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## THE EMERGENCE OF BANK NOTES IN 17TH CENTURY ENGLAND

*A Case Study for a Communication Theory  
of Evolutionary Economic Change*

By Michael Hutter, University of Witten/Herdecke

### I. The Economy as an evolving Social System

#### 1. Introduction

In recent years, the study of institutional change has brought economic research into closer contact with other social sciences. For a long time, it had seemed as if only the other sciences would profit from the intellectual exchange by importing the assumption of rational decision-making agents. Now, it seems that social theory has matured sufficiently to be exported to economic theory. It is able to provide a new answer to the question of economic evolution.

The "theory of autopoietic social systems" has its empirical basis in biology, acquired its logical structure through language philosophy and cybernetics, and found its application to social phenomena through a theory which interprets society as a communication system. The theory claims that social systems, including economies, are just as observable as objects, organisms and humans. Not only are they observable. Social systems are assumed to be autopoietic or self-reproducing. In other words: They are assumed to have their own "principle of action" (Coleman 1988), similar to the survival instinct of organisms and humans.

The theory introduces a new definition of information. According to the old definition, information is determined by a set of already existing signals. The signals are treated as if they were material elements. Questions of understanding are reduced to problems of transmission, reception and noise. According to the new definition, information is "any difference that makes a difference in some later event" (Bateson 1972:381). Such a difference involves at least two agents. Individual human beings would be an example, but any form of organized action to which an identity can be ascribed might do as well. Address A sends a message to address B. A observes that B reacts to the message. But A does not know how B has

processed or "understood" A's message. Likewise, B observes that A responds to his message, but he does not know how A has understood the "answer". Nevertheless, the two addresses are able to continue their dialogue under the supposition that they understand each other. This phenomenon is quite remarkable. Although every further step in the dialogue takes place under the condition of "double contingency", both agents succeed in activating new, hitherto unknown information differences in the other agent.

It is important to note that communication between two agents is not reducible to a single agent. At least two agents must contribute to make a sequence of actions a communication event. If the action is attributed to one or the other actor, the communication event disappears. Therefore, if communication events cannot be reduced to more basic elements, they themselves must be the elements of the system which they constitute. The elements, however, are really non-elements, namely, relations between differences.

Such a view contradicts conventional wisdom. If economies are seen as consisting of communication events as their basic relations, they cannot, at the same time, be perceived as consisting of human individuals. Consciousness in individuals is, of course, a precondition for the existence of social systems, just as organic cells are a precondition for the existence of consciousness. But still the hard logical fact remains that social systems are a separate, distinct, alien form of self-reproduction, a process in which communication events and only communication events reproduce communication events. Furthermore, whereas conventional models assume the pre-existence of all relevant information signals, social systems theory interprets the understanding of a new communication symbol as a difficult and improbable achievement. In consequence, our modern economies are interpreted as phenomena whose development is as complex as that of organisms. Economies are not rationally constructible; to compare their development with the evolution of organic species is, to say the least, the less inadequate approach.

## 2. *The Economy as a Conversation*

The economy as a social system is a rather hazy notion at this point in the argument. To apply evolutionary theory, we need an account of its structure which is detailed enough to identify the code of the economy's reproduction.

Society is the totality of all communication events. We can "auralize" it as one huge conversation, the economy is seen (or, rather, heard) as a more specialized conversation. The distinction distinguishing the special com-

munication from the general communication is not given from the outside. It is generated inside the conversation. The distinction itself — and here lies a technical difficulty of theory construction — cannot be reflected by the conversation which uses it because it appears in the semantic form of paradox (Krippendorff 1984, Luhmann 1988, Hutter 1989, 1990).

In the case of economies, the primary or "leading" distinction seems to be the distinction between scarcity and abundance. When that distinction was first perceived in the seventeenth century, abundance or "plenty" was in the center of attention (Viner 1969). In a process that took more than 200 years, our view has changed to a position where we see the scarcity of goods before the background of abundant wants. Of course, both views are outside perspectives from the point of view of another distinction, as we shall see below. The ability to process "scarcity" is not seen as the discovery of some eternal truth or law, but as a cultural achievement. The improbability of such a distinction is, however, hard to see for us who we have mastered its use in articulating our social reality.

