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WHY DO BANKS NEED A CENTRAL BANK?*

By C. A. E. GOODHART

1. Introduction

IN my earlier monograph, *The Evolution of Central Banks*, (1985), especially Chapter 3, pages 28–35, I sought to examine the key features that distinguished banks from other financial intermediaries, and, in particular, necessitated the support of a Central Bank. This paper continues and extends that work.

Fama, in his paper on ‘Banking in the Theory of Finance’, *Journal of Monetary Economics*, (1980), describes banks as having two functions, the first being to provide transactions and accounting services, the second being portfolio management. Yet transactions services are carried out by other institutions, e.g. giro, Post Office, non-bank credit card companies, etc., without much need for special supervision, etc, by a Central Bank.¹ More important, I shall argue that it would be perfectly possible, generally safer, and a likely development, for transactions services to be provided by an altogether different set of financial intermediaries, i.e. intermediaries providing mutual collective investment in (primarily) marketable securities. If this was to occur, would it make such mutual investment intermediaries, e.g. unit trusts, open-end investment trusts, into banks? Would such intermediaries then become subject to the same risks as banks, and need to be subject to the same kind of supervision/regulation?

I shall argue, in Section 2, that there is no necessary reason why banks alone among financial intermediaries should provide transactions services, and in their role as portfolio managers, banks have much in common with other intermediaries acting in this capacity (though, as I shall argue later, in Section 3, certain crucial distinctions remain between the characteristic form of portfolios held by banks as compared with those held by non-bank financial intermediaries). Nevertheless, it is this *joint* role that is held to give a special character to banking, and to require special treatment for banks through the establishment of a Central Bank, e.g. to provide Lender of Last Resort (LOLR) and other support services for banks in difficulties, support which goes beyond the assistance envisaged for other financial intermediaries that get into trouble.

* This paper was originally prepared for the Manhattan Institute Conference in New York, March 1986, and was also presented at seminars at Nottingham University and Brasenose College, Oxford. I have benefitted greatly from comments made on those occasions, notably by Max Hall, Mervyn Lewis, Bennett McCallum and Lawrence White, and subsequently by Gavin Bingham and my referees, but they should not be blamed for my remaining idiosyncracies.

¹ Except insofar as the Central Bank has a direct concern for the smooth and trouble-free operation of the payments’ system itself, e.g. the working of the clearing house(s) and the settlement system(s), as contrasted with the institutions providing the transactions services.

Thus Tobin (1985), states on page 20, that

“The basic dilemma is this: Our monetary and banking institutions have evolved in a way that entangles competition among financial intermediary firms with the provision of transactions media”.

But what actually are the problems caused by this entanglement? The problem is often seen, and so appears to Tobin, as arising from the propensity of banks, acting as competing financial intermediaries, to run risks of default, which then, through a process aggravated by contagion, puts the monetary system, whose successful functioning is an essential public good, at risk.

I begin Section 2 by recording that Tobin’s suggestion, in accord also with Friedman’s views, is that institutions (banks) seeking to offer deposits involving payments’ services should be required to segregate these in special funds held against risk-free earmarked safe assets. As historical experience shows, however, such a restriction would reduce the profitability, and not just the riskiness, of banking. An alternative method of providing protection against runs, and systemic crises, could, however, be obtained by basing the payments’ on the liabilities of mutual collective investment funds, the value of whose liabilities varies in line with the value of their marketable assets. Since the banking system developed first, the banks established a branch system, clearing houses, etc., which provided them with economies of scale and familiarity in running the payments’ system, but technological change is eroding, and could even be reversing, banks’ advantages in this respect.

Indeed, non-bank mutual investment funds are already beginning to provide payments’ services and there is no (technical) reason why this development should not proceed much further. It is often claimed, however, that people would be unwilling to make payments against asset balances which fluctuate in value over time. In practice, however, payments already often incorporate a probabilistic element, in the sense that the payer may have some uncertainty whether the balance, or overdraft facility, available will be sufficient for the bank drawn on to honour the cheque. The additional uncertainty involved could possibly be reduced sufficiently to make people prepared to use payments’ services offered by non-bank investment funds.

Since these latter financial intermediaries would be protected from illiquidity by their holding of marketable assets, and from insolvency by the fact that the value of their liabilities varies in line with their asset values, a Central Bank should welcome their entry into the provision of payments’ services and need impose no further supervisory/regulatory constraints on them. This development would, however, raise further questions about the meaning of money, since the estimated nominal value of balances capable of being used in payments would vary automatically with the prices of the assets held by these intermediaries. Indeed, the central intuition of Section

2 is that the monetization of assets is *not* necessarily limited to a restricted set of financial intermediaries, i.e. banks.

