Further Considerations on the Determinants of the Volume of Bank Deposits

1. — Professor E. Schneider, in his article on *The Determinants of the Commercial Banks' Credit Potential in a Mixed Money System* (1), has reopened from first principles the problem of the factors which determine the volume of bank deposits. In doing so he has taken a long step forward towards the reconciliation between the different views that still exist on certain aspects of the problem. No less significant is the contribution made by Professor R. S. Sayers by his paper on *The Determination of the Volume of Bank Deposits: England 1955-56* (2). In this paper he has aligned himself with Professor Schneider, riferring expressly to some of my writings on the subject, and in particular to my study on *Money Supply and Interest Rate in Recent Macro-Economic Conceptions* (3).

The articles of both Schneider and Sayers confirm that it is necessary to distinguish between:

(a) what may be the « virtual » weight of the various elements which come into play in the process of deposit formation according to the different circumstances that may be assumed;

(b) what may be the « real » weight which those elements will have in the circumstances that do occur in actual situation in given countries and at specified times.

From the point of view of (a) both Schneider and Sayers admit that the volume of bank deposits is not determined solely by the monetary authorities and by the banks, inasmuch as it also depends on the public as creditor of the banks. Thus they admit that no general validity can be assigned to the « Keynes' argument » which I questioned, and according to which, as the argument was originally formulated by Robertson:

« The public as a whole cannot directly determine the size of the aggregate of bank deposits, which lie mainly at all events within the discretion of the banks » (4).

This is recognised by Schneider when he remarks, in his section 5, that the formula which he has adopted for linking the volume of deposits to the factors that determine it is identical with mine. That is to say that for Schneider too the public's behaviour, regarded by him as its « payment habits », constitutes (see his section 8) one of the « factors determining the credit potential and also the absolute magnitude of the corresponding volume of deposits ».

And it is recognised by Sayers when he states that, according to the habits of the public:

« ... substantial variation in the total of bank deposits can occur independently of any initiative on the part of the banks » (section II).

Thus such difference of views as still remains relates only to point (b). To come down from abstract consideration of virtual movements in deposits to realistic study of their actual movements, there has been an attempt to establish that in reality the effect

(1) Quarterly Review of the Banca Nazionale del Lavoro, No. 34, September, 1955.

(2) Quarterly Review of the Banca Nazionale del Lavoro, No. 35, December, 1955.

(3) Quarterly Review of the Banca Nazionale del Lavoro, No. 30, September, 1954.

(4) *Banking Policy and the Price Level*, 1926, pp. 52-53.

of the public's behaviour is in general almost irrelevant, and that in any case it can be counterbalanced by appropriate credit policy on the part of the monetary authorities.

Schneider tried to show this when he brought out the fact (in his section 11) that the public's behaviour, as revelated by the relation between the notes and coins in circulation on the one hand and sight deposits on the other, did not appreciably change in Germany between 1949 and 1954. And he went on to assert (in section 12) that « every variation which affects the credit potential in a direction not desired by the Central Bank can be offset by the Central Bank » through use of present-day instruments of credit policy.

A similar conclusion was reached by Sayers; he was dealing with the special conditions that prevailed in England and Wales in 1955 and 1956, and the position which he takes is less rigid than that taken by Schneider. Sayers indeed admits (in IV and VI) that in present circumstances even in England the public may influence (he says in fact « choose », but not « determine ») the volume of bank deposits. This is because according to him the process of deposit creation is now no longer limited, as it used to be, by the « cash ratio » or cover in « bank notes » (5), but is limited by the « liquid assets ratio », whose level is affected by the behaviour of the public as buyer or seller of securities according to the rate of interest imposed by the Central Bank. Sayers also admits (in II) that the public's behaviour in the choice between deposits and bank notes has varied even in England during the last few years, now in one direction and now in another, owing to the effect of numerous incidental circumstances. But, he says, these variations in the public's behaviour had no appreciable influence on the volume of deposits because the Bank of England managed to neutralise them, giving the banks through the money market an adequate supply of cash for cover purposes. All things considered, therefore, he thinks that even though there may be ground for taking account of the public's influence on the volume of bank deposits in the light of recent monetary movements in Italy and other countries, to do so would amount to an « unimportant nicety » in the case of England. Although this conclusion is expressly related to present conditions in England, it appears to be regarded as applicable also to past conditions there, and indeed as justifying the very slight importance hitherto attributed by British economists to the influence which the public, as creditor of the banking system, exerts on the volume of deposits. Thus after all Sayers' position would seem to agree with Schneider's; and Sayers would appear to agree with Schneider in assuming that in fact the influence of the public can be counterbalanced and neutralised by the Central Bank.