The economy, perceived as a conversation, consists of communication events. Such events, the theory tells us, are differences rather than elements. The differences are linked into endless chains, like the sequence of tonal differences constituting a musical performance, and they are irreducible to single actors, just as there is no performance without an audience. Social systems theory can be linked, at this point, with the economic theory of transactions. Arguing from different premises, transaction costs have been identified with information costs, and transactions have been suggested as basic units of the economic process. Transaction costs have also been a constant topic in monetary theory. Now, these strands can be linked in the following manner: in modern economies, transactions are events that consist of a transfer of money symbols (payment) and a transfer of material/organic goods, or human/social services (performance). The chain of payments is a chain of differences. Every payment is recursively linked to previous and future payments. The chain is operationally closed. The payments refer to the outside world of performances, but they are clearly distinct from them. The performances cannot enter the chain. They only "perturb" or "fascinate" the payment conversation through communication about them. The chain of transactions, then, is only a chain with respect to payments. Performances are generated by the expectation of future payment or "profit". Goods and services remain, strictly speaking, in the environment of the economic process. It is nothing but their coding through the conversation of payments which makes "goods" and "services" out of a few of the infinite variations of material, organic, mental and social systems.

### 3. *The Economic Codes*

We have not yet clarified how the chain of payments which distinguishes an economic process codes itself. There is, at least, a high degree of consensus on the two major historical forms of coding which have evolved in modern economies: the institutions of property and money. Both of them have received particular attention in economic theory, although property curiously late and money curiously marginal, yet their relationship has been left unexplored.

Property is a way of symbolizing the relationship between two actors and their (usually) physical and organic environment. Liberty, relating to conscious systems, has been distinguished relatively late as a special feature of humans. Such phenomena are coded into those goods and services one owns and those one could possibly own. The coding of property in flexible, yet recognizable forms of ownership still continues to evolve. It is accompanied by the evolution of the money code. "Money" refers to a code which articulates the scarcity of goods and services through artificial symbols. Every transfer of ownership requires a counter-transfer of scarce money symbols in order to carry out the transaction (Luhmann 1988: 196/7).

It is quite appropriate to compare the relationship between property and money to the relationship between language and writing. The "language of property" continues to be spoken, but it is supplemented and standardized by the form of writing through which money symbols give modern economies their ability to articulate events of past and future scarcity. Money, then, is not exactly a language, it is also not exactly a book of transfers, as general equilibrium theorists would have it, it is certainly not a lubricant to the economic engine, as partial equilibrium theory claims. It is a particular code of notation which has evolved within the language of property. Such a view connects with some of the older literature, from Turgot to Keynes, but also with issues in contemporary monetary theory (Davidson 1978, Crump 1981).

### 4. *Transferring the Evolution Metaphor*

It has been difficult for me to describe the economic conversation in a linear manner since, as we see now, the structural elements constitute each other. The distinction between scarcity and abundance which distinguishes an economy is articulated continuously in the codes of the economy. We observe the natural scarcity of property and, additionally, the artificial scarcity of money. Codes, in turn, can only be observed in transaction events, when payments are actually made and goods are actually "performed".

Taking all this together, the economy is perceived as a conversation about scarcity, an autonomous, self-referential process, a play within the less structured play of general social communication (Bateson 1972). Now, the structural analogy between organic evolution and social evolution should be easy to see. Organic systems reproduce their genetic codes in acting, observable phenotypes (Faber/Proops 1990). Likewise, the codes of the economy reproduce themselves in the money payments of observable transactions. *Therefore, evolutionary change in the reproductive code of an economy must be a change that takes place within the money code.*

Such a statement sets conventional opinion on its head. Usually, innovations in the productive, "real" sphere are thought to be the core of economic change. Now, changes in the financial, artificial sphere are assumed to be central, and industrial innovations are given peripheral attention.<sup>1</sup>

### 5. *The Necessary Conditions of Code Variation and Selection*

How can something change while it is thought to remain the same? According to the theory, two conditions must hold to make such a situation possible.

