

**THE FEDERAL
RESERVE SYSTEM**

*Banking in
the United States*

THE FEDERAL RESERVE SYSTEM

By
J. H. JONES, M.A.

*(Professor of Economics and Head of
the Commerce Department,
University of
Leeds)*

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Preface

THE following articles, which appeared in *The Accountant* between 4th September and 16th October, 1926, are reprinted almost exactly as they were written. As they assume no knowledge of recent developments in American banking, and were intended for those readers of the journal who merely desired sufficient information to enable them to appreciate the effects of such changes upon the economic situation, it is thought that they may prove useful to others who are not necessarily interested in the technicalities of banking. The financial policy of the United States is bound to exercise considerable influence upon the economic future of Europe.

J. H. J.

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THE FEDERAL RESERVE SYSTEM

I

INTRODUCTION

The Federal Reserve Act of the United States of America was passed in 1913, and the banking system which it established came into operation in November of the following year. Before the Act was passed American banking, which had already been the subject of much legislation, was regarded by many as the worst of any in the industrially important countries of the world. The panic of 1907 revealed its inadequacy to meet the needs of the community and made far-reaching changes inevitable. A Monetary Commission was appointed, the report of which led to the adoption of new banking principles and the establishment of the Federal Reserve System. During the world war the new system was subjected to tests which differed materially from those which had been anticipated, but it proved equal to the heavy strain imposed upon it; since the war it has been subjected to, and has survived, the ordinary tests of the business community. The American banking system is now said to challenge comparison with our own. But the circumstances of the two countries differ so profoundly that such comparison would be futile; moreover, the American system is still so new that it cannot be said to have withstood the supreme test of a financial crisis or reached its final form. Nevertheless, the experience which it has already acquired contains lessons which may be read with profit in this country.

It is by no means easy for the inhabitants of this island to appreciate the nature of the banking problem as it existed in the United States before the establishment of the Federal Reserve system. England is a small, thickly populated, unitary State with a long banking tradition. The machinery of banking has been slowly perfected by the method of trial and error. The Bank of England was established as early as 1694, and the goldsmith companies of old grew into the bankers of the nineteenth century. Banking was firmly established before the industrial revolution transformed the country. The banks of a century ago were more or less regional institutions created mainly by local capital. They were not, however, necessarily "unit" banks; many companies had established branch banks in villages and small towns within easy reach of the central establishment. During the century that followed amalgamations frequently took place, and at the present time nearly all the banking operations of the community are in the hands of five large joint-stock banks, each of which possesses branches in all parts of the country. The reserves of these banks are deposited at the Bank of England, which thus serves as a bankers' bank and controls the banking reserve of the nation. A century ago the local banks issued their own notes, and loans to customers were usually made in such paper. (The method led to abuses and made inevitable a greater degree of Government control. The Bank Act of 1844 restricted the right to issue notes, and the provisions of that Act, combined with the changes that have since taken place in the control of banking institutions, have now come to mean that the Bank of England is the only note-issuing bank of any importance; all the other banks have ceased to be "banks of issue," and confine their attention to deposit banking, under which a loan usually takes the form of a right to draw cheques.

It will be seen that the English* banking system possesses three important characteristics. The Bank of England alone retains the right to issue bank notes. The Bank of England also acts as a bankers' bank, and holds the reserves in excess of the currency required for ordinary transactions. Finally, the joint-stock banks maintain branches in different parts of the country. The system is thus highly centralised, control being concentrated in London.

Unlike England, the United States of America covers a vast area. Some parts are far more densely populated, and, industrially, more highly developed than others. It is also a federal, not a unitary State; the member States enjoy legislative rights which are jealously guarded. Any form of federal or national legislation which seems to encroach upon the powers of the separate States almost inevitably leads to friction. Some States are predominantly agricultural, others contain large and wealthy manufacturing industries; policies which are approved by one type of State may be condemned by the other. Again, as in all new countries, industry developed more rapidly than banking; facilities for banking were only created as the need arose, and these were often hastily improvised. The banking problem, as a whole, had not been thought out. Finally, the monopolistic movement in manufacturing industry had become so serious a menace to the community that when the present scheme was under consideration any proposal which appeared to favour the growth of large banking combines was regarded with strong disapproval.)