But the question now is whether this power of offsetting or « neutralisation » , held by the Central Bank, can be exercised nearly without limit, and in any event so as in general effectively to counterbalance the public's influence on the volume of deposits. That is the question to which I shall try to give an answer in this article.

2. — There would seem to be no need for me to repeat that, since the gold standard is now out of action, Central Banks can supply the other banks directly or through the money market with so much money that, as Sayers writes in section IV, « shortage of cash ceases to have any power directly to influence the state of credit ». That can be said not only of England, but also of any other country having a Western-type banking structure. Whatever may be the habits which have come to prevail in the various countries as to use of the « old » or « new » instruments of monetary policy, the Central Bank can always expand the « bank note » circulation; thereby it can increase the banks' excess cash, and hence the banks' total lendings to the

(5) « Bank notes » are regarded here and elsewhere in this article as including the other « claims » on the Central Bank.

public, thus ultimately causing deposits to expand.

It is just as in simple arithmetic, where, when two factors are multiplied, changes in the multiplicand can always be offset by suitable changes in the multiplier. So in the much more complex process of deposit creation changes in one of the factors, the public's behaviour, can be offset or neutralised by changes in the right direction and of the right amount in one of the other factors, namely in the « bank note » circulation (6). That is how Central Banks can of their own initiative promote deposit creation. In fact, to confine oneself simply to the technical banking aspects of such creation, one could even say that under a system of inconvertible « bank notes » the Central Banks can cause deposits to expand without limit (7).

3. — Obviously however it is not enough when considering the process of deposit creation to look only at what one may call the « mechanical » aspects of that process. It is not enough to look only at what appears « on the surface » of bank balance sheets, and at the relationships linking the money and capital markets. One must also look at the effects on the underlying « basic » relations in the economic system as this really exists.

From this point of view it has long been known that Central Banks are subject to limits in the creation of deposits and that, if they were to exceed those limits, they would disturb economic and monetary equilibrium. Even for Central Banks there is a « sound barrier » which it is quite dangerous to go through. It is not of course a matter of limits which are fixed or precisely determined. The limits are wider or narrower according to manifold circumstances, one of the most important of these being the public's behaviour.

This can also inferred from Robertson's well-known proposition according to which, as formulated by Keynes:

> « the volume of cash balances depends on the decision of the bankers and is created by them; the volume of real balances depends on the decisions of depositors and is created by them » (*Treatise*, Ch. 14).

This means that the public can indeed be « induced » or « forced » to hold a greater volume of bank deposits, as expressed in nominal amount. But it also means that according to the public's behaviour the increase in volume can remain wholly or partly nominal owing to the effect of a simultaneous rise in prices, leading to greater or lesser disturbances of economic and monetary equilibrium. In fact, whatever importance may have to be assigned to the school of thought led by Hayek which so emphasises the « forcing » of saving as a basic element in economic crises, one cannot ignore the fact that expansion of the volume of bank deposits has an essentially different character, and that it tends to preserve economic and monetary equilibrium in proportion as it is or is not accompanied by « voluntary » saving and not by « forced » saving.

It cannot indeed be held that, if deposit expansion is not accompanied by « voluntary » saving on the public's part, there is bound to be « forced » saving. Deposit expansion can in fact be effected and is normally effected, as already pointed out on various other occasions, without any change in total savings; it is suffi-

(6) It would not however seem right to say, because of this, that the public's behaviour does not influence the volume of deposits or that its influence is irrelevant. Nobody would dream of saying that because changes in the multiplicand can be offset by changes in the multiplier the multiplicand does not influence the product.

Apart from any question of words, however, the fact remains, as will stated in the text, that the public does make its influence felt. It does so inasmuch as according to the public's conduct the limits become more or less noticeable within which the Central Bank can create deposits without disturbing economic and monetary equilibrium; and, also according to that conduct, it becomes necessary for the Central Bank to issue more or less « bank notes » in order that a given effect on the volume of deposits shall be realised.