#### A. Ambiguity

A new communication form begins either as a promise or as a mistake.<sup>2</sup> In the case of promise, someone connects a present event with a future event and then tries to find others to accept his or her understanding. In the case of mistake, someone connects his understanding of a message with a different previous operation than intended in the conversation from which the message came. In both cases, ambiguity bridges the gap. Promises contain the ambiguity of risk, mistakes contain the ambiguity of interpretation. Thus, new variations seep into the code. The variations are repeated many times before they are noticed "consciously" — that is, outside of the economy. Only then, a new alternative of action has emerged. Only from then on, and only as long as no new change happens, is the new form a choosable alternative in optimization decisions.

<sup>1</sup> Even more peripheral has been my treatment of "individuals". The discussion never mentioned human beings. It could not do so, because what we commonly observe as human beings has now been separated into phenomena of social self-reference and phenomena of psychic or conscious self-reference. The lack of attention does not signal neglect, but an estimation of a task yet to be accomplished, namely, the formulation of a psychic systems theory. For a beginning, see Baecker 1:92.

<sup>2</sup> The German word "Versprechen" contains the speaking ambiguity of something that is not yet (promise) and something that is not (mistake).

## B. Closure

The social code does not change instantly throughout a conversation. It is necessary to distinguish a starting point or core within the system itself. Such a starting "point" must itself be a conversation. In order to distinguish itself within the larger system — for example, the economy — it must be able to distinguish its own identity, as a group, an organization, as circle, or whatever other term is current for a peculiar form of conversation. Within the "closure" (Coleman 1988) of such conversations, the code variation through ambiguity finds a protected environment. It is discussed and, through repetition, brought into a well-adapted form. From such starting plays, the changed code spreads through imitation to other structured economic circles. However, it will never diffuse throughout the entire economy. Sophisticated coding skills need culture-rich environments which are rare even in modern economies. There will always be a periphery where the older, simpler code variations are still current procedure.

The ambiguity of new observations and the self-observed closure of the social system in which a code change begins are the two necessary conditions for the evolution of a social code, like the money code in an economy. These two conditions are irreplaceable, without them, no new variation occurs.

### 6. Testing the Theory

Although still rather rudimentary, the new theory features enough structural detail to be tested. I have selected a well-known change in the money code, namely, the introduction of paper money or bank notes. Conventional wisdom attributes evolutionary economic change to innovations on the part of individuals, not conversations, and to clear orders, not to ambiguity. Of course, economic folklore has developed a story which is consistent with that theory. According to the folklore, some "ingenious goldsmith" (Withers in Richards 1929: 24) had the innovative idea of issuing deposit vouchers with a capacity for circulation. Having recognized the advantage of the new money form, the newly founded Bank of England was quick to imitate the technique, thus spreading it rapidly throughout Europe. The story is full of loose ends. Why did the new form evolve in England? The Low Countries had a much more sophisticated money market. Why did it happen in the second half of the seventeenth century? All the ingredients — paper form, assignability, bank security — were known since more than a hundred years. Why did the new code variation take the particular form of bank notes? The era was full of rivalling money issue schemes, and no one at the time had particularly high hopes for that specific type of issue.

We will examine the circumstances of that single evolutionary change in the money code over a period of roughly 200 years. During that period, we will identify occurrences of ambiguous communication forms and occurrences of form emergence in self-identified conversation circles. Do the facts make more sense, do they have new meaning in light of a theory of change, rather than a theory of choice? If they do, it matters not only to our understanding of economic history, but also to the understanding of our economy's future.

## II. The Coding of Paper Money

On November 28th, 1694, writes R. G. Richards in his *Early History of Banking in England*, the directors of the newly-founded Bank of England resolved that the next installment of the loan to the government was to be partly paid in "running cash notes". He continues:

"The bank's running cash note resembled the goldsmiths' note. Like the latter it was originally a deposit receipt in the form of a promissory note upon which part payments were indorsed; and was, in the first instance, made payable to an individual or bearer on demand. It appears to have been the forerunner of the modern bank note." (1929: 158)

That event can be marked as the first emergence of what we now call paper money. Three stages of the development leading to the understanding of the new money form will be pursued in the following survey: The first step is the change from indorsable bills of debt to indorsable bills of exchange. The second step is the change from indorsable bills of exchange to indorsable promissory notes. The third step is the change from indorsable promissory notes to the running cash notes of the Bank of England. We will, in all three sequences of communication, investigate whether the necessary conditions of ambiguous external forms and self-defined closure did, in fact, hold. We will also point out various conducive conditions for evolutionary change.

