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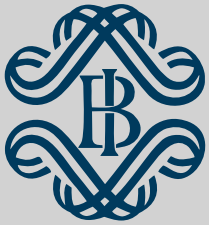
by Curzio Giannini



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CONFIDENCE COSTS AND THE INSTITUTIONAL GENESIS OF CENTRAL BANKS

by Curzio Giannini (*)

Abstract

This paper revisits the history of central banks from an institutionalist perspective. The analysis rests on a theory of money that stresses the means-of-payment function as well as the institutional character of money. The evolution of central banks is seen as being driven by the need to devise institutional safeguards to sustain the public's confidence in increasingly abstract payment technologies, whose main appeal - greater flexibility of money supply - is also their main drawback, since it entails a higher risk of abuse on the part of the supplier. The evolutionary process of central banks can be divided into three main phases, respectively associated with the spread of the convertible banknote, deposit banking and fiat money. In each phase, the institutional safeguards that eventually prevailed reflected not only the objective properties of the new payment technology, but also popular beliefs and existing legal and political institutions. Adaptation to the challenges posed by the rise of fiat money - based on a more precise definition of the objectives to be pursued by central banks and of their sphere of autonomy with respect to both the Executive and Legislative powers - is still under way. In this regard, it is argued that in view of the inherent complexity of the social function performed by central banks mechanical rules are not likely to provide satisfactory guidance for their action. Effective central banking will continue to be inextricably associated with the notions of ex-ante "discretion" and ex-post "accountability".

Contents

(*) Banca d'Italia, Research Department.

Non aes, sed fides (inscription on the coins of Malta; cited by Simmel, 1900, p. 178).

When the economist begins to tackle such an important and topical subject as central bank autonomy, one question immediately arises: can the autonomy or independence of an economic institution be discussed without taking into consideration a theory which justifies its existence and explains the logic of its evolution? Assuming that there are grounds for this question, if the answer to it is a negative one, the economist who begins to explore central bank autonomy will encounter certain difficulties since, even today, central banking theory has yet to be developed or, more optimistically, is still in the development phase (Vicarelli, 1988, p. 1).

1. Introduction[1]

The historically unprecedented project for the creation of a supranational central bank as part of EMU has spurred wide-ranging debate on the traits of an "ideal" central bank (De Cecco and Giovannini, 1989; Canzoneri, Grilli and Masson, 1992). The discussion has been somewhat hampered, however, by the fact that the theory of central banking has made little progress since the classical contributions of Thornton (1802) and Bagehot (1873), despite the enormous increase in the scope and complexity of central banks' activities.

Current views on central banking can be grouped into two categories. On the one hand, central banks are seen simply as the outcome of the state's endless quest for revenue - an imposition from above upon an otherwise smoothly-functioning financial system (Hayek, 1978; Brennan

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1. Background research for this paper was carried out while I was Visiting Scholar at the Walter Haas School of Business, University of California, Berkeley. I wish to thank David Pyle and Oliver Williamson for useful discussions and suggestions. I also thank Lorenzo Bini Smaghi, Rita Camporeale, Leandro Conte, Marcello De Cecco, Eugenio Gaiotti, Giorgio Gomel, Franco Passacantando and John Smith for their comments on a previous draft. I alone, of course, am responsible for the views and errors contained in the paper.

and Buchanan, 1981; Dowd, 1989; Glasner, 1989). On the other hand, building on Harry Thornton's early treatment, central banks are seen as the "natural" institutional response to the inherent instability of banking (Hirsch, 1977; Goodhart, 1988).

There are weaknesses in both approaches. The first rests on a well-documented - but per se unproving - historical fact, namely that the first step in the evolution of several central banks was the founding, on the government's initiative, of large banks in order to facilitate the financing of public expenditure. Attributing the ensuing evolution of central banks to the greed of governments begs a number of questions. How can this view be reconciled with the recurrent crises that in most countries preceded the advent of central banking? And how to explain the fact that most of the major reforms that led to today's central banks were not enacted by authoritarian governments but adopted by democratically-elected parliaments.

The view that the origin of central banks is to be found in the instability of fractional banking, on the other hand, certainly captures an important aspect of their history, but it still leaves much unexplained, such as the fact that central banks came to monopolize note issue well before the appearance of lending of last resort; moreover, it has nothing to say on why they have been entrusted with the task of managing monetary policy. At a more general level, this approach leads to play down two important aspects of central banks' history: the transformation of the government's financial agent into the guardian of the public interest against inflationary finance and the constant involvement of central banks in the payment system all throughout (Padoa-Schioppa, 1992).

Both approaches, moreover, rely on the standard neoclassical apparatus. In particular, they assume perfectly rational and identical individuals with given tastes. Such

differences as there are have more to do with the importance attributed to informational imperfections than with the theoretical framework adopted. Yet, it is increasingly recognized that standard neoclassical theory is simply not rich enough to capture either the rationale or the evolutionary logic of economic institutions. The body of literature growing out of the attempt to extend economic reasoning to institutions - which goes under the label of New Institutional Economics - has been described as "more than an attitude but less than a school or a research programme" (Mäki, 1992, p. 9). Nonetheless, Langlois (1986) has summarized the common tenets of the majority of neo-institutionalists as follows: a) acceptance, as a description of reality, that economic activity is coordinated not only by market prices but also by several other institutions that ought to be subjected to theoretical inquiry;[2] b) abandonment of narrow maximizing rationality in favour of bounded rationality; and c) adherence to the principle that economic explanation should be dynamic or evolutionary, in the sense that the economy should be studied as a process of ongoing historical change rather than in terms of optimum states. Broad as it may seem, this manifesto still does not encompass every brand of neo-institutionalism.[3] It is, however, broad enough to encompass "invisible-hand" explanations (Menger, 1892), "transaction-cost economics" (Williamson, 1989) and Douglass North's institutionalist economic history (North and

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2. For this purpose, an institution can be defined either as a regularity in social behaviour or as a formal organization that, "through the operation of tradition, custom or legal constraint, tends to create durable and routinized patterns of behaviour" (Hodgson, 1988, p. 10).

3. On the one hand, it excludes the work of those neo-classical economists who believe that the standard apparatus can be used for institutional research simply by adding transaction costs (for a survey of this brand of neo-institutionalism, see Eggertsson, 1990); on the other, it leaves out analyses that reject methodological individualism in favour of functionalist explanations (Hodgson, 1988).

Thomas, 1973; North, 1981, 1990).

This paper attempts to apply a neo-institutionalist approach to the issue of central banking, along the lines suggested by Langlois. The basic idea is that today's central banks are the outcome of a process of institutional adaptation by means of which Western societies have responded to the demands posed by more abstract forms of money. Their function is to reconcile higher flexibility of the money supply with confidence in the monetary yardstick. The analysis is set within the context of a theory of money that, contrary to current usage, sees it as a social institution rather than a standard good. As Klein (1974) made clear, the coordination of decentralized traders on the basis of a common money requires that the community have confidence in its future value. Confidence is not a free good, however: it has to be produced and sustained. Confidence costs tend to increase with the supply elasticity of money. Thus, more abstract forms of money become viable only if confidence costs are reduced through appropriate institutional checks on opportunism. One immediate implication of this approach is that, when analysing the economics of monetary exchange, the physical characteristics of money matter less than the institutions which permit coordination by sustaining confidence in that particular type of money (Clower, 1969).

By setting the historical evidence within this framework, I shall try to show that the evolution of central banks has gone through three different stages - with the last still under way - corresponding to the adoption of innovative payment technologies. In each phase, the emerging "central bank" has been assigned a new task: to manage note issue under a regime of monopoly or regulated competition in the first; to act as guarantor of the stability of the banking system in the second; and to run monetary policy autonomously with respect to other organs of the state in the third. Each new task has been accompanied by a re-definition of both the legal nature of the institution and the operational

constraints to which it is subject.

The paper is organized as follows. Section 2 provides a more detailed description of the proposed approach to money and payment technologies. Section 3 is devoted to the evolutionary process whereby today's central banks have emerged. Section 4 summarizes the analysis and explores its implications for the debate on the appropriate design of a "modern" central bank.

2. Istitutionalizing monetary theory: the concept of payment technology

Following John Hicks' famous suggestion (Hicks, 1935), modern monetary theory treats money as a standard good. However, as Hicks himself recognized in his last book, the usefulness of this simplification depends on the theoretical problem one is tackling (Hicks, 1989). To see where it fails us, it is sufficient to consider that three conditions must be satisfied in order to be able to speak of a monetary system (Richter, 1988). First, there must be a common yardstick for evaluating obligations, that is a recognized unit of account; second, there must be objects or procedures for actually discharging obligations, that is some commonly accepted means of payment; third, there must be a definite relationship between the unit of account and the means of payment. Now, a given object acquires the "nature" of money if and when a sufficiently large number of people agree that its transfer results in the final discharge of an obligation, i.e. in a payment. Accordingly, for the purpose of analyzing the organization of the monetary system it will not do to consider money as a standard good with "objective" properties; what is needed is really a theory of money as a social institution (De Cecco and Fitoussi, 1987).

In this regard, Benjamin Klein's celebrated analysis of currency competition provides a promising starting point

(Klein, 1974). In his paper Klein points out that money is plagued by a peculiar form of quality uncertainty, since an inventory of money can be considered as a specialized asset whose value cannot be known at the time the investment is made: the real value of the flow of services associated with money - and hence its quality as a means of payment - depends in fact on the terms on which it will be accepted in later exchanges. Future supply and demand conditions cannot be taken as given at the moment the decision to build up an inventory is taken, since the supplier of money has an incentive to engineer unanticipated increases in the total nominal stock of money in order to expropriate existing holders of the services flowing out of their inventories; similarly, other money users may stop accepting the means of payment, if the terms obtaining no longer suit them. This is simply a special case of the general rule that quasi-rents flowing out of specialized assets are liable to expropriation unless a complete contract is specified or institutional safeguards are put in place (Klein, Crawford and Alchian, 1978). Since the notion of a complete monetary contract makes little sense in the context of decentralized exchange, the adoption of a common money rests on confidence that expropriation will not occur. In other words, money transactions would collapse without trust (Simmel, 1900). On the other hand, if trust were perfect, money could be replaced by verbal IOUs, so that the notion of "payment" would become meaningless (Gale, 1982). An institutional theory of money must therefore focus on the means whereby sufficient trust is produced to sustain the acceptance of a given means of payment in a world of potentially untrustworthy agents.

In general, there are three ways to sustain confidence under contract incompleteness and asset specificity (Williamson, 1989): a) the choice of a technology that requires a comparatively small specific investment; b) the pledging of a guarantee - a "hostage" - of contractual performance by the potential abuser; and c) the merger of the

parties concerned into a single governance structure, i.e. vertical integration.

Monetary history offers examples of solutions based on each of these organizational principles. Commodity money, for example, relies on a technology involving a low degree of specificity - which becomes nil if a consumer good is exchanged directly. Convertible moneys, such as gold-backed banknotes and checking accounts, rely instead on the "hostage" principle, since each money-holder is given a claim to a pre-determined good on given terms. The feasibility of such forms of money therefore depends crucially on the enforceability of the underlying claim.

As for token money, the situation is more complex. Token money is by definition inconvertible and intrinsically useless; accordingly, money-holders do not have a legally enforceable claim on the issuer. In principle, however, the latter may still be able to gain the public's confidence by posting a special hostage - brand-name capital - that would be lost forever if the supply of money grew faster than anticipated. In this case loss of reputation would act as a guarantee of contractual performance (Klein, 1974). The enormous potential gains to be made from overissuing money nonetheless make it doubtful whether sufficient brand-name capital could ever be put up. Even if it were technically feasible, a reputation-backed token money would probably be extremely costly (Klein, Crawford and Alchian, 1978). The clearest theoretical alternative is vertical integration of the supplier of money with the public of potential users. Needless to say, it is hard to envisage such a private arrangement, since most if not all of the population would have to be "vertically integrated" into a single entity endowed with discretionary powers. It can, however, be argued that this is exactly what the nationalization of money production achieves. That is, state monopoly of money can be seen as a form of vertical integration adapted to the special features of the money industry.