So, I demonstrate in Section 2 that the provision of payments' services jointly with portfolio management does *not, per se*, require the involvement of a Central Bank—if, for example, the joint function is undertaken by mutual collective investment funds. Clearly it is not so much the joint function, but rather the particular characteristics of banks' liabilities and asset portfolios that makes them especially vulnerable. Indeed I try to highlight this by enquiring, in Section 3, whether the banking system would still require Central Bank support even if banks were to withdraw altogether from providing payments' services, i.e. funding their asset books only through time deposits and C.D.s.

The reason why the answer to this question is 'Yes' lies in the fundamental *raison d'être* of banking. Why do borrowers seek loans from banks and depositors place savings with banks rather than transact directly through the market place? In part the answer lies in the costs of obtaining and assessing information on the credit worthiness of (most) borrowers. Banks have a specialized advantage in this function, but, even so, the costs and limitations of such information induce banks to extend (non-marketable) loans on a *fixed nominal value basis*. With their assets largely on such a fixed nominal value basis, it is less risky for banks also to have their deposit liabilities on the same, fixed nominal value, terms: and the same concerns with only having access to limited information about their bank's 'true' position also makes the depositor prefer fixed nominal value bank deposits.

The resulting combination of uncertain 'true' bank asset valuation, and fixed nominal value deposits, leads to the possibility of bank runs: lengthening the maturity of bank deposits slows down the potential *speed* of such runs, but does not prevent them. What is, however, particularly interesting in recent analysis of banking is that it has been realized that much of the economic damage caused by bank crises and failures rebounds on bank *borrowers*. The loss of wealth to depositors, and the dislocation of the payments' system, have already been fully appreciated in the literature. What is new now is the view that the added pressures placed on bank borrowers by such crises, e.g. the removal of access to new loans, the need to obtain facilities elsewhere at an awkward time, and, in some cases, the demand by receivers for the repayment of their outstanding borrowing, can represent an additional deleterious effect.

2. The provision of payments' services by banks and by other financial intermediaries

Tobin, *op. cit.*, (1985, page 23) states:

"Even if bank managers act with normal perspicuity in the interests of the stockholders, even if all temptations of personal gain are resisted, sheer chance will

bring some failures—insolvency because of borrowers’ defaults or other capital losses on assets, or inability to meet withdrawals of deposits even though the bank would be solvent if assets’ present values could be immediately realized. The probability is multiplied by the essential instability of depositor confidence. News of withdrawals triggers more withdrawals, *saive qui peut*, at the same bank, or by contagion at others. For these reasons the banking business has not been left to free market competition but has been significantly regulated”.

On page 24 Tobin notes:

“Government deposit insurance in the U.S. protects not only means-of-payment deposits but all other deposits in eligible institutions, including non-checkable savings accounts and time deposits. Similar obligations of mutual funds and other debtors not covered by deposit insurance are not guaranteed. It is not clear why all kinds of liabilities of covered institutions should be insured, except that the assets are so commingled that withdrawals of non-insured deposit liabilities would imperil the insured deposits. That indeed is why the insurance guarantee was *de facto* extended beyond the statutory limit”.

Tobin’s suggestion is:

“This problem could be avoided by segregating and earmarking assets corresponding to particular classes of liabilities permitting a depositor in effect to purchase a fund which could not be impaired by difficulties elsewhere in the institution’s balance sheet. In this way, a bank would become more like a company offering a variety of mutual funds, just as these companies—which are not insured—are becoming more like banks,”

In particular, Tobin, following an earlier suggestion made by Friedman, advocated 100% reserve-backed funds for checkable deposits, as has also Henry Wallich, in his paper, ‘A Broad View of Deregulation’, and several other US economists. Thus Tobin continues,

“The 100%—reserve deposit proposed, . . . , would be one such [mutual] fund, but there could be others. For example, many households of modest means and little financial sophistication want savings accounts that are safe stores of value in the unit of account. *They can be provided in various maturities without risk by a fund invested in Treasury securities. They can be provided as demand obligations either by letting their redemption value fluctuate with net asset value or by crediting a floating interest rate to a fixed value*”, [emphasis added here, not in original].