### 1. 1500-1640: Indorsable Bills of Exchange

The custom of assigning a debt to a third person by writing the order on the back of a bill is first observed in the leading merchant towns of the Low Countries around 1500. In 1507, the Magistrate of Antwerp declared that the bearer of an indorsed bill has customary claims against the debtor; the Bruges statute of 1527 stated the same and the Ducal Decree of 1537 extended the practice to the entire country. However, actual use remained limited to the closed circles of the money exchanges (de Roover 1953: 95)<sup>3</sup>.

<sup>3</sup> Membership in the Antwerp Exchange, for instance, numbered around 5000.

The emergence of the practice has been traced to a conflict between the interests of public authorities to stabilize the currency value, and the pressure on money changers to debase the currency in times of high money demands since the possibility of raising the rate of discount was not available (de Roover 1948: 252). As a consequence, the monetary ordinances repeatedly forbade the banks to accept deposits and to make payments by transfer. In addition, bank failures in the Low Countries and in Italy "shook the confidence of the merchant class and aroused the hostility of the public authorities" (de Roover 1974: 219). The decline of banking during the 15th and 16th century "deprived the merchant of the great convenience of settling his debts by assignment in bank. It is, therefore, no wonder that he sought to give circulation to his bills obligatory or resorted to other makeshifts, such as the assignment out of bank. The latter had the serious drawback of sending a creditor from one debtor to another, until he found a kindly soul willing to pay cash . . . To solve the problem, the merchants developed, in the course of the 16th century, the principle of negotiability, which later received the sanction of the jurists" (de Roover 1974: 219). Holdsworth (1925: 113 f.), however, traces the decline in the use of bills of debt to a restrictive practice of interpretation through lawyers. According to Roman Law, the question of the plaintiff's right of action precedes the question of the defendant's obligation. Thus, the bearer of a bill lost his legal protection. The "principle of negotiability", to which de Roover refers, is then a reaction to the difficulties caused by the legal discourse.

Two aspects of this account are to be noted: (1) The development was purely internal to closed circles of merchants with formal membership. There is reason to believe that the precursors of assigned debts between merchants were assignments within merchant companies. Their circle of confidence must have been even smaller. (2) The practice of indorsement was limited to personal debts, it was not applied to bills of exchange. The decree of 1537 made no mention of bills of exchange, and it was, in fact, not before 1600 that indorsement of bills of exchange became customary in Antwerp and Amsterdam (de Roover 1953: 99). What needs to be explained, therefore, is the slow transfer of the custom of indorsement from personal debts to bills of exchange.

De Roover takes great care to explain the difference between the assignment of bills of debt and the assignment of bills of exchange.<sup>4</sup> Bills of debt were irrevocable, and they gave the creditor a claim against all the debtors signed on the bill. Bills of exchange, in contrast, were perceived as part of a specific exchange contract. This contract was revocable by the deliverer,

<sup>4</sup> North/Thomas (1973), by contrast, have no difficulty in linking the indorsements of letters obligatory with the practice of note discount and the assignability of bills of exchange in a series of "natural steps" (p. 141).

and it gave only the deliverer, not the drawee, the right to pursue action against a delinquent taker (de Roover 1953: 92/93). To the mind of someone acting within the custom of the Antwerp or Bruges exchange, credit transfer and exchange contract were two clearly distinct types of transaction. This is why indorsed bills of exchange are rarely found before the end of the 16th century.<sup>5</sup>

The contrast between the two money instruments became confused in the practice of Northern, particularly Hanseatic, traders in the late 16th century. Their "wesselbrief" was used like a bill of exchange, but phrased like a letter obligatory (de Roover 1953: 98). Such a mixed device aroused the protest of the established Italian merchant houses. Their networks of branches and correspondence had no need for such instruments — in the contrary, such techniques destroyed confidence in the established pattern of money transfer, credit and deposit (de Roover 1953: 92, 97). Yet, a new form had been tried out, and it was accepted in the financial centers. Very slowly, the assignability of bills of exchange spread after 1610. Malynes in his *Lex Mercatoria* of 1622 does not yet refer to it (Richards 1929: 44/45), but by 1650 the practice had apparently been brought to England through the Italian merchant community. From then on, it was common practice: ". . . In the latter half of the 17th century the bill of exchange payable to order was freely transferred from one person to another by indorsement, and . . . the practice of repeated indorsement had become customary . . . such assignments being recognized as legal by the Common Law Courts before the end of the century" (Richards 1929: 46). Towards the end of the century, bills of exchange were declared valid contracts by the courts even when neither of the parties concerned were merchants. A new custom of manipulating money symbols had been diffused in parts of the European economy.