THE PRE-WAR SYSTEM

The currency system was under federal or national control. The gold dollar was (and remains)

*It may be desirable to remind the reader that the Scottish system of banking is controlled by the Act of 1845, and differs materially from the English system.

the unit and standard of value. Gold coins were issued in the form of the eagle (10 dollars), double eagle, half eagle, and quarter eagle. In 1914 the total stock of gold coin and bullion was estimated at about 1,890 million dollars. Standard silver dollars, a relic of earlier days, were also in circulation. These were not redeemable, and as they were no longer coined the amount in circulation had dwindled to about 565 million dollars. Token coins, in the form of "subsidiary" silver (dollars) and alloy completed the coinage of the country. (In addition to metallic money four kinds of paper money were issued by the Federal Government. United States notes, commonly known as greenbacks, were issued during the Civil War, and in 1879 were made convertible into gold.) The amount in circulation (about 346 million dollars) was kept constant, and a sum of 150 million dollars in gold was set aside as reserve. (The second kind of paper money, the Treasury Note of 1890, had almost disappeared. The third and fourth consisted of gold and silver certificates issued against the bullion reserves. In 1914 the total stock of gold coin and bullion amounted to approximately one-half the total volume of money issued by the Government.) (The banking system was somewhat complex. The separate States were so strongly opposed to branch banking that nearly all the thirty thousand banks were "unit banks," that is, they were owned by separate companies. The great majority were either national banks (i.e. registered under the National Banking Act) or State banks (i.e. registered under the laws of the States in which they existed); the small remainder consisted of those trust companies which included banking among their many functions. The national banks were allowed to issue notes against United States Bonds deposited with the Government. The law further required that such banks should maintain a reserve of not less than a specified

proportion of their deposit liabilities. For the purpose of that section of the Act three cities—New York, Chicago, and St. Louis—were selected to act as central reserve cities, the national banks of such cities being termed central reserve city banks; about fifty other cities were known as reserve cities, and the national banks in those cities were termed reserve city banks; all other national banks were known as country banks. Central reserve city banks were required to maintain a reserve of 25 per cent. of their liabilities; reserve city banks were also required to maintain a similar reserve, but one-half of the latter might be deposited with the central reserve city banks. Country banks were only required to maintain a reserve of 15 per cent., of which, moreover, three-fifths might be deposited with one or both of the first two groups of banks. The power to spread the reserve obviously reduced the total effective legal minimum to a level below that actually specified—the reserve of a bank of the first group, for example, was often composed partly of the reserves of banks of the second and third groups.

The differences between national banks and State banks varied according to the laws of the separate States. These were usually less exacting than the national banking law. The amount of capital required to establish a State bank varied, but was never larger than that required to establish a national bank. Again, the latter was required to set aside one-tenth of its net earnings until a sum equal to one-fifth of the capital had been amassed, but the requirements of the State laws varied and were usually far less stringent. (No national bank could incur a single liability in excess of one-tenth of its capital and surplus, or 30 per cent. of its capital stock, but State requirements varied in this respect. State banks, unlike national banks, were usually allowed to lend, for periods not exceeding five years, upon real estate,

and thereby lock up a proportion of their funds. Moreover, they enjoyed greater freedom in dealing with their reserves. Ten States merely required a minimum reserve against demand deposits, while six other States required a lower minimum against time deposits (i.e. those which were only payable on notice of at least thirty days being given) than against demand deposits.)

Such was the skeleton of the system. It will already be evident that it differed from the English system in several respects. In spite of the use of the words "central reserve," the system was essentially decentralised. There was no central bank in the sense in which the term is applied to the Bank of England; the banking reserve was not centralised. Power to issue notes was given to all national banks, large and small, with the result that hundreds of different kinds of notes circulated in the country as a whole, and several in each locality. Finally, branch-banking was, as already stated, conspicuous by its absence. The local bank was an independent venture, and the personal relationship between the banking firm and its client was necessarily much closer than is now possible under the English system. The cheque system was universally practised. It is estimated that about 85 per cent. (in value) of the total exchanges were completed by cheque; about 3 per cent. by the use of notes, and the remainder by the use of metallic money.

