all clients are members of the same bookkeeping or clearing system. The basic risk is managing debt-credit maturity mismatches. As Keynes noted, “[y]ou need the capital if you are not in a closed system and have to meet liabilities for credit outside your system” (op cit.). Thus if there are numerous domestic clearing systems operating simultaneously, then bankers may have to make payments outside their proprietary system and either a generally accepted means of settlement, which will normally be the role of “money proper” and the need to hold capital or reserves, or a system of clearing across clearing systems. In the case of the US financial system this was provided by the imposition of par clearing in 1916 and the generation of the Fed wire system backed by member banks holding reserves with the Federal Reserve. It thus follows that an integrated clearing system could function without the existence of a “money proper” to provide for residual settlement. The peak of the pyramid would in this case disappear! Capital or access to a State “money proper” is only needed if the payments system is not closed and liabilities have to serve as credit outside of your system.

More importantly, this approach means that competition in banking will take place primarily in the form of extending the coverage of an individual bank’s payments system.⁷ If bankers seek to encourage volume in their own clearing system by acting as principals or dealers, promising to make payment by guaranteeing the acceptability of their own liability issued against a client’s debt (as suggested by Minsky’s view of banking above), then netting no longer takes place amongst the debts and credits of the bankers’ clients, but netting will take place amongst the liabilities issued by the member banks in the clearing system. History suggests that this is usually done through a formal clearing house in which banks meet daily to settle claims on each other. Until the creation of the Federal Reserve’s imposition of par clearing of cheques noted above, the major city Clearing Houses served this function of clearing member banks’ notes or sight drafts.

It is at the point when bankers cease being mere agents for their clients and become principals that the provision of payment services converges with the creation of what Keynes calls “bank money” and serves as an independent means of payment to “money proper.” It is here, in Withers’s description of the “manufacture of money,” that the major innovations in commercial banking have been produced: bank notes, deposit liabilities, then credit cards, money market mutual funds and so forth that are interpreted as substitutes for commodity money, but which are simply alternatives to the issue of bankers’ own liabilities. It is in the area

⁷ For example, small rural unit bankers resisted the Fed’s imposition of par clearance because they lost cheque collection charges and gained little given the geographical concentration of their local client base.

of innovation in first the intrabank clearing and then interbank clearing that the major risks of private banking systems arise and require regulation to limit the expansion of bank money.

The historical evolution of banking from agent/broker to principal/dealer can be seen in the development of many, if not all types of financial innovation. Indeed, most merchant banks started their transition from traders to financial institutions in this way. A more recent example is provided by banks' foreign exchange operations, carried out by matching the trade bills of their importer and exporter clients. An exporter received a claim on the foreign importer denominated in foreign currency which could be provided to an importer client who had to make a payment to a foreign exporter in the same foreign currency. Bankers soon recognized that agricultural cycles in exports would create cycles in available credits and evolved from this broker service to principal by issuing foreign claims on themselves through the floating of "finance bills," which could eventually be covered when the cycle turned.

The same process took place in the development of stock trading (cf. Kregel 1989, 1995) and can also be seen in the more recent creation of interest rate swaps in which banks initially acted to bring together fixed and floating rate borrowers, taking a piece of the spread, and then acting to warehouse exposure until a suitable counterparty could be found. The same principle applies to the subprime mortgage market in which banks eventually evolved from brokers to dealers and principal investors through securitisation.

Thus, there appears to be a general principle of financial innovation that leads from financial institutions transforming themselves from broker/agents to dealer/principals. The result is the increasing risk associated with the expanding issue of own liabilities to finance the acquisition of assets without a counterbalancing private liability or reserve of money proper. Commercial banks only differ in this in that their liabilities serve as liquid means of making payment. Thus the clearing function of commercial bankers evolves from the netting of the private sector debts and credits to the netting of the individual banks liabilities serving as means of payment via a clearing house covering local member banks.

As Colwell (1859: 193) notes, "[t]he credit system does not, then really furnish a substitute for money, so much as a model of dispensing with it." Indeed, from his point of view the credit system is a financial innovation that creatively destructs the use of commodity or government "money proper" by economizing and replacing it as a means of payment in the commercial transactions of the economy: "in all stages of commerce, we find there has been a constant effort to dispense entirely with the use of precious metals. ... Individuals might have trouble, owing to particular circumstance, in meeting payments; but a whole class or body of men could not, unless from other causes, because the fund for payment could never be short, and interest upon credits could never go to a high rate." (ibid: 157)

The idea is easiest to see in terms of a clearing house system. As long as all debtors and creditors are members of the clearing and settle within it, there can only be individual divergences between debts and credits, but not for the system as a whole. Any divergences can be handled by means of internal clearing house credits, as was indeed the case in the regional "money center" banks that participated in clearing houses in the United States before the creation of the Federal Reserve. And one of the first innovations of the Federal Reserve system was to institute a system of par clearing of checks which eventually produced the interbank market and the modern Fed wire.