Note that the two necessary conditions held: The quality of assignability entered the phrasing of bills of exchange from the outside, namely through the use of wording "borrowed" from debt assignments by traders on the periphery of European money markets. The ambiguity of the new form was recognized and debated at length. It was then adopted and stabilized within the established, closed circles of merchants which called themselves "bourses" after the circle that began to convene on the Place de la Bourse at Bruges (de Roover 1948).

## 2. 1640-1704: Promissory Bank Notes

The process discussed above was preliminary to the introduction of indorsable promissory notes by London "goldsmiths". The "goldsmith

<sup>5</sup> De Roover reports an Italian example from 1519, but emphasizes the rarity of indorsed bills of exchange before 1600 (1974: 220).

banks" were the first species of local banks that emerged to serve the rapidly expanding English economy in the 17th century. In 1628, a State document distinguishes between "goldsmiths about the Cittee Exchanges" and "working goldsmiths" (Richards 1929: 37). The new occupation did not fall to the goldsmiths "naturally". Until the reign of Henry VIII, banking had been in the hands of authorized exchangers. There is evidence that, when the trade was thrown open, it was soon monopolized by members of the Goldsmith's Company (Holdsworth 1925: 127). By 1650, the goldsmith bankers of Lombard Street had become keepers of deposits, issuers of promissory notes and dealers in bills of exchange as well as treasury money orders (Richards 1929: 8). In other words: The goldsmiths were really full-fledged banks. The transition from the storage of precious metals for craft purposes to the holding of client deposits was by no means as smooth and natural as hindsight might have it. For instance, a sudden rupture in confidence influenced the course of events: Until 1640, the Mint in the Tower had been used by merchants as a repository for money and plate. "In 1640, Charles I requisitioned 200,000 Pounds in coin and bullion belonging to London merchants, which had been thus deposited, an act which destroyed the Mint's reputation as a safe custodian of surplus cash . . . This incident, followed by the general insecurity accompanying the Civil War, paved the way towards a system of private banking." (Richards 1929: 35/36).

The promissory note began its appearance as a simple warehouse voucher for deposits. It could not be assigned. But the assignability of bills of exchange became an external precedent for the promissory note. The traditional bill of exchange had been a means to transfer funds between distant places. Therefore, the gains from the contract contained exchange rate arbitrage as well as discount rates. Confusion between the two effects was quite useful in circumventing the prohibition of discounting under the Canon law usury laws. During the 16th century, particularly under the influence of Calvinist teaching, the doctrine of usury had given way to the command of "fair interest". Usury laws were rescinded by Charles V of Spain in 1543, and by Henry VIII in 1545. But only in England, where trading connections with the traditional catholic countries were not as strong as in Holland, did the discounting of "Inland bills of exchange" — i. e. the calculation of pure interest differentials within one currency community — emerge as a standard practice (de Roover 1953: 129) The following quote, once again, demonstrates the ambiguity caused by the interference of two separate devices:

"Side by side with, even as it were under cover of the inland bill of exchange, the promissory note developed into a negotiable instrument. The emergence of assignability in this instrument was apparently due to the confusion between these two forms by the later Stuart lawyers, for both notes and inland bills are frequently referred to as bills of exchange in the Law Reports of the period . . ." (Richards 1929: 47).

The assignability of promissory notes remained a contested issue until, in 1704, an Act of Parliament made all kinds of promissory notes negotiable (Richards 1929: 49). Holdsworth, in commenting on the legal dispute leading up to that political decision uses terms that point to the phenomenon of ambiguity in a remarkably similar way: ". . . they (the promissory notes) had assumed their negotiable characteristics in the common law courts under cover of a false analogy to the inland bill of exchange." (1925: 175)