Three points need to be made at this stage. First, for comparative institutional purposes what matters is not so much the physical characteristics of money, but rather the organizational framework that makes people converge on a particular type of money.[4] I shall use the expression "payment technology" to indicate the combination of a given money and the institutional safeguards serving to maintain confidence in it. Second, ceteris paribus confidence costs can be expected to increase as payment technologies become more abstract. In fact, commodity money is basically self-enforcing, in the sense that no trader has an incentive to deviate from the cooperative equilibrium on which it rests.[5] Convertible moneys, by contrast, are viable only insofar as the cost of enforcing the convertibility clause remains low. Going one step further, the notion of enforceability does not apply to fiat money at all, since holders of such money do not have a valid claim in their hands. Under such conditions, confidence would seem to be sustainable only if the public of money holders acquired sufficient control over the state to protect its interests - that is if effective forms of political representation and control were established. Third, confidence costs also vary with the broader institutional environment in which monetary exchange is set.[6] Two aspects of the institutional environment deserve to be singled out. The first is the legal system. Convertible payment technologies would be inconceivable without a clear definition, and third-party

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4. As Clower (1969, p. 13) put it, "the technical characteristics of commodities chosen to serve as 'money' are of minor economic importance; what matters is the existence of social institutions condoned either by custom or by law that enable individuals to trade efficiently if they follow certain rules".

5. This is the basic message of Menger's (1892) well-known theory of the evolution of money, formalized within a game-theoretic framework by Warneryd (1991).

6. The notion of "institutional environment" was introduced into the economic literature by North and Thomas (1973).

enforcement, of property rights and accounting standards. Analogously, the rules of corporate liability affect enforcement costs by restricting the amount of wealth money-holders can recover by legal means if the issuer goes bankrupt. The second is the political system. In many situations the state has a comparative advantage over impersonal markets as a coordinating device. As Stiglitz (1989) noted, this is because the acts of the state are of universal validity within its sphere of sovereignty and obligatory, i.e. backed by coercive power. This, however, does not automatically lead to a comparative advantage in producing confidence, since both these prerogatives have historically proved to be extremely powerful expropriatory tools. Thus, the control exercised by the community of money-holders over state institutions - namely, the forms and extent of political representation - is a crucial determinant of the confidence costs associated with the state's intervention in monetary matters.

Even though confidence costs may change as institutions evolve, there remains the question of why more abstract - and, ceteris paribus, costlier - payment technologies should ever be adopted. Why not stick to commodity money? The straightforward answer points to the deadweight cost of using a valuable commodity for monetary purposes (Eggertsson, 1990) and the resource costs incurred in expanding the stock of the monetary commodity to meet increasing demand (Friedman, 1951). But why should one want to expand the nominal stock of money, if any desired level of real balances might be attained by simply varying the price of goods in terms of money? The answer would seem to lie in the fact that, unlike other goods, money has no price-clearing market of its own. The price of money is simply the inverse of an average of all other prices. Consequently, any disequilibrium between aggregate money demand and supply can only be cleared when the latter is fixed through a roundabout process involving the renegotiation of contractual terms in some, and possibly all, other markets in the economy (Clower,

1969; Greenfield and Yeager, 1983). If transaction costs were negligible, this feature would hardly matter. We do know, however, that positive transaction costs are necessary in order for money to be useful. The existence of transaction costs implies that monetary arrangements, like any other organizational structure, may be classified in terms of the "maladaptation costs" - namely the costs arising from the imperfect adaptability of the overall institutional framework governing a given transaction in the face of unforeseen events (Williamson, 1991) - to which they give rise. Other things being equal, payment technologies that rely on physical constraints on the supply of money will entail higher maladaptation costs than those permitting conscious manipulation of the supply of money. Thus, the higher overall transaction costs, the greater the social incentive to shift to a payment technology involving a more easily "adaptable" supply of money.

Two features of the economic structure seem to carry special weight in determining the actual size of maladaptation costs. The first is the extension of markets. As the network of markets expand, the amount of resources devoted to transacting increases, and so does the incentive to avoid renegotiation of contractual terms for purely monetary reasons.[7] The second is the relative weight of those markets which, due to informational imperfections, work mainly on the basis of relational contracting, i.e. on enduring and highly informal relationships between buyer and seller rather than on carefully specified contracts. As emphasized by Okun (1975) and Hicks (1989), markets of this type, which Okun called "customer markets", are particularly affected by monetary disequilibrium. In the event of an unanticipated change in the price level, parties in a

7. To give an order of magnitude, Wallis and North (1986) estimate in roughly 45 per cent the share of the United States GDP presently devoted to market exchange. Moreover, they also estimate that this share has increased by about 25 per cent over the last century.

customer market are faced with the dilemma of either revising the terms of their contracts, which is costly given the nature of the underlying transaction, or sticking to the old terms, which entails a relative price change with respect to other goods.

It would be tempting at this point to portray the choice of payment technology as the outcome of a constrained maximization process, whereby the community of traders identifies the socially optimal point along the trade-off path between confidence and maladaptation costs, subject to technological, institutional and structural constraints. However, in several respects this would be an over-simplification. First, confidence costs are at least partly endogenous, since they also depend on the institutional safeguards established against expropriatory behaviour. Second, maladaptation costs only enter the picture if the economy is exposed to unforeseen shocks. But in this case the relative merits of alternative technologies and/or alternative institutional safeguards have to be determined by trial and error and are unknowable at the outset. Third, as in many coordination games, multiple equilibria may exist. Finally, even if a socially preferable payment technology could be identified, it would still be necessary to explain the process whereby it is introduced, to eschew the accusation, to which economic theory is often liable, of indulging in "crude functionalism", namely the belief that the identification of a useful social function is sufficient to explain the existence of a given institution (Granovetter, 1985).

Accounting for institutional change - as opposed to identifying the logic underlying a given institution - is a formidable task, which New Institutional Economics has barely begun to tackle. The main obstacles on the road to a proper understanding of institutional change appear to be the traditional assumptions of purely atomistic behaviour and immutable preferences. In a world of perfectly atomistic

traders, all facing the same opportunities and the same transaction technology, free-riding problems appear more often than not insurmountable. Under realistic assumptions, models of this type will predict "defection" as the dominant strategy: for them, the persistence of cooperation in the real world remains a puzzle (North, 1990). On the other hand, if preferences are really immutable, it is very hard to explain why institutional change tends to take a highly non-linear shape - a pattern only too evident in the monetary sphere.

It is therefore not surprising that a promising line of attack to the problem of explaining institutional change has been provided by the opening up of a dialogue between economists, on the one hand, and sociologists and historians, on the other (North, 1990; Swedberg, 1990; Granovetter and Swedberg, 1992). To this dialogue, the sociologists have mainly contributed the notion of "social capital", namely the idea that economic actions are embedded in a system of social relations and cannot be explained by reference to individual motives alone (Granovetter, 1985; Coleman, 1990). Traders belonging to a more cohese and homogeneous social network will tend to display a higher propensity to experiment with new and more imaginative solutions to institutional problems.[8] Historians, on their part, have stressed the importance of the institutional environment in shaping beliefs and feasible institutional reforms, the resilience of given families of institutional safeguards once they are put

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8. In the context of monetary exchange, the application of the notion of social capital may help explain, for instance, why relatively primitive communities, characterized by a high degree of social cohesion, have been able to develop fairly abstract payment technologies in the absence of formal institutional safeguards against opportunistic behaviour; or, in the late Middle Ages, why the monetary system was typically split into two components, one based on full-bodied coins, which handled international trade, and one based on non-full bodied, and even token money, specializing in domestic exchange. On both aspects, see Einzig (1966).

in place, the undeniability of preference shifts when the time horizon of the analysis is sufficiently expanded (North, 1990; David, 1986).

The application of these analytical tools to economic theorizing has already permitted to trace the logic behind the emergence of a number of important economic institutions of the Western world, such as the Medieval Gild and Mercantile Law (Milgrom, North and Weingast, 1990; Greif, Milgrom and Weingast, 1990; Greif, 1992). A model story, adapted from Greif (1992), illustrates the logic behind this class of models. Suppose that a new market governed by a hitherto unknown sovereign opens up, offering a small number of traders facing relatively low transaction costs the opportunity to trade there. Suppose also that the value to the sovereign of future trade with the marginal trader is zero, as it should be if the number of potential traders is sufficiently large. In this case bilateral reputation mechanisms will not work; what is needed is a coordinated, albeit informal, multilateral response. The threat of a boycott by all traders may be sufficient to deter opportunism if they share sufficiently homogeneous beliefs and communication between them is easy, i.e. if their social capital is large. But if the trade network expands, so that new traders join in and communication becomes more costly, the informal multilateral reputation mechanism may break down: in the event of a boycott, information may not reach all the traders or some trader may find that trade has shrunk to the point where it is profitable to resume business. Whether or not this point has been reached can only be discovered post factum, when the sovereign has yielded to the temptation to behave opportunistically. If expropriation occurs on a sufficiently large scale - namely if there is a major "crisis" of existing arrangements - traders' perceptions of the risks involved in their business will tend to converge. Demand will therefore grow for the informal reputation mechanism to be supplemented by a formal organization, serving not only to coordinate traders'

responses, but also to select traders and punish free-riders so as to make boycott decisions effective. Institutional adaptation will proceed faster if the existing environment offers a focal point, i.e. an institution that represents a "natural" candidate for the new task. If and when this stage is reached, formal institutions endowed with a measure of coercive power will have come into being.

The methodological message to be drawn from this emerging literature may therefore be summarized as follows. First, when analyzing institutional change traders' heterogeneity and bounded rationality must be allowed for; second, the possibility of preference shifts in the presence of major shocks cannot be ruled out by assumption; third, one must resist the temptation to think of institutions in terms of "efficiency", as the true test for an institutional safeguard rather lies in its effectiveness in checking certain forms of opportunism; fourth the institutional environment as well as the prevailing beliefs may prove important factors to explain why a given type of institutional safeguard rather than another gets tried out, and eventually sticks. In what follows I will try to analyze the evolution of central banks on the basis of these four methodological precepts.

3. The rise of central banking as a process of institutional adaptation

Having set out the main elements of a theory of money as a social institution, we can now turn to the way in which central banks have evolved and acquired their present form and functions. My main contention is that the process has been driven by the need to protect new payment technologies - with a higher supply elasticity and therefore a greater risk of abuse - from disruptive failures of confidence. That is, central banks have arisen out of the attempt to reduce the confidence costs associated with three distinct payment

technologies: convertible banknotes, bank deposits and fiat money. In each case adaptation - which in the case of fiat money is still under way - drew on the experience of several, often institutionally disparate, countries. The solutions actually adopted in each phase could not have been foreseen in advance - in other words, there was nothing inevitable or "natural" about the process. Rather, the institutional safeguards that prevailed in each phase reflected the state of knowledge on monetary matters, the experiments made and the institutional environment within which monetary reformers operated.

I shall nonetheless attempt to show that the process of adaptation followed a similar pattern in each phase, with: a) the emergence of a new payment technology under the pressure of economic development; b) a major confidence crisis or a series thereof; c) a gradual but sometimes rapid increase in the demand for institutional reform to reduce the "risk of abuse" inherent in the new payment technology; d) a more or less prolonged period of incubation, during which individual countries experimented with different solutions based on local traditions, customs and institutional arrangements; e) the crystallization of a "model", that is of widely-shared beliefs as to the "best" form of institutional adaptation; and f) the international replication of the basic model, with minor modifications to allow for local specificities.

3.1 Convertible banknotes and the Bank-Charter-Act Model

It is well known that some of the oldest central banks owe their existence to governments seeking to provide themselves with a readily accessible source of finance.[9]

9. This was the immediate reason for the founding of the Swedish Riksbank in 1668 and of the Bank of England in 1694.

However, the first phase in the development of central banking proper did not begin until much later, at the end of the eighteenth century, with the adoption of rules to counter the risk of an overissue of banknotes. The adaptation of the institutional framework to the new payment technology hinged on two principles: first, that banks of issue should be private, profit-making institutions, to keep them out of governmental reach; and second, that the discretion of issuing banks should be severely constrained.

This model, which I shall refer to as the "Bank-Charter-Act Model" (BCAM) from the influential English Bank Charter Act of 1844, spread in due course to the rest of the industrialized world and beyond. For example, it was adopted in France in 1848, in the United States in the 1860s, in Italy in 1874, in Germany in 1875, in Sweden in 1897, and so on (De Kock, 1974). Adaptation of the model to local circumstances resulted in several versions, which differed in two respects: a) the number of issuing banks allowed and their mutual relations; and b) the specific rules governing them.