DEFECTS OF THE SYSTEM

The defects of the system have been described by many American writers; they were essentially those due to the decentralisation of banking over a very large area which forms a single political unit. In the first place the reserves were scattered and immobile; they could not be concentrated in the hands of a single authority and used, during a crisis, to strengthen the danger points of the

system. Even to their owners the separate reserves were not of much use in time of exceptional need. A large proportion was deposited in other banks and used by the central reserve city banks, particularly those of New York, to finance speculative dealings on the Stock Exchange. These reserves, like the securities which were held by the independent banks and regarded as secondary reserves, could not be realised at a crisis, when nearly everybody wanted to sell and there were few buyers. (In the second place, the supply of credit did not respond to the fluctuating needs of the community. The issue of bank notes, in spite of its many sources, was inelastic, and the seasonal demands of the agricultural industry were met with great difficulty. The deposit credit of the banks was rigidly controlled by the reserve requirements of the law ; when clients needed accommodation they often found that the banks were loaned up, i.e. had already reached the limit permitted by law. The banks were not allowed to accept bills which clients might discount elsewhere, while rediscounting of the paper which they held, though not contrary to law, was strongly discouraged. Clients who were in every way worthy of support thus frequently found themselves unable to obtain credit to tide them over a short period. Moreover, the rate of discount, which was determined by the state of the reserves, fluctuated violently, varied from place to place, and was, on the average, unduly high. (In short, credit, being inelastic in bulk, was uncertain and expensive from the point of view of the individual client.)

(In the third place the system of exchange and transfer of funds from one place to another was cumbrous and often expensive. Although the clearing of local cheques left little to be desired, cheques for out-of-town payments were cancelled but slowly.) It was estimated that at any given moment there were cheques to the value of

300 million dollars in transit from one place to another, the total of such cheques being known as the "float." A charge was usually made for collection, and as this charge varied and in some places was extremely heavy, cheques were often "routed" along the cheapest lines, and the time taken to reach their final destination increased. Further, it was frequently the practice for banks to credit their reserves with the cheques on distant banks immediately upon presentation by clients, and as they were not withdrawn by the paying banks from their own reserves until they were cancelled, the same sum was represented, for a considerable period, in two reserves. It will thus be seen that the total real reserves of all the banks were considerably less than the specified total, which included the same sum twice. (Again, since the demands for currency varied, being heaviest in one place at one time (say the wheat harvest) and in another place at another time (say the cotton harvest), a large amount of currency was constantly being moved, and the expense of packing, insurance, and transport was by no means inconsiderable.) In the case of foreign trade, payments were made by means of bills on London and, therefore, called for an additional foreign exchange operation. It was stated, moreover, that such a method of payment was advantageous to trade competitors in this country in that the bills of lading and other documents revealed the nature and destination of the American export trade.

In the fourth place, the banking operations of the Treasury were said to be unsatisfactory. The funds of the Treasury were deposited in nine sub-treasuries and in certain "qualified" national banks (of which, in 1914, there were 1,584), which, in consequence, were said to rely unduly on the Treasury in time of financial pressure. This method led to unnecessary hoarding of large sums in the sub-treasuries. Moreover, when receipts were

largely in excess of payments the currency of the country was contracted and the money market disturbed; when payments exceeded receipts, currency was released and "money" was so "easy" as to produce the result of mild inflation. This fact exaggerated the fluctuations (already noted in dealing with the second defect) in the rates charged for short credit. It will be observed that, as far as the third and fourth defects were concerned, the American system aggravated difficulties which are encountered, in greater or less degree, under all banking systems. The purpose of the Federal Reserve Act was to establish a system under which all the above evils would be eradicated or, at least, reduced to the minimum; in particular, it aimed at introducing a far greater degree of elasticity and adaptability to changing circumstances. And in doing so it had to take into consideration the area of the country, the variety of interests concerned, and the prejudices of States which were anxious to retain the powers which they already possessed.