It may appear that the promissory note was quite similar to the letters obligatory which were indorsable in Antwerp more than a hundred years earlier. The impression is strengthened by the information that promissory notes were "a condensed form of the verbose mercantile bill of debt" (Richards 1929: 40). Yet, the similarity is misleading. The earlier letters obligatory were documents of personal debt, circulated among a closed club of merchants who knew each other's solidity. The new promissory notes, even though based on actual deposits, depended on the solidity of the issuing bank. Both, the depositor and the creditor, had to trust an institution. Eventually, neither of them even had to be a merchant. Between 1640 and 1660, there was a shift from notes on demand deposits to notes on time deposits and finally to notes based simply on the banker's integrity. "The banker now became a recognized purveyor of assignable instruments, and his "running cash note" payable on demand, or credited as cash in his ledgers, filled a breach in the nation's currency" (Richards 1929: 225).

The new circle which was able to use the assignability of promissory notes was much wider than the older circle of merchants using bills of exchange. It consisted of the Goldsmiths' Company and its customers. The circulation ability of goldsmith notes must not be overestimated. Three or four signatures were the rule, as many as fit on the back of the document were the maximum. Indorsement and the large denominations of the notes limited the circle of users for a long time to a radius of about 60 miles from London (Richards 1929: 175). We must also note that London was, at the time, the only place in the world where the practice of circulating indorsed paper money had been adopted by the "banking community".

### 3. 1690-1720: Bank of England Notes

Turning to the events surrounding the foundation of the Bank of England and its early practice of note issue, we should note that the temporal focus of our observation has shrunk as compared to the story's first two parts. Then, we followed the actions of sizable professional groups through two centuries. The task was to uncover the cognitive difficulties in what seemed a natural, unconscious process of change. Now, we follow the actions in the local scene

surrounding the Treasury Department through a decade. The task is to reconstruct the unconscious determinants of a few decisions made by the Treasury, by Parliament and by the Board of Governors of the new bank.

The goldsmith banks based their credit issue mainly on the security of private deposits. The Bank of England, however, based its credit on Public Debt during its first decades. It is not clear how the promissory notes, accepted from private bankers on the grounds of their deposits and their well-tested integrity, came to be accepted from a newly-founded bank, issued on the security of a loan to a war-ridden government on the brink of bankruptcy. The difficulty of transferring the new financial tool was poignantly demonstrated in an episode known as the "Fiduciary Order experiment" which shall be recounted briefly.<sup>6</sup>

Government borrowing in England in the early 17th century was, as in all of Europe, in a rudimentary state. Using an outdated system of tallies on direct taxes, bearing no interest, and hamstrung by a Parliament that insisted on short-run borrowing, the Treasury (Exchequer) tried out a wide variety of proposals to increase revenues and expand government credit. In 1665, a new method of authorizing payments was introduced. The new "Orders of Payment" (which accompanied the old tally sticks) were interest-bearing, and they were assignable by indorsement — thus taking advantage of that new method of issuing credit. In 1667, Fiduciary Orders of Payment began to be charged on the revenue in general. "This was asking for trouble. For while the Orders charged on direct taxes had a certain revenue earmarked to pay them . . . the Orders charged on the revenue in general had not, and were therefore genuine instruments of credit, like bank-notes" (Dickson 1967: 44). In 1672, Charles II had to stop payment on these Orders, the financial reputation of the Crown was seriously shaken. Dickson concludes: "At a technical level the Stop showed that plans to charge bills against the revenue must be more carefully laid, and must include adequate reserves for payment." (1967: 45) Richards speculates that, had the Exchequer issued these orders more prudently "it is quite possible that his Government department would have functioned as a bank of issue" (1929: 61). It "would have" — but it could not. The necessary conditions for the emerge of a new variation of credit money, a note based on public debts, were not met. These conditions were (1) the formation of a self-defined closed circle or of a separate organisation, a new player in the banking game of the city, and (2) the reference to an external precedent after which such an

<sup>6</sup> Another interesting example for the difficulty of that transfer is the history of paper money in China. It appears probable that a similar evolution from indorsable bills of exchange ("flying paper") to private deposit bank promissory notes took place — only about 600 years earlier (Yang 1952: 51 f.). The government seized the invention and monopolized it successfully for several hundred years, but paper note issue never became independent of political power.

organisation and its banking practice could be patterned.<sup>7</sup> It is to be shown that the success of the foundation of the Bank of England was not a result of conscious choice, but of sufficient precedents — the precedent of a public bank in Amsterdam and the precedent of private note issue in London.