The success of the BCAM poses something of a puzzle. With hindsight, it is easy to see that the scheme was flawed. It did prevent the overissue of banknotes, but only by removing the very feature that made the new payment technology attractive - its greater elasticity of supply. Moreover, it was unable to ensure an orderly money supply, insofar as it prescribed no rule for the management of the deposit liabilities of the banks of issue. It did not take long for these flaws to show up.[10] Yet the model not only stuck but became "the true measuring rod to gauge other

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10. See Morgan (1943, pp. 228-29). Thomas Tooke judged the Bank Charter Act: "the most wanton, ill-advised, pedantic and rash piece of legislation that has come within my observation ... an ugly excrescence, ... a total, unmitigated, uncompensated, and, in its consequence, a lamentable failure" (Tooke, 1857, p. 354).

monetary systems for decades to come" (De Cecco, 1989, p. 330). To try and solve this puzzle, let us contrast the model with the problem it was meant to correct and the possible alternatives.

It all began with the spread of convertible paper money - a phenomenon closely associated with the Industrial Revolution. England was the first country to experiment with the new payment technology on a major scale. The country suffered from a chronic shortage of small coinage throughout the eighteenth century as a result of the undervaluation of silver at the Mint (Cameron, 1967). From 1754 on, the public was virtually forced to supply its own small change. With the expansion of trade, the problem was overcome by extending to the country what had hitherto been a London practice - the issue of notes by private banks.[11] The correlation between increased demand for elastic means of payment and the rapid diffusion of the banknote is found along the road to industrialization in many other countries (Cameron, 1967; 1972). Sometimes, the need for a new means of payment was hastened by a drain on metallic money due to a war or a balance-of-payments deficit.

The spread of the banknote was accompanied by successive waves of bank failures. This pattern was common to most industrializing countries, except perhaps Scotland (see White, 1984; Dowd, 1993). Assessing the actual impact of bank crises is a complex endeavour, as quantitative evidence

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11. Alfred Marshall described the process in the following terms: "The new activities of business were demanding increased facilities for the quick granting of credits, and the prompt discharge of obligations ... Of course, bills of exchange could do part of the work without the aid of any formal agencies of credit. But their scope was limited; and there remained a great opening for any paper currency issued by people known in each neighborhood; and which everyone would accept in payment, at all events for small sums; not so much because he was certain of the permanent solvency of the issuer, as because he felt sure of quickly passing it on to his neighbours" (Marshall, 1924, p. 303).

remains scanty. However, as Miron (1989) notes, the attention bank failures received in both the popular and the academic press, and the heated debates they invariably triggered, suggest that actual costs were far from negligible.

Be that as it may, most banking reforms of the time were introduced in the wake of a crisis. For example, in England the 1826 Act, which gave the Bank of England the exclusive right to issue notes within a radius of 65 miles around London (transformed into a nationwide de jure monopoly in 1833), was enacted in the wake of the largest wave of country-banks' failures ever seen. The Banque de France was granted the monopoly of note issue in 1848, after the collapse of the departmental banks; the Banca d'Italia was founded in 1893 after the virtual collapse of the previous system of issue; the Bank of Switzerland took over the 30 cantonal banks of issue in 1908, after repeated crises. The seeds of the United States Federal Reserve, eventually founded in 1913, were sowed by the 1907 crisis.

The main innovative feature of the banknote as a payment technology was its contractual nature. Whereas the value of coins was guaranteed by their metal content, the banknote was a claim payable to the bearer. As such, its value depended on the enforceability of the convertibility clause. As the banknote could change hands an indefinite number of times before returning for conversion, note-holders were faced with moral hazard vis-à-vis the issuer. Vera Smith (1936, p. 155) summarized the charges levied against unregulated competition in the issue of notes:

> Those people who happen to be in possession of the notes of the failed bank at the time of its failure will suffer loss. A large proportion of such notes is likely to be in the hands of those who are either too ignorant, or by reason of their subordinate position, unable, to refuse to accept the notes of a bank which a more informed or better-placed person would reject because of suspicion attaching to the affairs of that bank. In other words, there is placed on the community the burden of discriminating between good and bad notes, and it falls especially hard on those sections of the community who are least able to bear

it. It is therefore concluded that the government should intervene and protect the note-holder by introducing some uniformity into the note issue. [Moreover,] in a free-banking system competition among the banks would provoke a constant tendency to the lowering of discount rates and increases in the volume of credit. It would be followed eventually by an external drain of gold, but this was a check which operated too late, because by the time the drain began to affect the banks' reserves the seeds of the depression had already been sown, and the crisis would only be made more intense by the sudden contraction of lending forced on the banks by the urge to protect their reserves.

The first part of this passage points, in modern terminology, to the risk of opportunistic behaviour on the part of individual banks owing to the imperfect distinguishability of different brand-names. It is, therefore, a microeconomic problem. By contrast, the second part points to a possible macroeconomic failure - an overexpansion of note issue in the banking system as a whole, brought about by each individual bank attempting to defend its market share against aggressive competitors.

In principle there were three ways of tackling the problem. One could alternatively, a) nationalize note issue; b) strengthen the contractual safeguards of money holders; and c) subject issuing banks to special rules, monitored and enforced by the state. The latter approach prevailed, leading eventually to the BCAM. To see why this was so, it is necessary to examine each of the alternatives in more detail.

As to the first option, if a general tendency can be identified at all in the period under review, it goes in the opposite direction. The Swedish Riksbank, for instance, had been owned and supervised by Parliament since its foundation in 1668, but a century and a half later it was recognized "that the needs of industry and commerce could be met better by the creation of private [banking] enterprises" (United States National Monetary Commission (1910b), p. 30) and in 1824, a bill authorized the establishment of private

note-issuing banks.[12] In Denmark the Rigsbank, a state-owned bank endowed with the legal monopoly of note issue, was transformed into the privately-owned National Bank of Denmark in 1818 (United States National Monetary Commission (1910b), pp. 123-147). Following the unification of Germany, the state-owned Prussian bank of issue was replaced by the Reichsbank, a private company with a politically appointed directorate.

As a matter of fact, the possibility of nationalizing note issue was never seriously contemplated in the doctrinal debates of the period. This is not difficult to understand, in retrospect, as the idea of nationalizing note issue run against the most basic tenets of the then sweeping laissez-faire ideology. The widespread distrust of the involvement of the state in the economic sphere was reinforced, as far as monetary matters were concerned, by the bad reputation European governments had acquired during the eighteenth century. Indeed, the rise of parliaments in this period was largely the result of the attempt by the new productive classes to curb the spending power of the monarchy. At the same time, the inefficiency of the fiscal system increased the incentive for the state to use monetary powers for revenue purposes.[13] Thus, for example, although as early as 1790 Alexander Hamilton, a keen supporter of the establishment of a National Bank in the United States, mentioned "the facility to the government in obtaining pecuniary aids" as one of the main benefits of the proposed scheme, he hastened to add that in order to minimize the risk of abuses the state should not participate in the executive direction of the bank, nor "own the whole or principal part of the stock" (quoted by Timberlake, 1978, p. 5).

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12. The law specified that these banks should have no aid from, or involvement with, the state. See Goodhart (1988, p. 124).

13. See Hicks (1969) and, for a recent assessment of the relationship between the fiscal system and inflation, Grilli, Masciandaro and Tabellini (1991).

As further evidence of the fears aroused in America by the prospect of an excessive concentration of power in the hands of the central government one may quote the abrupt decision in 1832 not to renew the charter of the Second Bank of the United States. Founded in 1816, the Second Bank acted as the fiscal agent for the federal government, provided a national paper currency and held the metallic reserves of the monetary system. Its federal nature contrasted with the rest of the banking system, which consisted of banks chartered by individual states (and known as "state" banks despite their being privately owned). Under the guidance of Nicholas Biddle, the Second Bank seemed to develop "a consciousness of quasi-governmental responsibility and of the need to subordinate profit and private interest to that responsibility" (Hammond, cited by Timberlake, 1978, p. 32). Thus, when a crisis exploded in 1831, it pursued a policy of rediscounting in favour of ordinary banks that led to a rapid depletion of its own metallic reserves, which fell by 50 per cent in less than six months (Timberlake, 1978, p. 38). The Second Bank came under heavy attack, however, on the grounds that it had exceeded its mandate with the aim of subjugating state banks to its will. Biddle replied to his critics in strikingly modern terms:

> I see no connection whatever between the bank and the demand for money, except that the bank has supplied the demand ... Now, if there was a demand for money, and the bank had the means for supplying it, why should it not? The object of its creation was precisely that ... it seems a singular objection to a bank, that finding a demand for money, and having the means of supplying it, it did supply it (quoted by Timberlake, 1978, p. 40).

Most observers at the time interpreted this statement as a confession. At the end of the heated debate that ensued, President Jackson vetoed a bill to renew the Bank's charter, motivating his decision in part as necessary to placate public opinion, enraged because "the President of the Bank has told us that most of the state banks exist by its

forbearance".

Misgivings about a direct involvement of the state in monetary matters were also widespread in Europe. Interestingly, in the first half of the nineteenth century the only pleas for a national bank came from those who wanted to ensure that discretion in note issue would be severely curtailed, if not abolished altogether. James Mill (1821, p. 155), for instance, argued that:

> the issuing of notes is one of that small number of businesses, which it suits a government to conduct; a business which may be reduced to a strict routine, and falls within the compass of a small number of clear and definite rules.

This view was shared by David Ricardo in his "Plan for a National Bank", published posthumously in 1824, though he made it clear that he did not underestimate the risk of governmental abuse and dwelt at length on the rules by which note issue should abide. In his view, nationalization was merely a means to increase the enforceability of such rules. Although Ricardo's plan was revived by his brother Samson in 1837 during the debate that led to the Bank Charter Act, other leading figures of the Currency School, such as Torrens and Overstone, remained unpersuaded that the project would improve upon state-enforced rules for private banks (Morgan, 1943, p. 137).

As to the second option - strengthening contractual safeguards - it meant improving the enforceability of the claim in the event of bankruptcy, so as to eliminate the incentive to overissue. This effect would obtain, for instance, under a regime of unlimited liability, as suggested by White (1984). The record of unlimited liability, however, is not unambiguous. The Scottish banking system of the eighteenth century comprised a dozen banks operating under unlimited liability and the three great Edinburgh banks chartered as joint-stock banks enjoying limited liability

(Cameron, 1967, p. 69). Yet the striking stability of Scottish banking was common to both chartered and unchartered banks. By contrast, in England the notoriously unstable country banks operated under unlimited liability.[14]

The question of the most appropriate liability regime in banking attracted comparatively little attention in the doctrinal debates of the time. Even the advocates of free banking saw the monopoly of joint-stock banking enjoyed by the Bank of England in London, and not limited liability, as the main shortcoming of the legislation in force. On the other side of the Atlantic, where limited liability had been the general rule since the inception of banking, several unsuccessful attempts were made in the first half of the nineteenth century to cure bank instability by altering the liability regime (Smith, 1936, p. 43).[15]

With majority opinion contrary to direct intervention by the state and the effectiveness of purely contractual safeguards doubted by most, subjecting note issue to prudential rules became over time the most popular option. But which rules? With the benefit of hindsight, this can be regarded as the crucial issue in the contention between the Currency and Banking Schools. The latter's adherents,

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14. Their instability may have been exacerbated by the English law forbidding partnerships of more than six persons - though there is no way to isolate the impact of this factor.

15. The first experiment consisted in giving notes a prior claim on assets in case of bankruptcy. The second involved a system of "double liability", whereby shareholders were liable for the debts of the bank in proportion to their respective holdings of shares even in excess of the amount of capital actually invested. The third, and most ambitious, experiment concerned establishment of the New York Safety Fund, a system of compulsory insurance against unmet liabilities. However, none of these schemes proved effective in curbing bank instability. In the end, the disappointing results were an important factor in the decision to adopt a special version of the BCAM in the United States in the 1860s (Smith, 1936, p. 50).

however, failed to recognize the importance of the stake. In fact, they insisted that convertibility was a sufficient check on overissue. For instance, Fullarton's "Principle of Reflux" (Fullarton, 1844, p. 67) was based on the notion that, as long as currency is convertible, the continuing reflux of notes ensures that "any redundancy of the banknote issue is rendered impossible". Nothing was said about the kind of rule issuing banks ought to follow to preserve convertibility. As Morgan (1943, p. 132) remarked, this was a serious intellectual failure that probably cost the Banking School the final victory:

> overissue as [the Currency School] defined it had manifestly taken place on several occasions, and [it was] maintained that this state of affairs endangered the convertibility of the note. Instead of showing that this was not so, the Banking School simply asserted that, so long as notes were convertible, over-issue was impossible.