With such illustrious, and wide, support from economists why has this idea not had more practical success? The concept of a 100% segregated reserve against checkable deposits would, however, reverse the evolution of banking. Initially goldsmiths received deposits of gold coin from customers and acted purely as safety vaults. It was the realization that it would be profitable, and under most circumstances relatively safe, to loan out some proportion of these reserves to prospective borrowers, in addition to the loans made on the basis of their own capital, that transformed such entrepreneurs into bankers. Naturally when such early bankers did run into

difficulties, by over-trading, proposals were made to force such commercial bankers back to stricter segregation. Thus the fore-runner of the Swedish Riksbank, founded by John Palmstruch in 1656, was organized on the basis of two supposedly separate departments, the loan department financing loans on the basis of longer-term deposits and capital, and the issue department supplying credit notes on the receipt of gold and specie. But even when Palmstruch's Private bank had been taken over by Parliament,

“A secret instruction, however, authorized the advance by the exchange department to the lending department of the funds at its disposal, though on reasonably moderate terms”.²

The reason why such segregation and hypothecation of certain safe assets to checkable deposits will not work in the case of commercial banks is that it largely removes the profitability of banking along with its risks. The regulatory constraint on the banks' preferred portfolio allocation, under such circumstances, would be seen—as historical experience indicates—as burdensome: attempts would be made to avoid, or to evade, such constraints, e.g. by the provision of substitute transactions' media at unconstrained intermediaries, which, being free of such constraints, could offer higher returns on such media. Only in the case of non-profit-maximising banks, such as the Bank of England, divided into two Departments on much the same theoretical basis by the 1844 Bank Charter Act, would such segregation be acceptable and not subject to avoidance and evasion. Of course, if the public sector were prepared to subsidize the provision of payments' services either by operating them directly itself, or

“by paying some interest on the 100%—reserves”

held by private sector intermediaries, then it could be done; but, in the light of Congress' recent response to suggestions for paying interest on required reserves in the USA, it seems difficult to envisage the public being prepared to vote tax funds for this purpose.

Anyhow, there is a simpler, and less expensive, alternative which Tobin almost reaches when he comments that the public's savings accounts could be

“provided as demand obligations, . . . , by letting their redemption value fluctuate with net asset value”

We are so used to having payments' services provided against checkable fixed nominal value liabilities, with 100% convertibility of demand deposits, that we have not—mostly—realized that payments' services could be just as easily provided by a mutual collective investment financial intermediary, where the liabilities are units representing a proportional claim on a set of marketable assets. The value of the units fluctuates, of course, with the underlying value of the assets in the portfolio. Because the (close-of-day)

² See A. W. Flux (1911), page 17, and also Goodhart (1985), pages 109–116 and 159–162.

market value of the portfolio is known, the value of the unit can be published each morning, and each depositor then knows how much his or her units are worth. Because there will be a period of float, during which underlying asset values will change, and because the attempt by the mutual funds to meet net outflows by net sales of assets could itself influence prices, one would expect a mutual fund to limit payments services and convertibility by requiring some minimum balance in units to be held normally, with a progressive penalty in terms of yield foregone for dropping below this balance, plus some emergency arrangements for occasional overdrafts, say from an associated bank. This concept of required minimum balance has been adopted often enough, by commercial banks, and the public is familiar with it. The cheques would, of course, have to be drawn in terms of the numeraire—otherwise they would not be useful in clearing debts. The value of the drawers' units would change between the date of writing the cheque and of its being presented,³ and—in a period of falling asset prices—there would be a danger of the drawer being overdrawn at the latter date, while having had funds to spare at the earlier date; but this problem would seem also to be generally soluble by only providing guaranteed payments' services up to a minimum credit balance in units, (plus an emergency overdraft arrangement, perhaps with an associated bank).

I see no insuperable technical problem why payments' services could not be provided by mutual collective investment intermediaries in this manner. They would need to hold some liquid reserves, vault cash to pay depositors' demanding currency, and liquid assets to meet net outflows at times when the fund manager judged that it would be inopportune to realize investments, (n.b. this latter need is *neither* for liquidity *nor* for solvency purposes. Liquidity is always available from the ability to sell marketable assets, and solvency is assured because the value of liabilities falls with the value of assets. Instead, the desire for liquid assets would arise from desire to maximise the net asset value of units under varying market conditions,⁴ and thus improve reputation, service fees, and managerial earnings). Nevertheless the need to hold vault cash, at least, might lower the expected return on the intermediaries' assets, but the effect of this on the demand for units should be (more than) counterbalanced by the improved liquidity to the unit holder of his investments, and the associated advantages of being able to use them for transactions purposes.