(7) In the text I refer expressly to « creation », that is to expansion of deposits, since that is the case to which Schneider and Sayers chiefly refer. In point of fact the public's influence makes itself felt not only through an increase in deposits, but even more through a decrease in them. The possibility of such decrease should not be overlooked, even though it has not occurred for any length of time during the last few years of persistent monetary « expansion ».

cient that there should be an increase in the « degree of banking mobilisation » of existing real assets, which may in turn be due to closer interlacing of the « chains of credit relationships » which constitutte the banking system. That is indeed one of the chief circumstances that give greater elasticity to the limits up to which deposit creation on the initiative of Central Banks can be pushed without disturbance of economic and monetary equilibrium. These limits cannot be determined *a priori* by any general formula. The monetary authorities intuitively perceive them through their art of « control ».

Yet, while these limits are elastic, they do exist; and they are decisively affected by the public's behaviour. Thus they become progressively narrower in proportion as it is necessary not to « promote » but to « counterbalance » changes due to the public's initiative. Indeed, given equality of all other circumstances (includind of course the behaviour of the ordinary banks) the limits in question may remain almost unnoticed as long as the Central Banks' action is backed by the public's behaviour. But they become more or less definitely felt when the public acts in what may be called a neutral manner; and they become pressingly felt when the public is acting in a sense opposite to that desired by the Central Bank, that is to say when, as in the case considered by Schneider and by Sayers, the influence of the public has to be neutralised (8).

4. — In line with these concepts one must also bear in mind that the amount of « bank notes » which have to be put into the market in order to produce any given expansion in the volume of deposits varies greatly according to the public's behaviour: that is to say, according to whether the public's action has to be promoted or offset.

Thus, where the increase in the volume of deposits is due to the public's initiative (9), that increase may persist without any expansion in « bank notes ». Where on the other hand the increase is due to the Central Bank's initiative, some expansion of « bank notes » is needed not only to start the increase of deposits, but also to meet the « second-round » needs mentioned by Sayers (in section II). That is to say, it is not enough to enable the banks to increase their own cash as cover for the greater volume of deposits; one must also enable the public to dispose of a greater volume of « bank notes » as against the greater volume of deposits. Clearly the amount of « bank notes » which has to be put into the market will progressively increase as one passes from one to the other of the three cases considered above (10). This increases the possibility of going beyond what may be called the proper limits if it is desired in any event to neutralise the public's influence on the volume of deposits.

5. — From the considerations stated in sections 3 and 4 it can accordingly be inferred that the Central Bank's power to neutralise is anything but unlimited, of course on the

(8) The three cases considered above correspond respectively, according to the terms used in *Money Supply*, to an increasing, constante or diminishing « degree of preference » on the public's part (Kp) in face of an increase in the total amount of « bank notes », that is to say of « claims on the Central Bank » (B).

(9 As in the first of the three cases considered by Sayers in section II or, in more general terms, in case of variation in the coefficient « c » (or « k ») in Schneider's formula or « Kp » in mine.

(10) This is intuitive. It can however be easily confirmed from my formula $D = B : \left(\frac{1}{Kp} + C\right)$. If in fact we neglect changes in the cover ratio (C), then any given ratio of increase in the volume of deposits (D) implies the same ratio of increase in the total amount of « bank notes » (B) until such time as the public behaves neutrally and its « degree of preference » (Kp) remains unchanged. On the other hand the ratio of increase in bank notes will have to be higher (or lower) according as the « degree of preference » decreases (or increases).

Suppose for example that against total « bank notes » 100 there are deposits 200 with a « degree of preference » 2.5 and a cover ratio 10%. Then, for deposits to rise by 10% (that is by 20), there would have to be a similar 10% increase in total « bank notes » as long as the « degree of preference » remained unchanged at 2.5. On the other hand it might be enough for « bank notes » to go up by 2% if at the same time the « degree of preference » increased by 10% to 2.75. And per contra there would have to be an increase of 20% in « bank notes » if the « degree of preference » decreased by 10% to 2.25.

assumption that it wishes to avoid disturbing economic and monetary equilibrium. That is to say, the power in question can be determined and established as existing with unqualified certainty only within somewhat modest limits, in regard to seasonal or at least incidental fluctuations rather than to lasting reversals of tendency.