Lacking theoretical guidance, the directors of the Bank of England attempted to fill the gap by trial and error. The first rule to be tried was based on the "legitimate needs of commerce", which echoed the "real-bills doctrine" put forward by Adam Smith in the Wealth of Nations. The rule provided for notes to be issued in the amount needed to satisfy "legitimate needs". But how was a "legitimate" need - or for that matter a "real" bill - to be identified? The Bank's management came to regard any demand for the discount of short-term bills at 5 per cent interest as legitimate (Morgan, 1943, p. 5). The rule governed the Bank's conduct during the Napoleonic wars, when convertibility was suspended, but proved unsound in the post-war years and was made the whipping boy for the 1825-26 banking crisis. It eventually came to be replaced by the principle of "keeping the securities even", also known as the "Palmer rule", according to which

> variations in the amount of the circulation shall correspond to variations in the amount of bullion ... By this means, and by this means only, can we obtain a paper currency varying in amount exactly as it would have varied had it been wholly metallic (Morgan, 1943, p. 138).

However, the new rule failed to distinguish between the deposit and note liabilities of the Bank of England and proved ineffective. Specifically, it was criticized for causing the Bank to respond too slowly to an external drain of reserves, with the result that when the response did come it was too harsh (Kindleberger, 1984, p. 89). By the late 1830s, the Palmer rule had been discredited too. This gave rise to widespread dissatisfaction with any rule that did not directly constrain the amount of notes to be issued - the essence of the Currency School's approach. Robert Torrens proposed the introduction of a licensing stamp for all issues, to be distributed to issuing banks against the deposit of gold at the mint (Torrens, 1840; see also Morgan, 1943, p. 137). The proposal was not taken up, but is indicative of the mood that was to lead to the Bank Charter Act. The Bank of England itself, weary of ceaseless criticism, called on Parliament to settle the matter.[16]

The request was heeded in 1844, with the adoption of the Bank Charter Act. Besides closing entry into the note-issuing industry and separating the Banking and the Currency Departments, the Act set a ceiling on the Bank of England's note circulation but allowed this to be exceeded provided the Bank met a 100 per cent marginal specie reserve requirement.

The Bank Charter Act soon became a widely imitated piece of legislation. After 1844, discussions throughout Europe were concerned with the details of the scheme, not with the principle that discretion in the management of the supply of paper money should be severely restricted.

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16. In 1843, for example, H. J. Palmer declared publicly: "If there exist any well-founded reasons for supposing that the principle acted upon by the Bank is not sound, ... it merely remains for Parliament to express an opinion, ... and there can be no question that the Bank will immediately regulate its course accordingly" (quoted by White, 1984, p. 77).

The model - it should be noted - did not necessarily imply a monopoly of note issue. As a matter of fact, the Act confirmed the right of country banks and joint-stock banks to issue notes outside the 65-mile orbit around London, provided their circulation remained below the ceiling. The new law nonetheless did greatly strengthen the position of the Bank of England by granting it the exclusive privilege of exceeding the ceiling against a 100 per cent reserve requirement and the right to increase its issue by two-thirds of the circulation of any banks that failed. In all probability the decision to limit the discretion of all issuing banks by subjecting them to strict rules robbed the vexata quaestio of the most appropriate market structure of much of its interest, leaving the issue to be settled on other grounds. In the following years, large and urgent state funding needs, coupled with a highly fragmented payment system, tended to encourage centralization, while a tradition of regional political autonomy or a federal structure worked against it.[17]

We thus find three versions of the BCAM, depending on whether the privilege of note issue was restricted to: a) one monopolistic bank; b) a group of banks, with one in a

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17. Adjustment to local circumstances also influenced the specific rule to be adopted. The Bank Charter Act set a ceiling on note circulation; moreover, it required notes up to this limit to be backed by government securities and all notes issued in excess to be fully backed by gold. The United States opted for this system, without the marginal reserve requirement, under the National Banking System. A second type of rule specified a maximum limit for the note circulation, without any explicit reference to metallic cover. This system was adopted in France between 1870 and 1928 and at the end of the 1930s in England and Japan, where the power to revise the ceiling was delegated to the Treasury (De Kock, 1974). Finally, in some countries the law required the note issue to be backed by a minimum percentage of gold reserves. This system was followed in Belgium and Holland. A few countries, such as Germany in 1875 and Italy after 1874, adopted hybrid systems.

dominant position owing to its privileges or size; or c) a number of freely competing banks of similar size and status.

The need to facilitate government access to external funds was not considered to be in contrast with the spirit of the BCAM.[18] In practice concern about public finances was an important factor in the centralization of the note issue in countries such as France, Prussia, Belgium, Sweden, and so on (see Smith, 1936; Kindleberger, 1984).

Elsewhere, the payment system concern was even more important. In Austria, the Chartered Austrian National Bank was created in 1816 to reorganize the payment system, badly shaken by the financial upheavals of the Napoleonic wars and the large volume of rapidly depreciating "forced" governmental paper they had engendered (Goodhart, 1988, p. 139). In Germany, the primary purpose of the foundation of the Reichsbank in 1875 was to unify and organize the note issue of the new state. In Japan, one of the most urgent tasks facing the new government after the Meiji Restoration in 1868 was to reform the currency system, which was in a chaotic state, with inconvertible government money, coins and dozens of different kinds of private paper circulating side by side. After unsuccessfully attempting to import the Unites States system of "national banks", the government recognized the need for a centralized institution to accomplish the task and the Bank of Japan, modeled on the National Bank of Belgium and the Reichsbank, was founded in 1882.

Countries with a long tradition of political

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18. Indeed, even the most authoritative supporter of free banking, Adam Smith, emphasized the importance of providing the government with easy access to finance to face unforeseen emergencies. As is well known, he referred to the Bank of England as this "great engine of state", counting among its important functions that of "advancing to government the annual amount of the land and malt taxes, which are frequently not paid up till some years thereafter" (Smith, 1776, p. 304).

fragmentation succumbed less to the monopolistic tendency. For instance, Switzerland still had 36 cantonal banks of issue in 1881 (Goodhart, 1988, p. 112). A radical reform involving the establishment of a federal bank was rejected in a referendum held in the wake of a major banking crisis. A further crisis in 1886 revived the debate, but the idea of establishing a central bank was again rejected in a new referendum in 1896. It was only in 1905, after a third referendum, that the pendulum swung in favor of a federal central bank. Interestingly, one of the reasons for the change in the attitude of the Swiss was the highly unsatisfactory state of the payment system. Indeed, one of the main tasks of the newly founded Bank of Switzerland was to "facilitate payments and transfers of money". Similar resistance to centralization occurred in Italy after the country's political unification. A deeply-rooted tradition of local autonomy, more than doctrinal preferences, lay behind the failure of an early attempt to create a "Banca d'Italia" in 1863 (Sannucci, 1989). Opposition to centralization remained strong even after the 1866 war against Austria had resulted in the granting of special privileges to Banca Nazionale, the largest bank of issue. Parliament tried to reverse the centralistic tendency with the reform of 1874. Even after the virtual collapse of the entire system of note issue in 1893, regional interests remained strong enough to prevent its being entrusted entirely to the newly-established Banca d'Italia and it was not until 1926 that the latter became the sole Italian bank of issue.

3.2 Bank deposits and the Lender-of-Last-Resort

As we have seen, the BCAM cured the evil of overissue by making the supply of banknotes unbearably rigid in relation to the needs of a developing economy, thereby creating a strong incentive to introduce innovative payment practices. Truly, payments by book transfer on bank accounts or by check had already been in use for several decades as a

substitute for cash. However, there is evidence that the severe restrictions the BCAM imposed on the issue of banknotes contributed substantially to making deposit banking a highly dynamic business. In England, for instance, up until the first half of the nineteenth century payments by book transfer were usually limited to interbank payments. After the mid-century though, checks began to spread rapidly among the general public "to circumvent the effects of an inelastic currency" (Cameron, 1967, p. 49). In the United States, by contrast, the banknote remained the principal means of payment - together with coins - until the second half of the nineteenth century. Indeed, the idea that banks' profitability derived from note issue was so rooted that when national banking legislation was enacted in the 1860s many expected the new 10 per cent tax on notes issued by state banks would lead to their disappearance (Miron, 1989). However, it was not long before state banks discovered a cost-effective source of funding in checking deposit accounts. In 1870 there were 261 state banks in the United States and 1,612 national banks. By the end of 1910 there were roughly 15,000 state banks and 7,000 national banks (Miron, 1989, p. 322). The experience of other countries, such as Italy, France, Germany, Austria and Japan, was similar (Cameron, 1967, 1972; Kindleberger, 1984).

The new payment technology had a number of distinctive features (Gorton, 1985). Whereas a banknote is payable to the bearer, a deposit is a nominative claim that is not "physically" transferable at the moment the payment occurs. Thus, while a payment effected by means of a banknote can be considered completed with the tendering of the note, a payment made with deposit money is completed only when the claim has actually been transferred from the payor's bank to that of the payee. This difference has important implications: while a given banknote can be freely re-used as a means of payment, a check normally cannot, since the recipient of an endorsed check cannot assess the solvency of the original payor, to whom the transferred claim ultimately

belongs. As a rule, each payment by check has to be cleared before a new one can be made. This feature rules out overissue by individual banks - the problem that plagued the convertible paper technology. Even though a bank may lend by crediting a deposit on its own account, any attempt by the borrower to spend the money would immediately give rise to an outflow of cash, and hence to a reduction in the bank's liabilities. Deposit banking, however, gives rise to two new problems. First, since the deposit is a "double claim" (on a specific agent's account at a specific bank), a secondary market for bank checks is very unlikely to develop, so that depositors cannot use market prices to assess the riskiness of individual banks. Second, the accounting nature of the claim means that the banking system's liabilities can expand by a multiple of the original deposit.

The combination of these two features increases the likelihood of a generalized banking panic, since on the one hand, depositors have to rely on non-price, and possibly distorted, signals to evaluate the soundness of their banks; on the other hand, due to the multiplier effect the banking system as a whole would become illiquid if all depositors tried to convert their deposits into cash. Simultaneously, a banking panic basically entails a coordination problem, as it is typically brought about by a sudden - though possibly transient - increase in the ratio of currency to deposits desired by the public. The new higher level can be achieved through either a contraction of the denominator, that is through a chain of bank failures, or an increase in the numerator, namely a coordinated increase in the supply of money. Under the new circumstances, the BCAM, which rigidly constrained the supply of banknotes, was clearly inadequate. An effective solution would require that the supply of liquidity could be increased quickly if the need arose and that the departure from ordinary rules of prudent behaviour would be perceived by the public as temporary, so as to preserve convertibility.

There was no obvious response as to how this was to be achieved. One could conceive in principle of a whole spectrum of solutions, ranging from the spontaneous cooperation of decentralized banking institutions to the perfect centralization of the supply of currency in the hands of the state, with an intermediate solution consisting in a more or less formal control by the state on the activity of a monopolistic lender of last resort endowed with a measure of discretionary powers. One might indeed think that the latter would be the "natural" solution, insofar as a number of prominent countries had already adopted the monopolistic version of the BCAM, which left little room for spontaneous market forces. As a matter of fact, even in those countries acceptance of the direct involvement of the state in monetary matters was made possible only by the concurrent change of attitude with respect to the economic role of the state, which took place in the Western world in the second half of the nineteenth century. Moreover, the "model" that finally emerged in the 1930s greatly benefitted from the experience of those countries which had adopted the competitive version of the BCAM.

As in the previous phase, England was a forerunner in the process of adaptation. Fear that the BCAM might prove inadequate under exceptional circumstances had been voiced by its original proponent, Sir Robert Peel. In a confidential letter to the Bank's directors dated June 1844, he remarked:

> My confidence is unshaken that we have taken all the Precautions which Legislation can prudently take against a Recurrence of a pecuniary Crisis. It may occur in spite of our Precautions; and if it does, and if it be necessary to assume a grave responsibility, I dare say men will be found willing to assume such a Responsibility (Morgan, 1943, p. 118).

Peel did not specify the nature of the grave responsibility, but it was revealed three years later. In 1847 the London financial market was hit by the first of a series of liquidity shocks. The crisis was triggered by an

unexpected fall in wheat prices and the subsequent failure of a number of provincial banks that had sustained previous speculation. The Bank of England found itself in a difficult situation: its reserves were diminishing, without this appearing to quench the public's increased preference for liquidity. The bank was thus faced with the dilemma of mounting pressure to behave more liberally by discounting freely and letting reserves flow out - thereby infringing the law - and the natural inclination of its managers to take defensive action. In October, the government decided to intervene in the form of a letter encouraging the management of the bank to discount liberally, with a formal promise to pass a bill of indemnity should this lead to a breach of the law. This course - which the Bank's directors claimed was unsolicited - was an astounding success. In just a few hours the liquidity shortage disappeared and the supply of bank-notes remained well within the prescribed limits.[19]

The practice of the Treasury Letters, as it came to be known, was repeated in 1857 and 1866, with equal success. The promised bill of indemnity was never needed; the legal limit on the note issue was in fact exceeded in 1857, but only by a negligible amount (Kindleberger, 1984, p. 92). The importance of this procedure in the history of central banking can hardly be overemphasized. It showed that a banking panic could be overcome even without a sharp increase in the supply of currency, provided the public could be reassured of the state's willingness and ability to take prompt countervailing measures. Moreover, it greatly strengthened the perception that confidence in the payment technology was a public good that market forces were able to produce only

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19. As one prominent banker declared to a committee set up the following year to investigate the matter: "The effect [of the promise of a bill of indemnity] was immediate. Those who had sent notice for their money in the morning now sent us word that they did not want it - they had only ordered payment by way of precaution ... From that day we had a market of comparative ease" (quoted by Morgan, 1943, p. 151).

imperfectly.