The projects for government borrowing during the 1690's included new taxes, lotteries (a huge success at the time), the issue of long-term annuities, and the floating of loans on revenues through banking institutions. It was quite clear to the contemporaries that such steps were taken in desperation. An official of the Mint noted: "All sorts of Paper credit in Orders, Bills, Notes, Bonds, Assignments, etc. overflowed the Kingdom . . . We had all the symptoms upon us of a Bankrupt State and an undone people." (Richards 1929: 137) As confusing as these projects were, they sprang from a strong conviction that the activities of a national economy contained many more securities and assets than private bankers gave credit for. Banks on pawned deposits, on land claims and on public debt were therefore proposed. Some proposals were even tried out, although with limited success (Richards 1929: 92 f.). The presentation of new proposals to the Crown became an accepted procedure. One of those who proffered his schemes was William Paterson, a London merchant.<sup>8</sup> In 1691, he made three proposals. Two of them involved long-term annuities; both were discussed and approved by Parliament. The third called for the establishment of a joint-stock company with the privilege of note issue: "Loans were invited for a total of 1.2 million Pounds . . . If half the sum . . . promised were lent to the state at 8 % by 1 August 1694, the subscribers were to be incorporated under the Great Seal as "the Governor and Company of the Banke of England" (Dickson 1967: 54).<sup>9</sup> This third scheme was just one of the many attempts to keep the Government financially afloat. De Roover (1974: 231) has called it "a rather shady deal between some projectors and a penniless government which, in exchange

<sup>7</sup> Apparently, condition (2) was met during the "Fiduciary Order experiment": Dickson (1967: 43/44) attributes the idea for the experiment to "Sir George Downing, who hoped to turn the Exchequer into a bank, no doubt in anticipation of the Bank of Amsterdam, which he must have known well."

<sup>8</sup> In the context of this case study, the reference to an individual as the "real" source of inventing a new type of bank is noteworthy. The new theory leads one to suspect that the attribution satisfies preconceived opinions rather than the facts. And, indeed, a more detailed account reveals that Paterson acted on behalf of a group of professional promoters: "About the existence of the City Group there is no doubt . . . In his final dealings with Parliament, Paterson had to refer back to this group, which he then represented" (Clapham 1944: 15).

<sup>9</sup> It is noteworthy that the wording contains three different references to the acting entity: Governor, Company and Bank. The terms are not meant to be distinct. They signify the process through which perception has evolved: first, a company is accepted as a governor; then, a bank is accepted as a company.

for a loan, granted monopoly privileges . . . surprisingly, the scheme did succeed, and even beyond all expectations."

The facts bear out de Roover's judgment: The Bill was passed by Parliament in April 1694, and within ten days the subscription was filled "with almost contemptuous ease" (Dickson 1967: 55). A large portion of the shares was taken by the major merchant houses which used the new banks as a means to diversify their asset holdings (Jones 1972). The bank then advanced the loan to the Government in the form of sealed bills and, beginning with the second installment, in running cash notes. In the following years, the Bank circulated bills of the Exchequer and, during the period of the Great Recoinage — which brought, in 1696, further upheaval by halving the nation's coin supply (Appleby 1979: 199 f.) — specie bills were issued (Richards 1929: 153 f.). The Bank soon proved indispensable to the government, to the city and to the traders of the day (Richards 1929: 175).

What accounted for the success of the particular rules of the "loan game" suggested by "Paterson"? All of their projects made use of the new technical possibilities of his age, like the computation of compound interest rates and the institution of the newly devised joint-stock company. Yet, in the case of the Bank of England, one was able to draw on a unique resource: The example of a "public bank", the Bank of Amsterdam. That bank had been founded in 1609 to solve the same problem of debasement that had upset public authorities in Antwerp a century earlier.<sup>10</sup> The operation of a central deposit and transfer bank backed by public authorities did not avoid currency debasement (de Roover 1974: 227), but it proved to be a stable and powerful source of "bank money" credit. The example of Amsterdam inspired numerous pleas and proposals for the foundation of a public bank in England (see Holdsworth 1925: 183 f.). The proposal that was finally realised was not a copy of the continental model. It was primarily a bank of issue, not a bank of deposit. It did not monopolize the exchange business, and it was not controlled by the State or the City. The idea of the public bank had entered the circle which discussed and decided English government borrowing projects from the outside. It had been presented as a variation of existing practice fulfilling the condition of immediate continuity. It is certainly true, as it has been maintained by several authors, that the political condition of having a Monarch of Dutch descent and the administrative condition of competent Bank leadership were conducive to its success. Necessary, however, was the public bank notion. The notion was credible for the wrong reasons: It referred to an exchange and deposit bank, not to an issue and discount bank.