Be that as it may, the current trend already is for (limited) transactions' services to be provided by investment-managing non-bank financial intermediaries on the basis of depositors' funds, the value of which varies with the market value of the underlying assets. Merrill Lynch cash management service is one example. Certain other unit trusts and mutual funds, such as

³ It would, of course, be just as simple to keep the value of each unit constant, but alter the number of units owned by each depositor as asset values changes. I cannot see why that shift in presentation should affect people's behaviour in any way.

⁴ The analysis, of course, stems from Tobin (1958).

money market mutual funds, are also providing (limited) payments' services. Similarly certain building societies and certain mortgage businesses in other countries are considering allowing borrowers to draw additional top-up mortgages up to a stated proportion of the market value of their house.⁵

A common response to this idea is that, whereas it would be perfectly possible, as a technical matter, to provide payments' services against liabilities with a varying market value, the public would not happily accept it, and it would not succeed in practice. It is argued, for example, that there is a large psychological gulf between being absolutely certain that one has the funds to meet a payment, and being 99% certain of that. But is such 100% certainty a general feature of our existing payments' system? Unless one monitors one's bank account, outstanding float, etc., continuously, and knows exactly what overdraft limits, if any, the bank manager may have set, the willingness of the bank to honour certain cheque payments will have a probabilistic element.

Lawrence White, (1984, page 707) put this general case, *against* basing payments' services on liabilities with a varying market value, most persuasively:

“Demand deposits, being ready debt claims, are potentially superior to mutual fund shares, which are equity claims, in at least one respect. The value of a deposit may be contractually guaranteed to increase over time at a preannounced rate of interest. Its unit-of-account value at a future date is certain so long as the bank continues to honor its obligation to redeem its deposits on demand. No such contractual guarantee may be made with respect to an equity claim. A mutual fund is obligated to pay out after the fact its actual earnings, so that the yield on fund shares cannot be predetermined. In the absence of deposit rate ceiling regulation, the range of anticipated possible returns from holding fund shares need not lie entirely above the deposit interest rate. Risk-diversifying portfolio owners might therefore not divest themselves entirely of demand deposits even given a higher mean yield on mutual funds. It is true that the characteristic pledge of money market mutual funds to maintain a fixed share price, or rather the policy of investing exclusively in short-term highly reputable securities so that the pledge can be kept makes fund shares akin to demand deposits in having near-zero risk of negative nominal yield over any period. The difference between predetermined and postdetermined yields—between debt and equity—nonetheless remains. The historical fact is that deposit banking did not naturally grow up on an equity basis.”

Because the provision of payments' services by mutual funds, whose liabilities have a market-varying value, would not only be a somewhat novel concept, but would also worry those unused to any probabilistic element in

⁵ Building societies, of course, will be entering more actively into the provision of payments' services, once the Building Societies Bill (December 1985), has been passed into law. But payments will normally be on the basis of their nominally fixed-value convertible liabilities. The example above, however, envisages building societies, in certain circumstances, also being prepared to monetize assets with a varying market value.

payments, I would expect its introduction to be gradual, and probably to start with richer customers better able to cope with such probabilistic concerns. Moreover, such a limited introduction could prevent the mutual funds making use of economies of scale in the provision of payments' services. There are, therefore, some observers who believe that this possible development will fail the practical test of success in the free, open market.

On the other hand there seems no technical reason why the trend towards the provision of payments' services against the value of units in a collective investment fund (up to a minimum balance) should not proceed much further, especially now that technological innovations in the provision of such services, e.g. shared automated teller machines (ATMs), electronic fund transfer (EFT) and home-banking, are transforming the production function of payments' services, especially in reducing the economies of scale to a network of manned branch buildings. White's arguments (*ibid*, page 707/8) that the provision of payments' services by non-bank (mutual fund) intermediaries has been more expensive could be reduced in force, or even reversed, by the new technologies in this field.