At the same time, the success of the Treasury Letters gave rise to the somewhat optimistic belief, which is also to be found in Bagehot (1873), that the new payment technology did not require any formal institutional adaptation. The structure of English society, and of the banking system in particular, made for a smooth transition, as it guaranteed a sufficient amount of social capital to dispense with explicit legislation (Hirsch, 1977). The reputation the Bank had acquired during previous crises, the reluctance of its directors to go beyond their powers and the oligopolistic and club-like organization of the London money market all helped to make acceptance of the new leadership relatively uncontroversial. Paradoxically, the greatest resistance came from the directors of the Bank of England themselves, as exemplified by Thomas Hankey's famous rebuttal of Bagehot's theory, called: "the most mischievous doctrine ever broached in the monetary and banking world in this country" (Morgan, 1943, p. 240). Nonetheless, there is evidence that the Bank had been following Bagehot's prescriptions even before they appeared in print. The public status acquired by the Bank of England was conclusively demonstrated in 1889, when, at the invitation of the Bank's Governor, all the leading merchant bankers of the City eagerly took part in the famous rescue of Baring Brothers (Kindleberger, 1984).

This "informal" approach nonetheless left a number of important questions unanswered. How was the lender of last resort to behave if its public function conflicted with the interests of its shareholders? How should individual cases be judged? How was the cooperation of ordinary banks to be ensured during a crisis? How was moral hazard to be averted?

A more "formal" approach was followed in Continental Europe. In France, for example, the private management of the Banque de France had been replaced as early as 1806, six years after its foundation, by a governor and two deputy

governors appointed directly by the head of state.[20] The 1806 Law also imposed a ceiling on profits accruing to shareholders (set at 6 per cent of the original capital plus two-thirds of any residual profit) and in 1808 a new decree established detailed rules for the Banque's activities and operations. The practical importance of these provisions in the first half of the nineteenth century was reduced, however, by the slowness with which deposit banking developed in France. Indeed, throughout this early period the Banque de France "spent more effort in competing with other banks than in fostering the development of French banking" (Goodhart, 1988, p. 116). The turning point in French monetary history came in 1865, when a commission was set up to investigate the behaviour of the Banque de France after the Péreire brothers, the owners of the rival Banque de Savoie, had complained of discriminatory practices. Four years later the commission absolved the Banque de France, but stressed the need for it to be further insulated from commercial concerns. Accordingly, the Banque subsequently refrained from offering interest-bearing deposits to the general public and concentrated on rediscounting three-name commercial paper. Moreover, in 1882 the Banque began to support commercial banks during times of crisis.[21]

The French approach was adopted by the Germans in 1875, when the Reichsbank was founded. Provision was made for the directorate of the new bank - formally a private concern - to be appointed by the head of the state, although private

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20. As Napoléon explained, his intention was to make it clear to everybody that: "La Banque n'appartient pas seulement aux actionnaires; elle appartient aussi à l'État, puisque il lui donne le privilège de battre monnaie ... Je veux que la Banque soit assez dans la main du Gouvernment et qu'elle n'y soit pas trop" (quoted by Crouzet, 1993, p. 544).

21. The attempted rescue of the Comptoir d'Escompte, at the beginning of 1889 served as a model for the British handling of the Barings crisis later in the same year; see De Cecco (1974).

shareholders could elect a central committee, and the profits accruing to shareholders were limited to 3.5 per cent of the capital plus 25 per cent of the residual profit. Restrictions were also imposed on the activities the new institution could perform, so that ordinary banks soon took the non-competitive, non-profit nature of the Reichsbank for granted and increasingly came to rely on the new institution for their day-to-day liquidity needs. The Reichsbank performed this function without coming into direct contact with individual banks, by purchasing bills on the open market (Goodhart, 1988, p. 110).

Thus, by the end of the nineteenth century a new model, with the lender of last resort at its centre, had clearly begun to emerge in England, France and Germany, the only difference among those countries having to do with the degree of formalization of the state's control over the central bank. In surveying these countries' experience, however, one cannot fail to be struck by the contrast with the previous phase - when the state was possibly seen as the main potential offender in monetary matters. Truly, the central banks remained formally private institutions, but as Kisch and Elkin (1928, p. 17) remark:

> the pre-war tendency, particularly as regards actual statutory provisions, was somewhat to stress the control of the State over the Central Bank. The Reichsbank was the clearest instance of a general disposition to regard a State or semi-State Bank as analogous to a State railway system or a State tobacco monopoly.

It would be hard to explain this trend without allowing for the wave of legislation which, starting from the early 1890s, was passed in several European countries to attenuate the social impact of market forces unleashed by the Industrial Revolution. In a matter of a few years, several important reforms were adopted in a number of countries, to the point that Herbert Spencer in 1884 felt the need to denounce what he saw as an "anti-liberal conspiracy" (Polanyi, 1944).

Things went differently in those countries, like Italy, and the United States, where, also thanks to the particular strength of laissez-faire ideology, the system of issue had been organized around the residual monopoly or regulated competition versions of the BCAM. In Italy, to start with, after 1866 the system of issue was based on the residual-monopoly version of the BCAM, with Banca Nazionale acting as the residual monopolist. In 1874, the pro laissez faire camp proved so strong as to make Parliament pass a reform aimed at introducing the regulated-competition version of the BCAM; accordingly, all legal disparities between the various banks of issue were removed and a twofold constraint on overissue introduced.[22] Despite these measures, the system of residual monopoly proved extremely resilient. At the time of the change, the notes of Banca Nazionale accounted for about 57 per cent of the total issue and they were the only ones to circulate nationally (Sannucci, 1989). The resulting competitive advantage enjoyed by Banca Nazionale led to a highly uncooperative climate among the issuing banks (Confalonieri, 1979). The inadequacy of the overall framework became apparent in the second half of the 1880s, when the economy entered a recession, complicated by a speculative bubble in the real estate market and a trade war with France. The difficulties encountered by a number of ordinary banks and industrial concerns led the government to bring heavy pressure to bear on Banca Nazionale to intervene. Considering the latter's profit-maximizing nature, it put up surprisingly little resistance and carried out three major rescues - only one of which involved a financial institution - plus a number of smaller operations in support of companies

22. The Bank Charter Act had limited each bank's circulation to three times its capital; moreover, it required a metallic reserve equal to one third of the note issue.

in difficulty.[23]

Mainly as a result of these rescue operations, the Banca Nazionale exceeded the ceiling on its note circulation, followed by other banks of issue. The government never seriously attempted to enforce compliance because it was all too easy for the management of Banca Nazionale to withdraw its support to the rescues. However, when smaller banks of issue with mainly local circulations began to have clearing problems, anti-competitive practices on the part of Banca Nazionale were blamed. The allegation was never proved, but the government felt obliged to come down on the side of the lesser banks to demonstrate its impartiality. The frequency of interbank clearing was reduced and banks were allowed one week to settle net debit positions. Finally, in 1891, the conversion of each issuing bank's notes was restricted to the amount of its holdings of other issuers' notes and to reduce the demand for conversion further, banks were allowed to use any bank's notes in their lending operations. The combined effect of these measures was the de facto suppression of the clearing.

As is well known, Italy's competitive system of note issue ended in disaster in 1893, after the uncovering of fraudulent practices at one of the six banks of issue and the dubious solvency of the others, including the Banca Nazionale. A few months later, while the reform that led to the creation of the Banca d'Italia was being prepared, Italy's two leading commercial banks failed.

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23. On the basis of painstaking archival research, Confalonieri (1979, p. 167) remarks that: "one gets the impression that [Banca Nazionale] was willing to intervene always and wherever there was a situation of distress [under] the illusion that, no matter how big the sacrifices implicit in the rescues, they would be repaid in due course with other advantages for the Banca Nazionale or with the strengthening of its position of primum inter pares, up to the point of becoming either de facto or de jure the only bank of issue".

Cooperation had never been a hallmark of relations between Italian issuing banks. By contrast, the equal status shared by United States issuing banks in the national banking system encouraged spontaneous forms of cooperation (Gorton and Mullineaux, 1987). However, conflicts of interest gradually eroded the cooperative attitude in the main financial centres, leading in the end to the replacement of spontaneous, but increasingly ineffective, institutions with a modified version of the European lender of last resort. The model for a purely cooperative confidence-enhancing mechanism was created by the New York and Boston issuing banks, which developed a technique - the clearinghouse certificate - for temporarily increasing the supply of currency. The underlying idea was for banks with a strong reserve position to make "implicit" loans to those in a weaker position during liquidity crises (Smith, 1936, p. 141): banks with a debit clearing balance would deposit collateral with the clearinghouse association, against which the latter would issue certificates that could be used to pay those in credit. Originally, the scheme was intended to redistribute existing reserves rather than create new reserves ex nihilo and included a reserve-pooling agreement that allowed weaker banks facing mounting requests for conversion to draw directly on other banks' reserves. The scheme was tested successfully during the 1860 crisis, leading to its adoption in a number of other financial centres. However, the reserve-pooling mechanism was dropped in the crises of 1893 and 1907, owing to disagreement over the appropriate terms. On these occasions the New York clearinghouse issued irredeemable "certified checks" designed to increase, rather than simply redistribute, the supply of currency. During the crisis the clearinghouse also acted as an integrated firm: the publication of individual banks' weekly statements was immediately suspended and replaced by a weekly statement regarding the clearinghouse itself; no member bank was allowed to fail during the panic; the identity of banks borrowing from the clearinghouse was not disclosed; and any member who failed to repay loan certificates when due was

threatened with expulsion. The interest rate on loan certificates and the collateral terms were the same for all members. The resulting moral hazard problem was overcome by authorizing the clearinghouse to require additional security from individual banks at its discretion.

Despite massive issues of unbacked certificates directly to the public, the clearinghouse arrangement failed to avert the suspension of cash payments in both 1893 and 1907. In 1907, such issues amounted to $500 million, or 4.5 per cent of the money stock (Gorton, 1985, p. 282). The crisis ended in a suspension of convertibility that lasted several months - "the most extensive and prolonged breakdown of the country's credit mechanism which has occurred since the establishment of the national banking system", according to a contemporary observer (cited by Timberlake, 1978, p. 7). In his book on United States banking crises, O. Sprague blamed this blatant failure on the weakening of the cooperative stance of New York banks with the appearance on the scene of new financial institutions.[24]

The 1907 crisis marked a turning point in American financial history, casting serious doubts on the effectiveness of purely cooperative safeguards against liquidity crises. In particular, it showed that such

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24. See United States National Monetary Commission (1910c). During the 1890s, state banks in New York faced keen competition from the emerging trust companies, which were kept at arm's length by the banking establishment because of their lower reserve requirements and greater propensity to innovate (White, 1983, p. 81). In 1903 the local clearinghouse ruled that trust companies could not clear through member banks unless they increased their reserves. Most trust companies responded by severing their ties with member banks. When the crisis broke out in 1907 a trust company that was still clearing through member banks, Knickerbocker Trust, applied for a loan and was promptly refused. News of this decision triggered a run that first involved trust companies and then ordinary banks. The clearinghouse belatedly offered assistance to all financial institutions, only to find that events had already gone beyond its control.

voluntary arrangements might well be too weak to overcome conflicts of interest among the participants or lack the authority to impose acceptable standards on the banking system as a whole. The massive issue of inconvertible certificates by clearinghouses aroused the fear - not new in American banking history, as we saw in the previous Section - of an excessive concentration of power in a private institution, contrary to the constitutional principle that the government should regulate the value of money.[25] The immediate effect of the 1907 crisis was the Aldrich-Vreeland Act, which provided for the grouping of ten or more national banks into a Currency Association. Although not supposed to operate as clearinghouses, Currency Associations were allowed to issue "emergency currency", backed either by commercial paper or certain types of bond, under the control of the Secretary of the Treasury, who was responsible for allocating the issue nationwide. The Act was clearly a temporary measure: while divesting clearinghouses of their monetary powers, it did not solve, or even address, the problem that had undermined their effectiveness - the emergence of disruptive conflicts of interest within the banking community. Its enactment nonetheless demonstrates recognition of the need for some involvement of the state in banking matters in order to sustain confidence (White, 1983, p. 89).