One must therefore wonder whether the English conditions of the last few years which Sayers has so lucidly analysed really go to prove that it would be an « unimportant nicety » to take account of any changes which there may be in the public's behaviour, or whether on the other hand the neutralisation of those changes through the Bank of England's « ability and willingness » to keep the banks always supplied with enough cash to cover their deposits may not have been a factor producing the opposite effect as regards the maintenance of monetary equilibrium in its domestic and international aspects (11).

6. — Then the general thesis that the public's behaviour is irrelevant to variations in the volume of deposits would be based not on the fact that changes in that behaviour can be neutralised, but on the assumption that the behaviour is stable.

The upholders of that thesis in fact assume that the public's behaviour in choosing between deposits and bank notes is determined only by the needs for using the one or the other in the payments which have to be made. An hence, since there is relative stability in such use, they argue, one ought to be able to rely a priori on correlative stability in the public's behaviour. This argument was first stated by Robertson, with unexceptionable logic. It was then repeated by Schneider in the terms which I set forth at length in *Money Supply*, III, 4; and now it is taken up again by Sayers, although only in passing, in his section II.

But, as I have previously stated, the ratio between deposits and « bank notes » held by the public, on which has ultimate effect the public's behaviour in the process of bank deposit creation, does not depend only on the public's payment habits; it also depends on all the manifold factors which affect the public's « willingness » and « ability » to grant credit to the banks, as holder of the deposits that are created. The factors which affect the changes in that ratio in fact include the public's choices not only as to whether to use « legal tender » or « bank money » in payments, but also as to whether to save or not on their current income. Besides this there are the choices as to the use to be made of fresh or already existing savings in view of the various motives (not only « transaction » motives but also « precautionary » or « speculative » motives) which may cause people to prefer to keep their savings in money form, or at least in « liquid » form, rather than to put them into investments which bind the investor for the future (12). So then, if one

(11) In any case, apart from whether such limits exist and apart from where they lie, it is certainly useful to know the current direction and weight of the public's influence which has to be counterbalanced by Central Bank action. That would be one purpose of the investigation which I advocated into the public's « degree of preference » in the choice between deposits and bank notes. This « degree of preference » is determined by the ratio between total deposits and the « bank notes » in the public's hands. Its significance is different from that of the usual ratio between total deposits and total « bank notes ».

(12) As Schneider points out at paragraph 8 (c), the public can make its own conduct felt by determining « what percentage ratio of the credits granted by the commercial banks is withdrawn by the borrowers in Central Bank money and remains outside the banks ». This allows for the public's behaviour as shown through use in various ways of the credit granted by the banks on a « given » cash surplus in the banks' hands. But it is not enough. One must also consider the influence exercised by the public on the formation of that cash surplus, which latter is also « given » as a result of the public's behaviour with regard to the payment media issued by the Central Bank, and particularly in regard to the payment media put into the open market. One must therefore complete Schneider's basis proposition at 8 (a) by saying that *the excess cash is a parameter the fixation of which depends on Central Bank as well as on the public's behaviour.*

It must further be observed that in both cases the public's influence is regarded in a negative sense; that is as limiting the opposite influence of the Central Bank or ordinary banks. Generally indeed the public's influence is considered only from this negative angle, as that of « leakage » according to the current expression (see for example *Samuelson* in *Economics*, Ch. 14, B). But the public can also make the weight of its influence on the volume of deposits felt in a positive sense. It does so by choosing « to hold less cash and more bank deposits », as pointed out by Sayers at II, 1, or by holding more bank deposits and the same amount of cash. In my view this is what most often happens when the volume of deposits increases and this increase is accompanied by perhaps only a slight expansion in « bank notes » or by a decrease in the cover ratio.