Moreover, there would seem considerable cause to welcome such a development, not only for the extra competition that this would inject in this area, but also because the characteristics of mutual, collective investment funds should serve to make them naturally *more suitable* purveyors of payments' services than banks. In particular, both the likelihood of a run on an individual bank, and of systemic dangers to the monetary system arising from a contagion of fear, would be greatly reduced if payments' services were provided by mutual collective-investment intermediaries, rather than by banks. For example, the announcement of bad news reducing the market value of such an intermediary's assets, assuming an efficient market, would immediately reduce the value of depositors' units. There would be no risk of insolvency for the intermediary, and no advantage, again assuming an efficient market, for any depositor to withdraw his funds from that intermediary.⁶ Again, since the asset portfolios of such intermediaries are publicly reported and their value at any time exactly ascertainable, there would seem little scope for rumour or fear to take hold. Certainly if a particular fund manager did significantly worse (better) than average, depositors would find it difficult to distinguish bad (good) luck from bad (good) management, and would probably switch funds in sizeable amounts to the ex post more successful, but such switching of funds between funds would hardly damage the payments' system, rather the reverse.

⁶ Mutual funds seeking to attract depositors, in part on the grounds of an offer to provide payments' services, face a trade-off in this respect. Because of depositors' familiarity with fixed-nominal-value convertible deposits as a basis for the payments' system, some mutual funds, to attract such depositors, have given some commitments to hold the value of their liabilities (normally) at such a fixed nominal value. But this opens them up to runs as soon as the publicly observable value of their assets falls towards, or below, the (temporarily) fixed value of their liabilities. This happened with the UK Provident Institute in April 1986. White (1984, page 707) and Lewis, in personal discussion, have reported such behaviour among mutual funds in the US and Australia respectively.

There would still be a possibility of a sharp general fall in market values leading depositors to shift en masse out of market valued unit holdings into the fixed nominal value numeraire, thereby forcing the collective investment funds to have to sell further assets, and thereby deepening the asset price depression. Unlike the case of a run on the banks, which raises the subjective probability of failure elsewhere, and thus reduces the expected return on holding deposits, at least the fall in market values on the assets in the portfolio of the mutual fund should tend to increase the expected running yield on such units, and thus act as an offset to the inducement to hold cash. Moreover, it would still be possible for the authorities, perhaps the Central Bank, to undertake open market operations to offset the shift of unit holders into cash, possibly by buying the assets, say equities, that the funds were selling. There are precedents for such actions: at one time the Japanese intervened to support Stock Exchange values.

Thus a monetary system in which transactions' services were provided to unit holders of collective investment mutual funds would seem inherently safer and more stable than the present system, in which such services are provided to (a sub-set of) bank depositors. Indeed, the nature of bank portfolios, largely filled with nonmarketable assets of uncertain true value held on the basis of nominally fixed value liabilities, would seem remarkably unsuited to form the basis of our payments' systems. Why did it develop in this way? The answer is, I think, to be found in the accidents of historical evolution. Broad, well-functioning, efficient asset markets are a reasonably recent phenomenon. Because of people's need both to borrow and to find a secure home for savings, banks developed well before mutual collective investment funds. The historical form of bank development led them inevitably into the payments' business. Thereafter, the economies of scale involved in the existing structure of the payments' system, the clearing houses, branch networks and the intangibles of public familiarity and legal and institutional framework, left the banks largely—indeed in some Anglo Saxon countries absolutely—unrivalled in the provision of payments' services.

Owing to the various innovations noted earlier, such bank monopoly of the payments' system may now be coming to an end. The authorities should welcome the opportunity to encourage the development of a safer payments' system. They should certainly not put obstacles in the way of properly-run collective investment funds offering payments' services. Indeed there is a question exactly what concern the authorities (and/or the Central Bank) needs to feel about the amount of monetary units thereby created, and with the state of the intermediaries creating them.⁷ So long as such intermediaries abided by their deeds of establishment and restricted their investments to marketable securities, of a certain class, with the value of the units adjusted continuously in line, solvency should never be in

⁷ There would still have to be protection against fraud, but that is a common requirement, not particularly related to the provision of transactions' services.

doubt, and would not be affected by the additional offer of payments' services. Similarly liquidity would be assured by marketability. So it is not clear why a Central Bank should need to impose *any* additional regulation/supervision over mutual funds offering payments' services.

Moreover, in a world where payments' services were predominantly provided by monetary units of collective investment funds rather than by banks,⁸ why should the authorities pay any particular attention to the quantity of money itself, particularly since its nominal value would shift automatically with asset market prices? In such circumstances how would the quantity of money be measured? Indeed, the intuition of this Section is that the monetization of assets is *not* necessarily limited to a restricted set of financial intermediaries, i.e. banks. A much wider range of financial intermediaries could, in principle, monetize a much wider set of assets than is currently done. Under these circumstances the definition of money would either have to contract, to become synonymous with the dominant, 'outside', base money, assuming that such still continues to exist,⁹ or become an amorphous concept almost devoid of meaning.