II

(The defects of the old American system of currency and banking, which were described in the first article, have been summarised by Professor J. L. Laughlin in the following words: "An inelastic bank-note circulation; an even more dangerously inelastic credit system; an ineffectively use of a large supply of gold; a scattering of reserves and lack of co-operative action by banks in times of stress; a rigid reserve system which induced panics; State banks and trust companies doing a commercial business but in different systems; an independent Treasury divorced from the money market which imperilled bank reserves in times of difficulty; the drift of idle funds to the call-loan market where they fed stock speculation, and the want of American banking facilities in other countries to aid our foreign trade.") (*Journal of Political Economy*, 1914.) The object of the Act of 1913 and the subsequent amendments was to establish a banking system under which those defects would be reduced to a minimum, and the method adopted was that of centralising ultimate control through the establishment of a central bank and the centralisation of reserves. (When framing the new Bill the Government was called upon to decide between two alternative methods of procedure. The first was to regard the United States as a single economic and administrative unit and to establish a single central bank comparable to the Bank of England. The arguments against this method were so strong that it was immediately rejected. The United States covers a vast area which is made up of a large number of

administrative units and of many geographic and economic regions which are almost as remote from each other as are the regions of Europe. Moreover, as already stated, banking is essentially a local and private affair, conducted by small firms with capital and deposits obtained in the immediate vicinity and used to finance local clients. The establishment of a central bank for the nation as a whole would be too revolutionary a step, and almost as difficult as the establishment of a central bank for Western Europe.

The alternative was to divide the country into districts and to regard each district as a separate administrative unit, subject to ultimate national control. This method was consistent with the existing method of political control, and was adopted in the Act of 1913. But the districts into which the country was divided were not those which already comprised the member States. The boundaries of the latter cut across economic boundaries and a new division was necessary. The Act provided that the country should be divided into not less than eight nor more than twelve districts, twelve being the number actually chosen. In defining each district and delimiting its boundaries all the relevant factors, geographic and economic, were taken into account, the aim being a true economic balance. The districts varied tremendously in size, some near the Atlantic seaboard being relatively small, others, further west, covering a large area. The boundaries of many districts cut individual States, so that one part of a State might be in one banking district, another part in another district; and the new division created the inevitable controversy among those who sought the theoretically perfect.

FEDERAL RESERVE BANKS

In each of the newly-formed districts a central bank was established, known as the federal reserve

bank, and these were "federated," as we shall presently see, through the formation of a Federal Reserve Board, a national institution. The next step was to determine the character of the federal reserve or central bank for each district. The Bank of England is a private institution which is subject to the minimum of legal interference. Like Topsy, it has just grown; it enjoys the confidence of the community because it has always adapted itself to the developing needs of the economic world. Although it is owned by a company, the directors have long since ceased to regard it as primarily a profit-making enterprise, and its policy is determined by the presumed national interest. In that sense it is also a public institution; but it is not a State bank. An institution such as the Bank of England cannot be created by legislation, consequently the United States Government was compelled to seek some other form of central bank. Apart from the merits of the arguments usually employed for and against State banking the Government, in adopting the federal system, decided not to establish an institution owned and controlled by the State. (A new method of organisation was adopted, and the experience which has since been acquired deserves far greater attention than it has yet received from those who are fond of debating the relative merits of so-called individualism and socialism. The remainder of this article will be mainly devoted to a description of the new type of central bank and the changes in the obligations of local banks. We shall then be in a position to examine the manner in which the new system works and the extent to which the chief defects of the old system have been overcome. We are thus concerned, for the present, with the skeleton, not the flesh and blood.

¶ The central bank for each district—that is, the federal reserve bank—is a bankers' bank. In the

first article reference was made to national banks, State banks, and trust companies working under the old system. Under the Act of 1913 every national bank was compelled to join the new or federal reserve system for the district in which it existed ; any State bank or trust company was allowed to join provided certain conditions were fulfilled. Few of the latter joined at first, but the number steadily increased as experience revealed the advantages of membership. In 1924 nearly 10,000 of the 30,000 banks in the United States were members, and of that number 8,080 were national banks. These statistics do not reveal the importance of the federal reserve system, for the vast majority of the State banks which have remained outside are small and unimportant.