However, in the modern financial system bankers accept liabilities from the private sector in exchange for the issue of their own liabilities that not only serve as means of *making payment*, but are *means of payment* because they are guaranteed redeemable at sight in coin or State money, and thus substitutes for State money. As Colwell (1859: 197–99, italics supplied) notes, this is a guarantee that cannot be kept with certainty because “[u]nder *our present system*,” bank liabilities are “required to be convertible at will into gold or silver. In point of fact they are not so convertible, and they cannot possibly be, as they amount at all times to a sum from ten to twenty times greater than any possible amount of gold and silver which would be available for such purposes. ... neither the necessities of business, nor the demands of convenience, require to be convertible on demand... This requirement, as it operates, is one of the most mischievous blunders in modern times.”

This approach identifies the increasing risk in the financial system in the shift to the issue of sight liabilities as substitutes for “money proper” in the transition from agent/broker to principal/dealer. This transition raises the regulatory issue of how this “blunder” can be maintained without major disruptions to the payments system. The answer provided by Keynes and Hawtrey and others is that the system works on the condition that bank liabilities are never in practice redeemed and only offset in the clearing house, or the interbank market. As Hawtrey points out, this does not normally create risks if the system is functioning smoothly without disruptions, since businesses normally acquire deposits in order to make payments which are used to extinguish the bank’s client’s debts to the bank; the deposit liabilities thus remain within the credit clearing system. And while it remains true that debts must balance credits, this need not be true for any individual bank. The role of the regulatory agency of ensuring the proper distribution of assets and liabilities across banks is what has come to be called the lender-of-last-resort function carried out by the issuer of “money proper.”

Thus, in the modern system of fractional reserve banking, instead of an internal process of netting, bankers accept liabilities from the private sector in exchange for the issue of their own liabilities that serve as means of payment. The system works on the condition that these liabilities will be held, or used by private sector borrowers to extinguish debts with the banks. It is the offsetting of these bank liabilities that takes place in the clearing house, or the interbank market. Thus, for Colwell, “money” only enters into the system to settle a clearing imbalance when there is a disruption between debts and credits. This can be due to lack of matching maturities or the failure of a debtor to acquire the necessary credits through the sale of output or assets or by borrowing. It is for this reason that banks hold reserves and the pooling of reserves was one of the rationales for the formation of the Federal Reserve (as well as for the creation of an international institution to pool countries’ foreign exchange reserves).⁸

⁸ This basic principle that the public is willing to hold bank liabilities only because they are indebted to the banks and thus need the liabilities to meet their commitments to repay liabilities to the banks has given rise to a similar explanation of the acceptability of government-issued liabilities. Indeed, the application of this analysis to government liabilities appears historically and in the banking literature almost as an afterthought, as if it was obvious to any informed observer of monetary theory. Minsky (1970: note 8) “For fiat money to be generally

Minsky (1986: 258) also notes one of the reasons that banks are able to provide clearing via a system of sight redemption of its liabilities that so bothered Colwell: "In our system, payments banks make for customers become deposits, usually at some other bank. If the payments for a customer were made because of a loan agreement, the customer now owes the bank money; he now has to operate in the economy or in financial markets so that he is able to fulfill his obligations to the bank at the due dates. Demand deposits have exchange value because a multitude of debtors to banks have outstanding debts that call for the payment of demand deposits to banks. These debtors will work and sell goods or financial instruments to get demand deposits. The exchange value of deposits is determined by the demands of debtors for deposits needed to fulfill their commitments. Bank loans, while ostensibly money-today for money-later contracts, are really an exchange of debits from a bank's books today for credits to a bank's books later." In simple terms, bank liabilities are held because businesses have debts denominated in those same liabilities and thus they extinguish those liabilities.

As Minsky (1995a) notes, despite financial innovation in the mechanisms providing clearing of credits and debts, "[a]s the twenty-first century approaches, the only reason why banks are special is that they operate the 'ultimate' payment system within economies (the proximate payment mechanism is now often a credit card). There are now alternatives to banks for all but the provision of the ultimate payment mechanism function. Because banks operate the ultimate payments mechanism, those liabilities of banks which serve as the 'medium of exchange' also serve as the standard in which domestic public and private debts are denominated."