3. Bank portfolios and central bank support

It would appear, therefore, that the provision of payments' (monetary) services on units offered by collective investment intermediaries would *not, ipso facto*, require the involvement of the authorities (the Central Bank) to monitor and regulate the provision of such services. The next question is whether the withdrawal of commercial banks from the provision of payments' services, (so that demand deposits, NOW accounts, and the like were no longer offered), would absolve the Central Bank from its central concern with the well-being of the banking system. If banks offered only

⁸ Something of a half-way house between a monetary unit and a bank demand deposit would be an *indexed* demand deposit provided either by a bank or another intermediary. It might actually be slightly *more* difficult technically to organize payments services on the basis of these, than on mutual funds invested in marketable assets, since the latter are continuously revalued while the former have (partly unanticipated) jumps on discrete occasions with the publication of the (RPI/CPI) price index to which the deposit was related. Again payment might only be guaranteed up to some minimum real, or nominal, balance. Some way would also have to be found to allow continuous revaluing of the deposits through the month in line with the anticipated change in the forthcoming RPI. Still, these technical problems should be surmountable. Given that there are fiscal advantages to (most tax-brackets of) depositors in holding indexed rather than nominal deposits, (i.e. no Capital Gains Tax on the inflation element in the indexed deposit; whereas income tax on the whole nominal interest on ordinary deposits is charged less the allowance given against bank charges), and that, in the UK, riskless short-term assets for such an intermediary to hold exist in the form of Government indexed bonds, it is surprising that no intermediary has yet started to offer indexed banking, with both liabilities and assets in indexed form. Perhaps the most likely reason, besides inertia and set-up costs, is that intermediaries basically require a combination of riskier and higher yielding assets, together with safe assets, to hold against liabilities, all denominated in the same form. The disincentive for intermediaries in the UK from setting up as indexed bankers is an apparent absence of borrowers prepared to take loans in indexed form: why that should be so is beyond the scope of this paper.

⁹ For surveys of this latter issue, see White (1984) and McCallum (1985).

time deposits, C.D.s, etc., leaving payments' and transactions' services to others, would there be any need for special support for the banking system?

The answer to this, I believe, is that cessation of payments' services would make little difference to banks' riskiness or to the real basis of Central Bank concern with the banking system. There is little, or no, evidence that demand deposits provide a less stable source of funds than short-dated time deposits, C.D.s or borrowing in the inter-bank market; rather the reverse appears to be the case.¹⁰ Recent occasions of runs on banks have *not* involved an attempt by the public to move out of bank deposits into cash, but merely a flight of depositors from banks seen as now excessively dangerous to some alternative placement (not cash). The Fringe Bank crisis in 1973/74 in the UK, and Continental-Illinois, are instances of this, and earlier U.S. historical experience examined by Aharony and Swary (1983) points in the same direction. Earlier, it was suggested that flows of funds from one collective investment fund to another would *not* have damaging repercussions for the payments' system, were such funds offering monetized units and providing the (bulk of) such services. Yet I shall argue that, even were banking to be entirely divorced from the provision of payments' services, such flows between banks would be extremely damaging for the economy, and would require a continuing support role for a Central Bank to prevent and, if necessary, to recycle such flows.

The reasons why this is so are to be found in the fundamental *raison d'être* of banking itself. In particular, consider why there is a need for banks to act as intermediaries in the first place? Why cannot people simply purchase the same diversified collection of assets that the bank does? There are, of course, advantages arising from economies of scale, and the provision of safe-keeping services, but these could be obtained by investing in a collective investment fund. The key difference between a collective investment fund and a bank is that the former invests entirely, or primarily, in marketable assets, while the latter invests quite largely in non-marketable (or, at least, non-marketed) assets.