(The federal reserve bank is the property of the member banks of the district. Each of the latter group is required to provide six per cent. of its own capital and surplus towards the capital of the central bank, one-half being paid up, the other being payable at call. The federal reserve or central bank is controlled by a board of nine directors, three being appointed by the Federal Reserve Board and the remainder by the member banks.) One of the first three is elected chairman or agent, and another deputy agent. For the purpose of electing their own representatives the member banks are divided into three groups, according to size, and each group elects two directors, one representing banking and the other industry and commerce. (Thus the small banks exercise the same influence as the larger ones in the election of governors of the central bank, while the interests of the outside public are protected by the nomination of three directors who are not bankers. The profits of the federal reserve bank are limited by law to six per cent. (cumulative) on capital, and the surplus is divided into two parts, one-half being set aside to reserve, the other being handed

over to the State. When the reserve fund is equal to forty per cent. of the capital, ninety per cent. of the surplus goes to the State. The limitation of profit, it will be seen, may seriously influence the policy of the bank under certain conditions.

LEGAL MINIMUM RESERVE

It will be recalled that, under the old system, every national bank was required by law to maintain a specified minimum reserve against deposits, that reserve city banks might deposit part of their reserves with central reserve city banks, and that country banks might deposit part of theirs with either of the first two classes. Under the new law the legal minimum requirements have been reduced, but the required reserve has to be deposited with the federal reserve bank. In other words, any reserve retained by a member bank for day-to-day requirements, or deposited, for convenience, with other commercial banks, is not reckoned as part of the legal reserve; the law requires that the member bank should maintain at the central bank a reserve or balance representing not less than a specified percentage of its deposit liabilities. This provision produced two results, one permanent, the other temporary. In the first place the reserves have been centralised and (as we shall see) rendered far more mobile. The consequent economy has made possible a reduction in the reserves required by law. In the second place the reduction in such reserves enabled the member banks to lend the surplus, so created, to clients, and so led to an "easy money" policy during the early days of the war, when the incentive or pressure to expand credit was exceptionally strong. The federal reserve or central bank has thus become a bankers' bank in two senses. Not only do the member banks of the district hold the capital, but they also deposit their balances with the central bank. The latter uses such balances in ways to be

described later ; for the present it is sufficient that it acts in essentially the same manner as other central banks, such as the Bank of England. Whereas, however, the reserves of the Bank of England are not regulated by law, the federal reserve bank is required to maintain normally a cash reserve of not less than 35 per cent. of its deposits. Like the Bank of England, it is allowed to issue notes, known as federal reserve notes, and to be distinguished from federal reserve bank notes, which are not of the same order of importance and will not be brought under review. Federal reserve notes are issued against gold and " eligible paper " (to be described later) of at least the same value, provided that the total amount of notes in circulation is not more than two-and-a-half times the total amount of gold ; that is, a gold reserve of 40 per cent. (including the gold already set aside against the issue and other gold held by the bank for other purposes) is required.

THE FEDERAL RESERVE BOARD

The notes are obtained from the Comptroller of the currency by the federal reserve agent, who also acts as the *liaison* officer between the bank and the Federal Reserve Board. The latter is a co-ordinating and controlling authority composed of eight members, including, *ex officio*, the Secretary to the Treasury (who acts as chairman), and the Comptroller of the Currency. The remaining six are appointed by the President, provided that no two shall be elected from the same Federal reserve district, and that various commercial interests and geographic regions shall be adequately represented.

The Federal Reserve Board performs several functions, some of which will be elaborated as we proceed. It specifies what kinds of paper are eligible for re-discount ; it approves the discount rates fixed by the federal reserve banks, and controls the clearing machinery of the latter. It also

controls the re-discount rates between such banks and may require one to lend to another which desires accommodation ; it also publishes a monthly review of industry and finance, and gathers other information which may serve as a useful guide. The work of the Board is supplemented by a Federal Advisory Council, consisting of representatives appointed (one in each case) by the directors of the federal reserve banks, and the organisation is completed by periodic conferences of the agents of such banks.