A less immediate, but no less consequential, effect was the setting up of a Parliamentary Commission to recommend guidelines for a more comprehensive banking reform. The

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25. For example, in his 1907 Report the Comptroller of the Currency argued authoritatively that: "the inevitable and logical conclusion [of the clearinghouse idea] is that we should have a national central bank of issue and reserve" (cited by Timberlake, 1978, p. 11). Politicians were even more outspoken. One representative argued in Congress that: "every fair-minded man would prefer that the control over the currency be vested in seven men selected from different parts of the country than to have it remain in the hands of the five managers of the New York clearing house" (quoted by Timberlake, 1978, p. 13).

National Monetary Commission, as it came to be known, did an impressive job. In four years, it made an extensive study of American and Canadian banking experience, collected papers on the history of all the leading central banks and held a seemingly endless series of interviews with foreign bankers. The publication of the twenty-four volumes of the National Monetary Commission's papers served to:

> turn the favour of the reformers towards a permanent central organisation which should issue a currency based on gold and commercial paper, act as a lender of last resort and control the credit situation through the bank rate and open market dealings (Smith, 1936, p. 165).[26]

In fact, a few years later, in 1913, Congress passed the Act creating the Federal Reserve System. The new institution innovated in several respects compared with European lender-of-last-resort practices. In the first place, it was explicitly recognized that the Fed should not seek profits, but perform the public functions of "furnish[ing] an elastic currency" and "establish[ing] a more effective system of banking". The second innovation was constituted by the statutory provisions aimed at limiting the scope for conflict of interest between the new central bank and commercial banks. The right to deposit and discount at Reserve banks was restricted to the government and member banks. Since this clause ran counter to the general aim of ensuring the quick reaction of the central bank in emergency situations, the Act also contained the famous open-market clause, which authorized Reserve banks to buy or sell commercial paper directly to individuals and corporations.[27]

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26. This shows up clearly in the summary of the Commission's work prepared by the chairman. See United States National Monetary Commission (1910a).

27. The draft clause, which made no distinction between single-named and double-named commercial paper, was attacked by the commercial banks, which saw it as a great danger. The final text was modified to rule out open-market transactions in single-named paper. In later years, administrative rulings of the Board interpreted the provision as requiring that open-market transactions

The third novelty was the formalization of the central bank's supervisory powers. The 1913 Act mandated "examination of member banks (by the Federal Reserve System) at least twice a year on behalf of government". In particular, the Federal Reserve Board was empowered to examine members at its discretion and the twelve Reserve Banks were allowed to make special examinations of members in their own district (White, 1983, p. 166).[28]

With the founding of the Federal Reserve System, the lender-of-last-resort model took full shape. In the following years a long list of central banks were either founded or restructured in accordance with the prevailing doctrine. The Banque de France began to curtail its dealings with the public in 1930. Under a law adopted in 1926, the Banca d'Italia became the sole bank of issue and was required to confine its discount business to banks and special credit institutions. The same year, the Bank of Mexico was reformed along the same lines. The Bundesbank - founded in 1957 - was authorized to grant credit only to banks and other credit institutions, although it was allowed to deal with firms and individuals in foreign exchange. New central banks drawing on the American model were created in Greece (1928), Australia (1959), Egypt (1961), Brazil (1965), Uruguay (1967) as well as in a number of minor countries (De Kock, 1974, p. 101).

The only aspect of the United States model which remained controversial in the ensuing decades was the one

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be restricted to bankers' acceptances and short-term government securities (Willis, 1936, p. 81).

28. A further innovation with respect to current practice was the federal nature of the central bank. The organizational structure of the Fed reflected traditional American misgivings about the centralization of power. Indeed, it went almost unnoticed at the time and only received serious attention following its transplant to Germany in the wake of World War II.

concerning supervision. Even in the United States supervisory responsibilities remained fragmented among various bodies, with the Fed playing at least until the 1930s an ancillary role in this respect (White, 1983, p. 166-167). In Europe, where no experience comparable to that of the CHs was available, the American model was felt inappropriate, because it would concentrate too much power in what at the time was still a private institution. Accordingly, the banking reforms of the 1930s entrusted bank supervision either to so-called Inspectorates placed under the direct control of the Ministries of Finance and Commerce (this was the solution adopted in the Scandinavian countries, as well as in Canada, Japan and Italy)[29], or to formally independent Banking Commissions composed of up to six governmental appointees (this was the case in Belgium, Germany and Switzerland).[30]

3.3 Fiat money and the Principle of Autonomy

By the early 1920s banks of issue had thus been replaced in the main industrialized countries by true central banks. To make the new institution effective as lender of last resort, it had come to be accepted that the profit motive should be circumscribed, if not entirely removed, and the backing of the state somehow made explicit.

The idea of safeguarding the autonomy of the central bank from the government through formal provisions would have

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29. The supervisory framework set up in Italy in the 1930s involved a kind of compromise between the European and American approaches. The 1926 Law entrusted bank supervision directly to the Banca d'Italia. A later reform, in 1936, transferred supervisory responsibility to a separate body, called, in line with the trends of the time, Banking Inspectorate, of which however the Governor of the Banca d'Italia was ex lege the chairman. See Ciampi (1987).

30. On the control structure envisaged by the banking reforms of the 1930s, see Allen (1938).

sounded strange in that context. The problem at the time was exactly the opposite: how to make a private institution sensitive to the public interest of financial stability and at the same time authoritative enough to foster such stability effectively.

To be sure, the original statement of what, following Ciocca (1992), I shall refer to as the "principle of autonomy" dates back at least to Ricardo's case in favour of a state-owned National Bank, Ricardo (1824, p. 283):

> It is said that Government could not be safely entrusted with the power of issuing paper money; that it would most certainly abuse it ... There would, I confess, be great danger of this, if Government - that is to say, the ministers - were themselves to be entrusted with the power of issuing paper money. But I propose to place this trust in the hands of Commissioners, not removable from their official situation but by a vote of one or both Houses of Parliament. I propose also to prevent all intercourse between these Commissioners and ministers, by forbidding any species of money transactions between them. The Commissioners should never, on any pretense, lend money to Government, nor in the slightest degree be under its control or influence ... If Government wanted money, it should be obliged to raise it in the legitimate way; by taxing the people; by the issue and sale of exchequer bills, by funded loans, or by borrowing from any of the numerous banks which might exist in the country; but in no case should it be allowed to borrow from those, who have the power of creating money.

This passage already contains the three principles on which current formulations are based: i) institutional separation between those empowered to create and spend money; ii) prohibition of monetary financing of the budget; and iii) political accountability of central banks' directors.

About a hundred years later a weaker version of the principle of autonomy found its way into the International Monetary Conferences held in the aftermath of World War I. Resolution 2 of the 1922 Genoa Conference, in particular, read:

> Banks, and especially banks of issue, should be free from political pressure, and should be conducted solely on

lines of prudent finance. In countries where there is no central bank of issue, one should be established.

However, it would be wrong to infer from these two passages that the principle of autonomy has always been a feature of central banking practice. Despite the majority of central banks having actually been autonomous, the idea that a properly managed money supply presupposes a politically autonomous central bank did not emerge until the late 1970s. Both Ricardo's proposal and the League of Nation's endorsement of the concept failed to exert a lasting influence. The reason, in my view, is that in the context of convertible payment technologies the principle performed a function that was at best ancillary and at worst politically instrumental. It was only with the rise of fiat money, the inflationary outburst of the 1970s, and the ensuing crisis of confidence that the principle came to be regarded by practitioners and public opinion as an institutional safeguard against the risk of abuse of a payment technology lacking objective anchors.

To start with Ricardo's scheme attracted little attention when it was put forward and was soon forgotten. In fact, Ricardo had set the notion in a broader perspective aimed, in line with the Currency School's doctrine, at removing all discretion in money management. The notion was accordingly rejected by Banking School adherents, who opposed any idea of subjecting note-issue to rules other than that of convertibility. Nor is it surprising that it aroused little sympathy even in Ricardo's own ranks (Morgan, 1943), on the ground that, if the objective was to make paper money behave like metallic money, nothing would be gained from placing such a delicate business in the hands of the state - historically the main abuser. Clearly-stated and rigidly-enforced rules on private concerns would, in the eyes of Ricardo's contemporaries, have represented a better deterrent against over-issue.

As to the League of Nations, it tried to implement the Genoa Resolution by making the establishment of an autonomous central bank a precondition for granting individual countries access to foreign financing. The National Bank of Austria, founded in 1922, was the first off-spring of this approach. The new central bank had no governmentally-appointed officials, its directors were elected by the shareholders, and a ban was placed on lending to governmental bodies. The League also pressed for the nomination of a foreign banker as head of the new Central Bank, but disagreement on the choice of nationality led to an Austrian being appointed. Nonetheless, the League succeeded in having a foreign adviser attached to the Bank and the implementation of the plan supervised by a foreign Commissioner General. In the following years, the scheme was replicated, with minor modifications, in a number of countries (Sayers, 1976).

It is difficult to disentangle the contribution of institutional reform to the successful stabilizations of the early 1920s. However, there is indirect evidence that would point to a minor role for it. First, the stabilization programs of the early 1920s all included a credible fiscal package and sizable financial support by the League of Nations (Sargent, 1982). Where either of these elements was missing, as in Germany in 1923, the principle of autonomy proved insufficient to prevent the onset of hyperinflation. Second, central bank autonomy was not meant to apply <u>erga omnes</u>. The figure of the League Commissioner, as well as the appointment of foreigners to top posts in a number of countries was a clear reminder that the notion should not be pushed too far. Indeed, the establishment of an autonomous central bank was regarded by domestic political circles more as a "contractual" safeguard imposed by foreign lenders eager to protect their sovereign loans, than as a desirable

adaptation of the monetary framework.[31] Third, there was little support at the time for the view that confidence was ultimately rooted in gold convertibility. Accordingly, the League itself renounced the principle of autonomy where restoration of convertibility was not in question.[32]

Perhaps not surprisingly, the foreign-backed movement in favour of the principle of autonomy proved extremely short-lived. In a few years, all the newly-founded central banks lost their statutory autonomy. Even the inspirator of the League of Nations, Montagu Norman, publicly played down the importance of the concept.[33]

Somewhat paradoxically in view of current developments, the principle of autonomy fell victim to the prepotent rise of fiat money. In sharp contrast with the

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31. As Kisch and Elkin (1928, p. 19) put it, the reforms of the 1920s "showed a distrust of Government influence which would probably not have been so manifest had the reorganization come entirely from within the country".

32. When Italy applied to the League for financial aid, for example, Montagu Norman at first refused to enter into negotiations with the Banca d'Italia "so long as its Governor remained under the dominance of the Minister of Finance". However, when the government embarked, mainly for reasons of national prestige, on a stabilization program that went beyond the League's expectations, the condition was dropped. Benjamin Strong convinced Norman that the additional guarantee of a formally autonomous central bank was not needed, since: "if you will compare the record of the relations of the present Italian government with the Banca d'Italia to that of other governments with their central banks, for say the past three years, I believe you will find that the Italian government has a record for fairness which is just as good, if not better than, any of the others" (quoted by Sayers, 1976, p. 194).

33. In 1936, faced with mounting criticism of the Bank's actions, he declared: "I assure Ministers that if they will make known to us through the appropriate channels what it is they wish us to do in the furtherance of their policies, they will at all times find us willing with good will and loyalty to do what they direct us though we were under legal compulsion" (Dam, 1982, p. 53).

early 1920s, when no one had seriously questioned the gold standard as an indispensable feature of the monetary system,[34] by the end of the 1930s gold convertibility had come to be seen as an undesirable constraint on governments' management of domestic economies (Dam, 1982, p. 60). As a payment technology, the novelty of fiat money lay in the fact that its value rested directly on the perceived legitimacy of the issuing state. This feature was stressed by Hayek (1939), who rather contemptuously labelled this state of affairs "monetary nationalism". Under monetary nationalism, holders of money no longer needed to care about either the acceptability of their money inventories, which was made universal within national borders by legal tender provisions, or the technical solvency of the issuer, at least to the extent that the legitimacy of the state itself was not called into question. By this innovation, the supply elasticity of the means of payment was made potentially infinite.