Why do borrowers prefer to obtain loans from banks rather than issue marketable securities? The set-up costs required to allow a proper market to exist have represented, in practice, formidable obstacles to the establishment of markets in the debt and equity obligations of persons and small businesses. Underlying these are the costs of providing sufficient public information to enable an equilibrium fundamental value to be established (e.g. the costs of issuing a *credible* prospectus), and the size of the expected regular volume

¹⁰ Of course the risk of a run still depends, in part, on a maturity transformation by the bank, with the duration of liabilities being generally shorter than that of assets. But even if there was *no* maturity transformation, a fall of asset values relative to the nominally fixed value of liabilities would make depositors unwilling to roll-over, or extend, further funds to the bank, except on terms which made such depositors preferred, earlier creditors (than depositors with later maturities), a course which would be subject to legal constraint. So, the absence of maturity transformation would delay, and slow, the development of a run, but would not stop depositors from running when, and as, they could.

of transactions necessary to induce a market maker to establish a market in such an asset. In this sense, as Leland and Pyle (1977), Baron (1982) and Diamond (1984) have argued, the particular role of banks is to specialize¹¹ in choosing borrowers and monitoring their behaviour. Public information on the economic condition and prospects of such borrowers is so limited and expensive, that the alternative of issuing marketable securities is either non-existent or unattractive.

Even though banks have such an advantage (*vis à vis* ordinary savers) in choosing and monitoring prospective borrowers, they too will be at a comparative disadvantage, compared with the borrower, in assessing the latter's condition, intentions and prospects.¹² Even though there would be advantages in risk sharing resulting from extending loans whose return was conditional on the contingent outcome of the project for which the loan was raised, it would reduce the incentive on the borrower to succeed, and the bank would have difficulties in monitoring the *ex post* outcome. Businessmen, at least in some countries, are sometimes said to have three sets of books, one for the tax inspector, one for their shareholders, and one for themselves. Which of these would the banks see, or would there be yet another set of books.¹³

In order, therefore, to reduce information and monitoring costs, banks have been led to extend loans on a fixed nominal value basis, irrespective of contingent outcome (with the loan further supported in many cases by collateral and with a duration often less than the intended life of the project to enable periodic re-assessment). Even so, both the initial, and subsequent, valuation of the loan by a bank does depend on information that is generally private between the bank and its borrowers, or, perhaps, known only to the borrower.¹⁴ Thus the true asset value of the bank's (non-marketed) loans is

¹¹ An interesting question, suggested to me by Professor Mervyn Lewis, is to what extent banks obtain useful information about borrowers' conditions from their (complementary) function in operating the (present) payments system. In so far as banks do obtain information that is useful for credit assessment from the handling of payment flows, this would provide a stronger economic rationale for the present combination of banking functions. Research into, and analysis of, the customarily private and confidential question of (informational) relationships between banks and their borrowers needs to be developed further, and we cannot say with any confidence now how far banks benefit in seeking to assess credit worthiness from their provision of payments services.

¹² At least this will be so until, and unless, a large borrower runs into prospective problems in meeting contractual repayment obligations. To a casual observer, banks seem to try to limit the informational costs of making the initial loans, e.g. by resorting to standardized grading procedures; but once a (sizeable) borrower runs into difficulties, the bank responds by greatly increasing its monitoring activities, becoming often very closely involved with that borrower's future actions.

¹³ This is not, as it happens, a purely hypothetical question. The Muslim prohibition on interest payments is causing certain Islamic countries to require their banks to issue *Mushariqi* loans, which do represent a form of equity share in the project being financed. Students of banking theory and practice might find it informative to give closer study to Islamic banking. See, for example, the article, 'Islam's Bad Debtors' in the *Financial Times*, April 8, 1986.

¹⁴ Much recent literature on banking and credit has assumed that the borrower's selection and management of projects may not be observed by any outside party, even the banker himself: see, for example, Stiglitz and Weiss (1981, 1983).

always subject to uncertainty, though their nominal value is fixed, subject to accounting rules about provisions, write-offs, etc. Under these conditions it will benefit both bank and depositor to denominate deposit liabilities also in fixed nominal terms. The banks will benefit because the common denomination will reduce the risk that would arise from reduced covariance between the value of its assets and of its liabilities (as would occur, for example, if its liabilities were indexed, say to the RPI, and its assets were fixed in nominal value, or, alternatively if its assets fluctuated in line with borrowers' profits while its liabilities were fixed in nominal value). The depositor would seek fixed nominal deposits from the bank for the same reason that the bank sought fixed nominal value terms from borrowers: depositors cannot easily monitor the actual condition, intentions and prospects of their bank, so that information and monitoring costs are lessened, and the incentives on the bank to perform satisfactorily are increased, by denominating deposits in fixed nominal terms.