Such is the framework or skeleton of the new system. The old banking Act had set up a system which, from one point of view, was highly centralised—that is, it did not divide the country into districts. From the banking point of view it was, however, highly decentralised. There was no controlling or co-ordinating authority, and the national banks went their own separate ways. The new Act has divided the country into districts and has therefore been said to exercise a decentralising influence ; but there was nothing in existence which could be decentralised. From the banking point of view its aim and effect has been to centralise banking within each district and, by means of the sections dealing with inter-district relations, to co-ordinate banking operations throughout the country. The manner and extent to which the new organisation has eradicated the more serious evils of earlier days remains to be examined.

III

ELASTICITY AND MOBILITY

(Under a perfect banking system currency and credit would be sufficiently well controlled to prevent what is commonly known as inflation and deflation, while at the same time it would provide that elasticity which is necessary to meet the fluctuating needs of trade and that mobility which is necessary to meet the variations in the relative needs of different districts. The English banking system is said to satisfy the conditions of elasticity and mobility to an extent that leaves little to be desired. An English joint-stock bank grants advances to customers and discounts bills of exchange, and the assets representing such transactions usually amount to approximately one-half the total assets. It invests in securities which, in practice, may amount to about one-sixth of the assets. It also lends money to bill-brokers and others, and the securities representing such short loans may represent about one-tenth of the assets. It may further retain twelve to fifteen per cent. in cash and balance at the Bank of England. The bill-brokers use the bank loans to discount bills of exchange.

(It will immediately be evident that the joint-stock bank may increase its advances to customers in either (or both) of two ways. In the first place it may reduce the amount lent to bill brokers. Short loans may be said to represent the normal available surplus of the bank after the required advances have been granted ; they form a residue. When the bill-brokers are unable to obtain all they need for current discounts (that is, when the loans are called in) they are forced to re-discount

their bills at the Bank of England. In the second place the joint-stock bank may increase its advances at the expense of its reserve-ratio at the Bank of England; if the latter is already low it may be increased by a loan from the Bank. The first method shows that the re-discounting of bills of exchange is an important factor contributing to elasticity. When the joint-stock bank grants an advance on collateral security there is no document which may in turn be discounted; it may re-discount any bill which it holds, but it is not the custom to do so. Re-discounting with the Bank of England is a practice more or less confined to bill-brokers.

(In the United States the pre-war machinery of banking did not provide that elasticity to which we in this country have long been accustomed. It has already been shown that local banks were required by law to maintain certain specified reserves. When the limit was reached no further elasticity was possible, and as the banks usually worked to that limit credit in general was inelastic and erratic, while the rates of interest were subject to wide fluctuation and varied materially from place to place. The client of a bank obtained credit either by discounting a promissory note received from a customer or by discounting a similar note which he drew in favour of the bank. The bank, when its reserve limit was reached, could not re-discount such notes at other banks which might be in possession of funds. Negotiable instruments, such as bills of exchange, were not in common use; banks did not "accept" such notes, nor were there well known accepting houses to perform that function to any great extent. In short, there was no real discount market in the country.

The Federal Reserve System provides the elasticity which was previously lacking. It has been stated that the legal minimum reserves of the

member banks are deposited with the Federal Reserve Bank. If a member bank desires to increase the amount of credit advanced to its own customers it may do so in two ways. First, it may re-discount customers' notes with the Federal Reserve Bank provided their currency does not exceed 90 days from the time at which they are re-discounted; secondly, it may borrow, for a period of 15 days, on its own note. Which of the two methods is employed depends upon circumstances, including the purpose of the loan.