<sup>10</sup> The bank of Amsterdam, in turn, stands in the tradition of Italian public banks. See de Roover 1974: 225 f.

We finally turn to the new bank's technique of credit issue. De Roover writes: "In imitation of the London goldsmiths, the Bank of England issued 'running-cash' notes which, at first, were indorsable and later circulated from hand to hand. As early as July 1694 it was decided to use printed forms with blanks for the amounts, the cashier's signature and the date." (1974: 231) The decisive feature is the "imitation" of cash notes. A note issued by established private banks is quite distinct from a note issued by a new joint-stock company started to float a government loan. It was, as it were, a bluff that worked. The goldsmith bankers saw the distinction as clearly as the Antwerp traders had seen the distinction between a letter obligatory and a bill of exchange. They were adamantly opposed to the confusion, and they were opposed to the new competitor. But the new bank honored their cash notes, albeit with careful precautions (Richards 1929: 171). They could not help being drawn into transactions with the new participant in the loan game, thus reaping their share of the growing credit trade.

It appears, then, that we are observing two distinct evolutionary steps: The first step took place in the closed circle of English government, and it involved the ambiguity of the public bank notion. The second step took place in the circle of the banking community, including the new Bank of England and its merchant shareholders, and it involved the ambiguity of running cash notes. The latter circle was an extension of the banking community in which promissory bank notes had been "invented". But that extension increased the potential of the new money form decisively. A way had been found to articulate, in purely economic terms, the credit potential of the State.<sup>11</sup>

### III. Conclusions

A theory of rational individual choice, by its own logic, locates the invention of a new money form into a specific individual's historical decision between alternatives. The proposed theory, instead, interprets the change of money forms as a change in the reproductive code of the economy. Two necessary conditions of code variation and selection were suggested. The condition of conversation closure provides a starting entity without recourse

<sup>11</sup> The slow pace with which bank note issue was imitated in other European states is remarkable. The new technique was perceived rather quickly by the sovereigns and their counsellors throughout Europe. The most telling example is Louis XIV who fired his court alchemists when he hired the services of John Law (Binswanger 1985). Yet, the success of the new communication form apparently depended on more than the intentions of those who tried to issue money to an unprepared audience. Unless similar circles were in operation, state banks could not be instituted.

to psychological notions. The condition of ambiguity provides a procedure of change which allows for the simultaneous continuity and discontinuity of a communication sequence, like the chain of payments.

It was to be shown that, during the historical transition from one stable state of the money code to another, points of newness were associated with ambiguity, rather than clarity, and conversation circles, rather than individuals. The results of the study support that claim quite strikingly with respect to ambiguity and less clearly with respect to closed circle. The difference is possibly due to the lack of documented detail about closure. It may be safe to say, however, that the explanation based on social systems theory concurs with the historical facts of bank note emergence more satisfactorily than the story of the "ingenious goldsmith".

This is not to question the remarkable explanatory power of choice theory in short term situations where the alternatives of action are well known and stable. But a theory of historical change has to account for new alternatives, as they emerge over decades and centuries. Social systems theory may be a way to integrate economic choice theory into a more encompassing theory of social change.

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### Summary

#### The Emergence of Bank Notes in 17th century England

The first part of the paper develops a theory of evolutionary economic change which is based on the assumption that economies consists of communication events rather than material products. Given that assumption, the medium of payment plays a central role in an economy's evolution. In consequence, changes in the money medium must be modelled like the reproductive chains of a genetic code. Two basic conditions for change in reproductive chains — ambiguity and closure — are derived.

In order to illustrate the descriptive power of the proposed theory, a major "step" in monetary evolution, namely the emergence of bank notes, was investigated. The report shows that the development spans a period of at least two hundred years, and that ambiguity and closure did play a role in making the new form of economic communication possible.