The combination, however, of the nominal convertibility guarantee, together with the uncertainty about the true value of bank assets, leads to the possibility of runs on individual banks and systemic crises. Moreover, once the nominal convertibility guarantee is established, the effect of better public information on banks' true asset values is uncertain. For example, 'hidden reserves' were once justified by practical bankers as likely to reduce the likelihood of runs and to maintain confidence. Again, Central Bankers have been, at most, lukewarm about allowing a market to develop in large syndicated loans to sovereign countries, whose ability to service and repay on schedule was subject to doubt, because the concrete exhibition of the fall in the value of such loans could impair the banks' recorded capital value, and potentially cause failures. An economist might ask who was being fooled? Yet on a number of occasions financial institutions have been effectively insolvent, but, so long as everyone steadfastly averted their gaze, a way through and back to solvency was achieved.

Be that as it may, under these conditions of private and expensive information, and fixed nominal value loans, any major flow of funds between banks is liable to have deleterious effects on *borrowers*, as well as on those depositors who lose both wealth and liquidity by having been left too late in the queue to withdraw when the bank(s) suspended payment. Even if the prospects of the borrower of the failed bank are at least as good as on the occasion when the borrower first arranged to loan, the borrower will have to undergo expensive search costs to obtain replacement funds. Assuming the borrower searched beforehand, and found the 'best' deal, the likelihood is now that the borrower will obtain less beneficial arrangements.

Bank runs, however, tend to happen when conditions for many borrowers have turned adverse. The suspicion, or indeed the knowledge, of that is what prompted the run in the first place. Accordingly the expected value of the loans of many borrowers will have fallen. If they are forced to repay the

failing bank, by the receiver to meet the creditors' demands,¹⁵ they would not be able to replace the funds required on the same terms, if at all, from other banks. Thus bank failures will place the economic well-being, indeed survival, of many borrowers at risk, as well as impairing depositors' wealth.¹⁶ Consequently flows of funds from suspect banks to supposedly stronger banks can have a severely adverse effect on the economy, even when there is no flight into cash at all. A Central Bank will aim to prevent, and, if that fails, to recycle such flows—subject to such safeguards as it can achieve to limit moral hazard and to penalize inadequate or improper managerial behaviour.¹⁷

4. Conclusion

To summarize and conclude, it is often claimed that banking is special and particular, requiring additional regulation and supervision by a Central Bank, *because* it is unique among financial intermediaries in combining payments' services and portfolio management. I hope to have demonstrated that this is false. Monetary payments' services not only could be provided, (and are increasingly being provided), by other collective-investment funds, but could also be provided more safely than by banks. Moreover, the characteristics of such funds are such that their entry into this field (the provision of monetary services) need not cause the authorities (the Central Bank) any extra concern; they could be left to operate under their current regulations. Similarly, if banks were to abandon the provision of payments' services, and restrict their deposit liabilities to non-checkable form, it would not much reduce bank riskiness. They would still require the assistance of a Central Bank.

All this follows because the really important distinction between banks and other financial intermediaries resides in the characteristics of their asset portfolio, which, in turn, largely determines what kind of liability they can offer: fixed value in the case of banks, market-value-related for collective investment funds. It is these latter differences, rather than the special

¹⁵ Insofar as constraints, either external or self-imposed, exist which stop the receiver from calling in loans outstanding at failed banks, this source of potential loss to society would be lessened. Even so, at a minimum, the borrower would lose the ability to obtain *additional* loans from the failing bank, and that ability could be crucial to survival in a cyclical depression.

¹⁶ This feature of banking, whereby calling of loans by failed banks causes economic disruption, has been recently noted and modelled by Diamond and Dybvig (1983), and by Bernanke (1983).

¹⁷ Even in the absence of a Central Bank there will be some incentives for commercial banks to act, either independently or collusively, in the same way, i.e. to recycle deposit flows to banks facing liquidity problems and to support, or to take over, potentially insolvent banks. But the public good aspect of such actions will be less compelling to competing commercial banks, (e.g. why help a competitor that got into trouble through its own fault?), and the risk to their own profit positions of such action more worrying to them than to a Central Bank. Moreover the usual circumstances of a rescue, at very short notice under conditions of severely limited information, makes it more difficult for commercial banks to act collusively, than for an independent Central Bank to act swiftly and decisively.

monetary nature of certain bank deposits, that will maintain in future years the distinction between bank and non-bank financial intermediaries.

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