Such is the first way in which credit has been made more elastic. The second is by what is known as the "open market policy." We have seen that the Federal Reserve Bank is a bankers' bank; it does not perform ordinary banking functions for the general public. But it may go into the open market and use its own reserves (subject to the minimum requirement) either by purchasing and holding Government bonds and other approved securities, or by discounting "eligible" paper. Without entering into details it may be stated that eligible paper consists essentially of bills of exchange—trade and bank acceptances—representing actual commercial transactions and maturing within 90 days. Agricultural paper may have a currency up to nine months and still be eligible for discount. In these further ways the available reserves of the Federal Reserve Bank may find their way into circulation.

So far we have dealt only with the elasticity of credit. The new system, however, has also provided a more elastic currency. Before the war the currency of the country was supplemented through the issue of bank notes by the national banks, but as these notes might only be issued against United States bonds (the supply of which was restricted) they could not vary with the state of trade and the consequent demand for currency. The new Act enables Federal Reserve Banks to issue notes

against collateral pledged with the agent, and such collateral may include trade paper eligible for re-discount, bills of exchange endorsed by member banks, and bankers' acceptances. If, therefore, a member bank requires currency to supply a local and temporary increase in demand, it re-discounts eligible paper and takes the proceeds in notes. The Reserve Bank repeats the process and obtains the notes from the agent. When the exceptional need for currency (say, at harvest time or during the first few days in July) disappears the public deposits the notes with the member bank, and as the notes do not form part of the legal reserve the bank tends to send them to the Federal Reserve Bank, where they are cancelled. If they find their way out of the district and are therefore returned to another Federal Reserve Bank the latter, which is not allowed to reissue, sends them to the issuing bank to be exchanged for legal tender. It will thus be seen that the supply of Federal Reserve notes in circulation varies with the demand of the community, and comprises the elastic part of the currency.

{ The federal reserve system not only secures elasticity of currency and credit, but also increases the mobility of the latter within each district and between different districts. Elasticity and mobility are extremely closely interwoven; mobility between districts naturally increases the supply available for any district in time of need. Nevertheless, the two qualities are quite distinct and may be considered separately. Inter-district mobility is secured by the fact that one Federal Reserve Bank may be required to re-discount paper presented by another similar bank. Obviously, the power would be accompanied by the will to do so if a bank possessed large surplus reserves for which it could not find a market in its own district. Such circumstances often occur in a country so large and varied as the United States. But even if the motive

to do so voluntarily is lacking, the Federal Reserve Board may compel one district to go to the rescue of another. Mobility is increased through "open market" operations and by broadening the discount market for paper. A Federal Reserve Bank which needs to replenish its reserves may sell securities to another, or to someone in another district; or, by raising its rate of discount, it may check the discounting of bills which are consequently offered to another bank possessing more funds and charging a lower rate of discount. Credit is thus enabled to flow from the market in which it is plentiful and cheap to another market in which it is scarce and dear. It will thus be seen that inter-district mobility tends to reduce differences in the discount rates prevailing in different districts. The mobility of credit within each district is also largely increased by the new system. The credit which a needy member bank obtains from the Federal Reserve Bank originates in the surplus of other member banks. And the resulting mobility reduces the differences in the charges for credit granted to clients by member banks within the same district.

{ It has seemed necessary, at the risk of labouring the obvious, to call attention to the differences in the methods of achieving mobility and elasticity in England and America before dealing with the central problems of American banking—first the relation of Federal Reserve discount rates to the rates charged by member banks, and the apparent departure from English principles; secondly, the discount policy of the Federal Reserve Board both at a time when the Government was financing the war and, later, when the banks were suffering from a surfeit of gold; and, finally, the provisions made by the Federal Reserve Act for dealing with periods of stringency, and even of crisis. }

IV

THE STRUCTURE OF MONEY RATES

The Federal Reserve system has been and continues to be the subject of acute controversy in the United States. Much of that controversy is concerned with technical problems which attract little interest among people other than bankers and economists ; some of it has a wider significance in the country itself, and has become largely political in character. Since it is the purpose of these articles merely to provide such information as will enable the reader to appreciate the part which American banking policy may play in the destinies of the rest of the world I shall ignore those problems and controversies which are mainly of technical or domestic interest, and confine myself to those which are fundamental and, therefore, widespread in their appeal and universal in their significance. As in previous articles, I shall use the method of comparison.