Such an epochal shift would be hard to explain without considering two major events of those years. The widespread and prolonged disruption of economic life that accompanied the Great Depression swept away the main tenet of economic liberalism - the belief in the self-regulating properties of market economies. In fact, the Great Depression made people aware that the stability of the nineteenth century's economy had been due not so much to gold and the equilibrating impact of its international flows as to a number of probably unrepeatable developments (Polanyi, 1944). This greatly strengthened the case for "managed money": as a result, by the time the General Theory was published several countries were already experimenting with interventionist policies.

The second event was the rise of universal suffrage. While the Great Depression increased the <u>demand</u> for a more

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34. It should be noted that not even Keynes (1923) did. He simply opposed the return to pre-war parities.

flexible supply of money, universal suffrage increased the feasibility of direct involvement of the state in monetary matters (Myrdal, 1960; De Cecco, 1988). In fact, the introduction of universal suffrage changed the role of parliaments, turning them from institutions intended to check and constrain the actions of governments into repositories of the public will (Holtfrerich, 1988). This change affected the monetary sphere in at least three ways. First, it strengthened the capacity of the generality of money-holders to exercise control over the government, thereby greatly reducing the perceived risk of seignorage-driven manipulations of the supply of money. Second, it increased parliaments' proclivity to spend, and hence the appeal to them of exercising direct control over monetary policy. Third, it made the private ownership of central banks an unnecessary and even potentially dangerous feature, as it might result in the subjugation of an elected organ to a non-elected one.

The combined impact of the Great Depression and of the widening role of parliaments was felt, insofar as the institutional framework was concerned, at three levels: the gradual relaxation of the ceilings on note issue; a wave of central bank nationalizations; the attribution to central banks of supervisory powers.

The limits on note issue inherited from the Bank Charter Act Model were in many cases relaxed or removed. In England, for example, in order to increase the supply elasticity of money, in 1928 the British Treasury was granted the power to authorize the central bank to exceed the limits in force for a period of up to two years. Subsequently, in 1939, the gold cover mandated by the Bank Charter Act was abolished. In France, the method of a maximum issue was abandoned in 1928. In the United States, the Federal Reserve was "temporarily" authorized in 1932 to purchase direct obligations of the United States government as additional backing for its notes, whereas previously only agricultural

and trade bills had been eligible. The new regime was made permanent in 1945. In turn, the Reichsbank was authorized to discount government paper in 1933 and analogous measures were adopted in several other countries (De Kock, 1974, p. 24).

As to the legal status of central banks, prior to 1936 only a few - notably those of Russia, Bulgaria, Australia and China - were state-owned. Between 1936 and 1945, the central banks of Denmark, Canada, New Zealand, Bolivia and Guatemala were nationalized, while state-owned central banks were founded in Ireland, Poland, Ethiopia and in a number of other minor countries (De Kock, 1974, p. 305). After the war, the nationalization movement spread to England, France, Germany, Holland, Norway, Czechoslovakia, Yugoslavia, Hungary, Roumania, Spain, and many other countries.

With the central banks having become, either de jure or de facto, a state institution, the fear that supervisory powers could be misused, which had led in the 1930s to entrusting supervision to other state-controlled agencies was no longer founded. Moreover, the rising importance of monetary policy provided a strong case for strengthening the control of the central bank over the banking system, which constituted the main transmission mechanism of central bank's actions. Accordingly, after World War II most countries either suppressed the governmental bodies hitherto responsible for bank supervision or greatly attenuated their role.[35]

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35. This process was rather lengthy, spanning a period that goes from the Italian reform of 1947 to the UK Banking Reform of 1979. In some countries such as Germany and Belgium, moreover, the central bank has never been assigned formal supervisory responsibility. The extent to which this means that the central bank is not involved in supervision at all is, however, still subject of debate, as Padoa-Schioppa and Saccomanni (1992) point out. It is worth noting in this connection that after the 1914 crisis the Bank of England had gradually developed a supervisory function with respect

The Bretton Woods system did not imply a change of attitude with respect to fiat money. External convertibility was not seen mainly as a means to sustain confidence in individual currencies, but rather as a technical device to facilitate coordination of national economic policies. Its main goal was to limit the room for disruptive, and ultimately self-defeating, competitive devaluations (Dam, 1982, p. 61). Indeed, during the Bretton Woods era the inclusion of the money industry within the sphere of state responsibilities was so complete that for a long time monetary policy became almost indistinguishable from overall economic policy.[36] As is well known, the system collapsed when persistent balance-of-payments deficits and inflationary domestic policies in the major reserve-currency country "stretched the fiction of dollar convertibility beyond the limits of credibility" (Carli, 1978, p. 409).

The system of generalized floating that resulted was in many respects similar to that of the 1930s, with one major difference: the expansion of the role of the state in the economic sphere to stretch from stabilization policy to redistributive and allocative policies. Still between 1900 and 1916, federal government expenditure amounted to about 2.5 per cent of national income in the United States. In Great Britain, despite growing military spending, it remained below 8 per cent. In the 1950s, by contrast, in both Western Europe and the United States government expenditure rose to between 20 and 30 per cent of national income, increasing

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to commercial banks, but was not formally entrusted with supervisory powers and responsibilities until the Banking Act of 1979 (on this point, see Goodhart and Schoenmaker, 1993).

36. Jacques Rueff - De Gaulle's influential monetary advisor - lamented in 1956: "Monetary policy is no longer à la mode. Until recently, it was even completely forgotten. The specialists who talked about money were considered retarded" (Goodman, 1992, p. 108).

even further, to between 30 and 40 per cent in recent decades (Cameron, 1989, pp. 341-42).

The combination of rising social demands, parliamentary control of the money industry and flexible exchange rates was clearly explosive, since it made money but one instrument in the redistributional conflict. However, there was at first little appreciation of the dangers that the existing institutional set-up entailed. In most industrialized countries, whenever a conflict developed between fiscal expansion and monetary discipline, the latter had to give way. In France, for example, the Governor of the central bank, Oliver Wormser, was removed in 1974, a few weeks after Giscard d'Estaing's election to the Presidency, for publishing an article criticizing the inflationary policies of the previous government, in which Giscard d'Estaing had served as Finance Minister (Goodman, 1992, p. 116). In the United States, Arthur Burns, Chairman of the Board of Governors of the Fed, was accused in 1972 of making partisan use of the monetary lever to favour President Nixon's re-election (Sylla, 1988). Burns later pleaded that his intention was to prevent legislative action to curb interest rates.[37] In Italy, Governor Carli admitted the inevitability of central bank acquiescence in the face of excessive public deficits.[38]

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37. Burns denied that the Fed could have acted otherwise, arguing that: "what is unique about our inflation is its stubborn persistence, not the behaviour of central bankers. This persistence reflects ... the philosophic and political currents of thought that have impinged on economic life since the Great Depression and particularly since the mid-1960s" (Burns, 1987, p. 162).

38. In an oft-quoted passage from his annual remarks on the state of the economy, he wondered in 1973: "whether the Banca d'Italia could have refused, or could still refuse, to finance the public sector's deficit by abstaining from exercising the faculty, granted by law, to purchase government securities. Refusal would make it impossible for the Government to pay the salaries of the armed forces, of the judiciary and of civil servants, and the pensions of most citizens ... It would be a

It took the inflation of the following years to expose the inadequacies of the existing institutional arrangements. Two previously unknown phenomena - stagflation and indexation - left little doubt that something had gone wrong. While stagflation testified to the increasing ineffectiveness of monetary policy for stabilization purposes, the spread of indexation on an unprecedented scale signalled the deterioration of confidence in the future value of money. As a result, perceptions changed rapidly. The clearest indicator of this shift in preferences is given by the abrupt increase in the demand for institutional reform. The "question of the standard", which had been in the wings for several decades, returned to the centre of the stage. In just a few years, several wide-ranging proposals for institutional reform were published. Most of them favored the restoration of convertibility in one form or another.[39] More radical schemes advocated the repeal of the state-monopoly in the production of base money (Hayek, 1978; White, 1984; Dowd, 1989; Glasner, 1989).[40]

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seditious act, which would be followed by a paralysis of the public administration. One must ensure that the public administration continues to function, even if the economy grinds to a halt" (Banca d'Italia, 1974, p. 189).

39. See Cooper (1982) for a review of the schemes based on convertibility. In the United States, political pressure in favor of a return to convertibility led President Reagan in 1981 to set up a parliamentary commission to make recommendations on the role of gold in the domestic and international monetary systems. The commission's work proved inconclusive, however, since, as Cagan (1984, p. 247) explains: "the commission expressed such widely divergent views on the role or nonrole of gold that in the final Report it agreed on essentially nothing".

40. "Intermediate" reform proposals, intended to reduce the scope for monetary authorities to exercise discretion, were put forward, among others, by Greenfield and Yeager (1983) and by Leijonhufvud (1984). For a survey of these proposals, see Coats (1989).

None of these proposals, however, has ever gained sufficient consensus to be implemented. One reason is probably related to the gradual emergence of a less radical alternative, in the form of the "principle of autonomy". At the end of the seventies two central banks, the Federal Reserve and the Bundesbank, began to follow restrictive monetary policies explicitly aimed at curbing inflationary pressures. In both cases, the new policy course aroused widespread protest in political circles, and in the case of Germany, ended in open confrontation between the central bank and the government. Both central banks, however, happened to enjoy a high degree of formal autonomy, which shielded them from direct political pressure. Although this autonomy could be altered by law, public opinion sided in both cases with the central bank.[41]

The monetary policies pursued in the United States and Germany proved highly successful in curbing inflation. In the United States, for example, the inflation rate dropped by more than ten percentage points between 1980 and 1983. With the benefit of hindsight, what happened in these two countries in the early 1980s can be seen as a new experiment in institutional adaptation, whose success depended on three factors: a) substantial statutory autonomy of the central bank from the government; b) the determination of the central bank's directors to avail themselves of this autonomy to pursue the objective of price stability; and c) the support of large sectors of the population for the restrictive monetary policy that followed.

Clearly, if the United States and German central

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41. In the United States, the Carter Administration decided to avoid a public battle in an already strained political climate (Sylla, 1988). In Germany, open criticism of the Bundesbank by government officials provoked a public outcry in defense of the central bank; the clash was one of the main reasons for the fall of the 13-year old coalition government in 1982.

banks had not enjoyed ample operational autonomy they would have never been able to make such a sharp policy shift. So the question is: why were they made autonomous in the first place? The answer in both cases is that autonomy was largely accidental. In the case of the Fed, the central bank was originally designed to achieve a balance between the interests of the nation's main financial center, New York, and the regional financial centers, which, as mentioned in Section 2, had previously opposed centralization (Sylla, 1988). In the case of the Bundesbank, the autonomy of the central bank was largely due to the Western Allies in post-war Germany having sought to ensure that the central bank would respond only to the Allied Banking Commission.[42] Interestingly, both central banks were given a federal structure to shield them from centralized control. This structure, however, proved an obstacle to effective policy-making. Consequently, government control over the central bank had to be somewhat tightened - in the 1930s in the case of the Fed and in 1957 in the case of the Bundesbank.[43]

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42. The progenitor of the Bundesbank was the Bank Deutscher Länder (BDL), established in 1948; like the central banks sponsored in the 1920s by the League of Nations, the BDL was made completely independent of every German political body, but subject to the directives of the Allied Banking Commission. At the time, the chief of the banking section of the United States military government in Germany doubted whether this "well-meant attempt [had] a chance of survival" (Goodman, 1992). As late as 1956, or one year before the founding of the Bundesbank, the German Chancellor, Konrad Adenauer, lamented that "the central bank is fully sovereign in its relationship with the government ... We have a body which is responsible to no one, neither to a parliament, nor to a government ... It is responsible only to itself" (quoted by Marsh, 1992, p. 57).

43. For the details of the reform of the Fed in the 1930s, see Sylla (1988). As to Germany, the Law of 1957 which replaced the BDL with the Bundesbank ensured a greater role for the federal government in the appointment of the central bank's officials and required the Bundesbank "to support the general economic policy of the federal government". At the same time, though, it confirmed that the central bank was to "be independent of instructions

Thus, it would be difficult to argue that the two central banks had been made autonomous to ensure that monetary policy gave greater emphasis to price stability. In fact, it is even questionable whether price stability was the objective assigned to the two central banks;[44] until the 1970s, moreover, there is no evidence that they availed themselves of their autonomy, whatever its original purpose, to pursue this end (Volcker and Gyothen, 1992; Marsh, 1992). Interestingly, as in the previous phase of the evolution of central banking - when the notion of lender of last resort was accepted in England and then re-exported only after Bagehot had provided a compelling argument in its favor - the importance of the Fed and the Bundesbank as a "model" for other countries was underscored by the concurrent development of the literature on time-consistency problems in monetary policy, which appeared capable of "predicting" the successes of credible anti-inflationary policies.[45] In other words, the interpretation of the central bank's task as being that of preserving price stability is itself an aspect of the preference shift brought about by the dismal macroeconomic performance of the 1970s. This had not previously been obvious, and the new objective would not have been so easily accepted, had it not been accompanied by an increase in public concern about the disruptive effects of prolonged inflation (Posen, 1993).