Despite the dominance of commercial banks in the provision of liquidity via the issue of their own liabilities subject to fractional reserves, they are not unique in the creation of liquidity. Even without the ability to receive or create deposits, investment banks also create liquidity by underwriting and primary distribution of a borrower's obligations, and by providing secondary distribution through the market-maker broker-dealer function in organized securities markets. In this way, they render investments in long-term capital assets into what may be considered "liquid" investment securities. This has been recognized as both a benefit and a drawback. As John Maynard Keynes observes in the General Theory (1936), "with the development of organised investment markets, a new factor of great importance has entered in, which sometimes facilitates investment but sometimes adds greatly to the instability of the system. In the absence of security markets, there is no object in frequently attempting to revalue an investment to which we are committed. But the Stock Exchange revalues many investments every day and the revaluations give a frequent opportunity to the individual (though not to the community as a whole) to revise his commitments" (1936: 150-51). As a result, "investment becomes reasonably 'safe' for the individual investor over short periods," and "investments which are 'fixed' for the community are

acceptable and valuable there must be a set of payments units must make for which this money will do. Taxes are such payments, thus fiat money really should not be introduced without a government with taxes and expenditures. Symmetrically money as a liability of a fractional reserve bank acquires value in the market because there exist units, the debtors to the banks, which have payments to make for which this credit money will be acceptable. The acceptability and value of money depend on the existence of payments denominated in that money: thus fiat money without a government that taxes and spends, and credit money without debtors under constraint to meet payments commitments are quite meaningless concepts."

thus made 'liquid' for the individual." By acting as broker-dealers making liquid markets in securities, investment banks support the role of organized securities markets in transforming long-term fixed assets into short-term liquid assets (Ibid: 153).⁹

While a commercial bank creates liquidity by insuring that its liabilities have a higher liquidity premium than its assets and thus can always be exchanged for currency, investment banks provide liquidity by insuring that the liabilities they underwrite have a higher liquidity premium than the capital assets they finance and thus can be bought or sold in organized markets without a great variation in price. Both provide liquidity; they just do it in different ways: the former by creating deposits, the latter by structuring the liabilities issued by borrowers.

Conclusions

The above should support the futility of the classical attempt to provide a physical description of money. In the tradition of Mitchell Innes, the characteristic of money that is common to all monetary systems is the provision of liquidity. This accounts for the historical record in which various types of monetary system required different liquidity mechanisms or money in order to support capital accumulation. It also suggests that different solutions will have different impacts on financial and economic stability.

A more important implication of this approach is that it creates a truly alternative framework for economic analysis. First, it transcends the dichotomy between nominal/monetary and real factors. Every production or employment decision requires a credit that has to be accompanied by a liability, which is accepted by the financial sector in the form of a financial sector credit. It is impossible to separate the real credit from the financial credit. Second, it leads naturally to the presentation of economic relations in terms of interrelated balance sheets and income statements. This in turn leads to the conception of the economy as a circular flow process and the creation of sectoral relations between investment and consumption on the one hand and the decisions of firms, households and banks on the other. Equilibrium emerges as the matching of debits and credits across all sectors of the economy. Finally, the importance of unit of account in the creation and setting of prices vitiates the idea that the quantity of money can have any direct impact on prices or inflation. All of these factors are characteristic of the modern work of Keynes, Schumpeter and Minsky, based on a long tradition in banking, and represent the building blocks of monetary production economics and financial instability.

⁹. Again Braudel: (1982: 114) "Another kind of currency, created very early in Venice, was the public debt bond. In Amsterdam, London and Paris, we have seen that company shares were quoted on the Exchanges... Exchanges (and banks) played a leading role. By putting all this paper on the market, they made it possible for a public bond, or a share, to be converted, in the twinkling of an eye, into liquid cash. 'State bonds [are bought and transferred] like all buildings, with no extra cost or formality.' To enable paper to be translated into metal, and vice versa, was undoubtedly one of the cardinal advantages of the stock markets. English annuities were not simply an opportunity for Windhandel. They were also an alternative currency, sufficiently guaranteed and with the advantage of carrying interest. If the holder needed liquid cash, he could obtain it immediately at the Exchange for his paper bond. And was not liquidity, free circulation of money, the secret - or one of the secrets of the success of Dutch and English business? In Kregel (1996) it is suggested bonds issued by Venice were the forerunners of paper credit as means of payment..

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