One should also consider the alternative choices offered by the capital market, as pointed out by *J. G. Gurley* and *E. S. Shaw* in *Financial Aspects of Economic Development*, « American Economic Review », September, 1955. They expressly emphasised the importance of the public's preferences in the creation of credit in deposit or bank note form as compared with the other possibilities offered by the capital market. They wrote: « Whether it is the banks or others which create credit in any period depends not on the banks' role in administering the payments machinery, but instead on the preference of spending units for deposits and currency to hold as against other financial assets to hold » (page 522).

keeps to *a priori* arguments, there is no ground at all for holding that the public's behaviour is stable and therefore irrelevant (13).

7. — That is why, as I said at the outset, the contributions of Schneider and Sayers are of considerable significance because they do not confine themselves to *a priori* arguments but try to form concrete ideas of what has really happened and is really happening in Germany and England respectively.

In this sense Sayers' paper is of value in recording the main features of the English money market. Sayers however did not set out to measure quantities as I had hoped. Hence he does not tell us in what direction or to what extent the public's « degree of preference » really varied in England in the choice between deposits and bank notes. Nor does he tell us the virtual weight of such variations in the actual conditions prevailing in England (14). The result is that so far as I know the only figures so far available for England are those which were collected for the years 1925 to 1930 by Meade. Meade's conclusions, which I set out at length in *Money Supply*, IV, 1, seem to indicate that the public's behaviour is not negligible. Thus they do not appear to agree with the conclusions of either Sayers or Schneider.

What Schneider has done is to take accurate figures relating solely to sight deposits. He then arrives at the statement, mentioned at the beginning of this article, that the public's behaviour did not appreciably change in Germany between 1949 and 1954. That however does not rule out the possibility that further investigations, based not only on sight deposits (for the reasons set forth in my Explanatory Addendum), may yield results differing less from those which I have reached for Italy.

In any case it would be desirable to conduct further investigations for other countries too (15), as well as, of course, for periods differing from those covered by the studies already mentioned. That is why I should like to repeat the conclusion reached in my previous article, hoping that further contributions may provide econometrical data as to actual observed movements, and may thus improve our

(13) The ratio between deposits and « bank notes » in the public's hands, which one must take into account in order to determine the effect of the public's reveals (as was pointed out in *Money Supply*, IV, 6) only a part of that influence. This is because it leaves obscure, or in other words makes « implicit », the influence of the changes in absolute amount of the credit which the public grants to the banks by holding deposits. It is precisely these changes in the absolute amount of credit granted by the public to the banks, no less than changes in the ratio, that require that the public be « willing » and « able » to induce such changes in the sense contemplated in the text of the article. In this connection importance may also by attached to the well-known considerations as to « induced » or « forced » saving, the effect of which would be to enable the public to hold a larger total of deposits than it had originally intended.

This need to take account of the public's « willingness » and « ability » is overlooked if the ambiguous expression « creating deposits out of nothing » is assumed to mean ability to create deposits without assistance from the public's behaviour. To assume this would be a mistake. Creating deposits « out of nothing » is rather meant in the sense that it is possible to have an increase in deposits without a correlative increase in the total real assets on which the credit edifice is constructed.

(14) As is brought out in *Money Supply*, V, 2, the virtual weight of the public's « degree of preference » (like that of every other factor in being) is of greater or lesser relevance according not only to its own value but also to the value of the other factors. Thus, as I there pointed out in the light of the situation of 1938 in the United States, the public's behaviour can sometimes become quite irrelevant even if it does so for reasons different from those stated by Sayers.

It would not however be justifiable to draw general conclusions from particular facts relating, as in the study by Sayers, to a rather brief period.

(15) It would of course be particularly interesting to extend the desired investigations to France in view of the masterly contributions of Rueff. In *La régulation monétaire et le problème institutionnel de la monnaie*, Paris, 1953, on pages 26 & sqq., he has already thrown light on « the mechanism by which individual will influence the existing quantity of money » in accordance with the proposition which I maintain.

the banks' credit potential is decisively affected by the public's behaviour as well as, of course, by the Central Bank's control and by the behaviour of the ordinary banks. That is why I think that my attempt to measure accurately the various influences may help towards making clear what really are in Italy, and what may really be in other countries, the Central Bank's powers to « control » the banking system. There is in fact ground for hoping that further improvement and extension of such statistical assessments may provide useful data which will help to interpret, and possibly even to forecast, the course of the banks' « deposits » and « lendings » with due awareness of the importance of the various relevant factors.

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