The third factor - the shift in the preference of the

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from the federal government"; see Goodman (1992, p. 38).

44. The Fed was originally supposed to "furnish an elastic currency". The Employment Act of 1946, which required the Federal Government to "promote maximum employment, production, and purchasing power", implicitly called upon the Fed to direct monetary policy to other objectives as well. As to the Bundesbank, it was assigned the task of "safeguarding the currency".

45. See Blackburn and Christensen (1989) and Cukierman (1992) for two comprehensive surveys of this literature.

money-holding public - thus appears to have been the crucial one. Notably, there was substantial social consensus even after the negative consequences of the restrictive monetary stance had begun to be felt. If anything, the prestige of the two institutions increased steadily throughout the 1980s. This should not be taken as a denial of the practical importance of central bank autonomy. The acceptance by large sectors of society of the fight against inflation would probably not have been sufficient, had central banks not had the autonomy to initiate such a policy, overcoming the resistance of pro-inflation interest groups.

Overall, the experience of Germany and the United States, whose relevance was underscored by theoretical developments, provided a strong case for both giving greater emphasis to the commitment to price stability and allowing central banks the autonomy needed to pursue this objective.

This may explain why in several countries - particularly strong in those worst hit by the inflationary outburst - there developed for the first time a domestic movement in favour of the principle of autonomy. Strengthening central bank autonomy came to be regarded as a necessary adaptation of the institutional framework to the needs of a payment technology lacking the ultimate anchor of convertibility. The experience of Italy, where inflation had risen to above 20 per cent at the end of the 1970s, is indicative. In May 1981, Governor Ciampi told the General Meeting of the Banca d'Italia that:

> the return to a stable currency requires a real change in the monetary constitution, involving the functions of the central bank and the procedures for determining public expenditure and the distribution of income. The first condition is that the power to create money should be completely independent from the agents that determine expenditure (Banca d'Italia, 1981, p. 181).

Later in the same year, the autonomy of the Banca d'Italia was considerably strengthened with the so-called

"divorce" between the central bank and the Treasury, whereby the former was no longer compelled to act as residual buyer at auctions of government securities. Further steps in the same direction were taken at the beginning of the 1990s. In recent years, reforms aimed at increasing the autonomy of the central bank have also been introduced in New Zealand (1989) and France (1993).

The emerging model, however, presents a few aspects on which further reflection is warranted. The first concerns the meaning of price stability. If, as I have argued, the emergence of fiat money is due to the necessity of ensuring a sufficiently flexible supply of money to counteract aggregate demand and supply shocks, it follows that monetary policy cannot be based on mechanical rules. As Vicarelli (1988) pointed out, a monetary policy that pursued the stability of a given price index regardless of the strains it imposed on the economy would be synonymous not of autonomy, but of inefficiency. Indeed, the main lesson to be drawn from the story of the doomed BCAM, which I dealt with in Section 3.1, is precisely that any attempt to reduce confidence costs without taking account of the reasons for the emergence of a given payment technology is bound to fail in the long run. Thus, while the case for rephrasing the objective of central bank action to give greater emphasis to price stability appears strong,[46] one should refrain from formulating it in

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46. In this respect, it must be admitted, the current state of the art is defective. If one looks at the statutes of individual central banks - most of which were drafted at a time when convertibility was still the basis of the monetary system - it is not at all easy to get a precise idea of the objective to be pursued by monetary policy. In some cases, the objective is not even specified. In others, one finds somewhat vague expressions, such as "providing an elastic currency" (the Fed), "regulating the currency" (the Bank of Japan), "safeguarding the currency" (the Bundesbank), "watching over the currency and credit" (the Banque de France, according to the 1973 Statute, that has been amended recently), "regulating the value of the currency in such a way as will be most conducive to the nation's prosperity and welfare" (the Netherlands Bank), and so on.

such a way as to gravely hamper flexibility of response on the part of the monetary authorities.

The second aspect concerns the political body from which the central bank should be "autonomous". If the inflationary bias of the fiat-money payment technology is ultimately rooted in the prodigality of democratic parliaments, then two problems may arise. First, an attempt on the part of the central bank to avail itself of its autonomy may be opposed by powerful interest groups, thereby leading to a change of legislation.[47] Second, monetary policy may fail to deliver the good of price stability because of incompatible fiscal and incomes policies.[48] Thus, the adaptation of the institutional framework to the needs of a payment technology based on fiat money is likely to require a broader revision than the US-German "model" would seem to indicate. On the one hand, the concept of autonomy has to be extended, since short-term autonomy with respect to the Legislative is likely to be just as important as that with respect to the Executive. In view of the high risk of abuse

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47. This point, which is borne out by the very ease with which the newly-born principle of autonomy was swept away in the early 1930s, is made by Holtfrerich (1988) and Cottarelli (1993). See also O'Flaherty (1990) for an extension of the time-consistency literature to situations in which the inflation bias is rooted in the self-interested behaviour of individuals. A case in point is also provided by the experience of Italy in the early 1980s, when the "divorce" was temporarily circumvented by Parliament through a law that authorized the Banca d'Italia to grant the Treasury - which in previous months had exceeded the prescribed limit on its direct borrowing from the central bank - an "extra-ordinary advance" of 8,000 billion lire. On this episode, see Goodman (1992, p. 175).

48. In Woolley's terminology, the political autonomy of the central bank will never guarantee its functional autonomy, that is its ability to achieve the goal of price stability in the presence of ultimately inflationary fiscal and incomes policies. See Woolley (1984). In the same vein, Fazio (1991, p. 134) argues that "confidence in central bank money is in some fundamental way related to the authority of the State. Sound money cannot last without a sound fiscal system".

that fiat money entails because of its "objective" properties, it is arguable whether effective protection of the now-prevailing payment technology can be achieved with anything less than a constitutionalization of the monetary sphere.[49] On the other hand, no monetary framework can be effective in the long run without sufficient coordination between the different branches of economic policy.

4. Conclusions

In this paper I have revisited the history of central banking in the light of a theory of money characterized by two features: a) the centrality of the means-of-payment function; b) the institutional nature of money itself. The underlying view is that acceptance of money to discharge obligations depends upon the existence of sufficient confidence in money's future exchange-value, which is costly

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49. The notion of a monetary constitution goes back at least to the series of lectures collected in Yeager (1962). Buchanan (1962), in particular, strongly emphasized the need to constitutionalize monetary powers in order to increase the "predictability in the value of money" (p. 163). While taking side with the advocates of mechanical rules, Milton Friedman offers in the same volume a succint statement of the constitutionalists' argument: "control over money is an essential function of a government comparable to the exercise of legislative or judicial or administrative powers. In all of these, it is important to distinguish between the basic structure and day-to-day operation within that structure. In our form of government, this distinction is made between the constitutional rules which set down a series of basic prescriptions and proscriptions for the legislative, judicial and executive authorities and the detailed operations of the several authorities under these general rules. Similarly ... the monetary structure needs a kind of a monetary constitution, which takes the form of rules establishing and limiting the central bank as to the powers that it is given, its reserve requirement, and so on. Beyond this, the argument goes, it is desirable to let the central bank have authority largely coordinated with that of the legislative, the executive and the judicial to carry out the general constitutional mandate on a day-to-day basis" (Friedman, 1962, pp. 224-225).

to create and sustain. In this context, the evolution of central banks is seen as the outcome of ongoing institutional adaptation aimed at reducing confidence costs associated with ever more abstract forms of money.

In the course of this process, central banks have changed enormously. They started out as private profit-making concerns subject to restrictions on their note-issue operations. In this phase, the resistance to state intervention in monetary matters deriving from the prevailing liberal credo and the dismal inflation record of eighteenth century governments led to a system of controls that deprived the new payment technology of most of its appeal. The spread of deposit money was also a consequence of this state of affairs. It resulted in banks of issue being assigned the task of resolving liquidity crises associated with banking panics. To this end, they were brought within the state's compass and granted supervisory powers over ordinary banks, though formally they retained their private nature and profit motive. The rise of fiat money in the 1930s, spurred by the Great Depression and made possible by cultural and political changes such as the spread of universal suffrage, led first to the nationalization of most central banks and then, after the inflationary outburst of the 1970s, to a revision of their status and autonomy designed to shield monetary policy from direct political interference.

The paper was mainly intended to show that the adoption of a neo-institutionalist approach to monetary economics, along the lines suggested by De Cecco and Fitoussi (1987), Richter (1988) and Eggertsson (1990) can provide useful insights on some important and as yet unsettled issues, such as the functions and evolutionary logic of central banks. The analysis has also yielded a number of more practical indications on the operational functions, objectives and institutional status of present-day central banks.

Operational Functions. Central banks are extremely complex institutions spanning a large number of apparently unrelated areas. One can identify however a group of core functions clearly associated with maintaining consumer confidence. They are: monopoly of note issue; lending of last resort and banking supervision; and monetary policy. The combination of the monopoly of note issue and lender-of-last-resort responsibilities has in turn given rise to another core function - the provision of settlement facilities, i.e. of a final means of payment for interbank transactions (Angelini and Passacantando, 1992). Non-core functions, whose assignment to central banks is mainly due to historical accident or synergies with core functions, include the physical production of notes, the provision of banking services to the government, the running of interbank netting systems, the liquidation of distressed financial institutions. The desirability of their being assigned to central banks is to be assessed on a case-by-case basis.

Objectives. The statutes of central banks generally refrain from defining in simple terms the objective they are to pursue, because of the difficulty of finding an unambiguous wording or easily-quantifiable tasks. As Vicarelli (1988) pointed out, central banking makes sense only if one believes that the working of the economy is marred by imperfections that call for both managed money and institutions to sustain confidence in it. This does not mean that the current emphasis on price stability is misplaced. A clear commitment on the part of the monetary authorities to maintaining price stability can significantly reduce the confidence costs associated with a payment technology that lacks the "objective" anchor of convertibility. Mechanical rules, however, are to be avoided, since they would curtail the most appealing feature of fiat money - the possibility of deliberately adjusting its supply to counter unanticipated shocks. As Paul Volcker recently put it, there is no quick fix to the problem of establishing the credibility of monetary policy (Volcker, 1993). In this respect, there is

considerable risk in deriving policy prescriptions from models that abstract from the real-world features underlying the emergence both of central banks and of the payment technology they are meant to regulate and sustain.

Institutional Status. Central banks draw their legitimacy from being part of the machinery of state. It is the latter's universality and superior powers of enforcement that ultimately back central banks' ability to produce confidence, so that, by definition, central banks cannot be completely independent. The case for considerable autonomy with respect to the political sphere is strong, however. Once the objective of central banking has been stated as clearly as possible, protecting it from the vagaries of daily political life is a guarantee that the flexibility allowed by the fiat-money payment technology will be used with due regard to the long-run consequences of current decisions. This guarantee is all the more necessary in that the costs and benefits of an anti-inflationary commitment typically have different time profiles. Under such circumstances the incentive to deviate from previous commitments may prove too strong to resist even if the economy is populated by equally-informed and equally-powerful individuals - that is, even if there is no "wicked" government in sight. This implies, first and foremost, that short-run interference by the Legislative in the daily conduct of monetary policy is to be feared as much as that by the Executive. Second, that a properly managed monetary policy may fail to deliver price stability in the long run if other branches of economic policy are set on a divergent path. These considerations lend support to the view that the adaptation of the institutional framework to the challenges posed by the advent of fiat money will not be compete until a proper "monetary constitution" specifying duties, sphere of autonomy, degree of accountability of the agency in charge of monetary policy, as well as procedures for ensuring coordination of monetary, fiscal, and incomes policies is laid down. As the historian Marc Bloch once said, monetary phenomena are like a

"seismograph that not only registers earth tremors, but sometimes brings them about" (Bloch, 1966, p. 186). A monetary constitution will obviously not shield the payment technology from violent "earth tremors" - to follow Bloch's analogy. It will, however, reduce the likelihood that monetary policy be used for distributive purposes, to the point of becoming itself the source of economic and social unrest.

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