1 The Bank Rate (that is, the official minimum rate at which the Bank of England will discount first-class or bankers' bills with a currency of three months) now stands at 5 per cent. On Friday of last week (18th September) the rate of 4 per cent. was charged on the money market for short loans, $4\frac{1}{2}$ to $4\frac{1}{8}$ per cent. was charged for discounting three months' bank bills, $4\frac{3}{8}$ to $4\frac{1}{2}$ for three months' Treasury Bills, and 5 to $5\frac{1}{2}$ for fine trade bills of the same currency. It will be observed that the Bank Rate was above the rate for the most liquid form of short-dated investments, or, more briefly, it was above the market rate. For reasons to which reference will be made later, the difference between the two varies from time to time, but the relation-

ship between them is always of the same kind. It is held in this country that the Bank Rate should be a "penal" rate—that is, that it should always be above the market rate. The market, we are told, should not resort to the Bank of England except at a time of real necessity and at a loss to itself. So long as that principle remains operative the Bank of England is in a position to control credit, but if it ceases to operate there is no method available for preventing inflation. Early in the nineteenth century the Bank of England was prevented, by law, from raising its rate of discount. The demand for credit, on account of the Napoleonic wars, was so great that the market rate rose above the Bank Rate; bills were discounted on a large scale and at a profit by means of cheap credit obtained from the Bank of England, and the nation suffered from rapid inflation. After unsuccessful experiment with the rationing system the restrictive law was abolished, the Bank Rate was raised above the market rate, and the Bank once more controlled the situation. Experience has shown that the present rate structure is founded upon a sound architectural principle.

It is frequently argued that this fundamental principle of banking (namely, that the official rate of discount should be above the market rate) has been abandoned in the United States. The rate charged by the Federal Reserve Bank for re-discounting eligible paper presented by a member bank is lower than the rate charged by the latter for discounting such paper when presented by its client. It is therefore argued that the Federal Reserve Bank cannot effectively control the situation, and that the danger of serious inflation of credit is always present when trade conditions favour such inflation. The member bank is always able to discount a customer's paper and to make a profit by so doing, because that same paper may in turn be re-discounted at a lower rate with the

Federal Reserve Bank. For this reason, we are told, the banking system needs to be seriously modified.

The tenth annual report (for 1923) of the Federal Reserve Board contains a careful examination of this criticism of the new system. This report must be included among the most important official documents ever published on financial theory and policy. Not only does it endeavour to justify the present rate structure, but it also sets out the considerations which should determine the actual rate of re-discount fixed by the Federal Reserve Board. These, as we shall see, differ materially from the considerations by which the English Bank Rate was governed before the war.

The report states, in effect, that critics who compare the rate structures of England and America have chosen the wrong items for comparison. It is true that the member-bank rate to customers is consistently above the Federal Reserve Bank rate, the difference varying between different districts (being least in important financial centres, such as New York), and averaging, for 1923, approximately one per cent. for all districts. But other rates are below the official rate. If we take (at random) the New York rates for, say, July 1923, we find that while the Federal Reserve discount rate was $4\frac{1}{2}$ per cent., the rate for "prime bankers' acceptances, 90 days," was $4\frac{1}{4}$ per cent., the rate for Treasury certificates was 3.91 per cent., and the rate for "prime commercial paper, 60 to 90 days," was 4.94 per cent. These figures are fairly typical. The discount rate is higher than the yield on Treasury certificates and above the rate on bankers' bills; it is usually, though not always,* above the rate on commercial paper eligible for open-market operations. In other words, the Federal Reserve rate, like the Bank of

*On a falling market they may cross and recross, because the official rate is only reduced at relatively long intervals.

England rate, tends to be above the rate for the most liquid kind of short-term paper.

It is argued that when comparison is made with English conditions the London market rate should be compared, not with the rate at which member banks discount notes for their customers, but with the rates on Treasury certificates and 'prime bankers' acceptances. The discounts of the member banks should be compared not with the discounts of the London market but with the advances made by English joint-stock banks to their customers. The difference between the two cases is technical, not fundamental; it is one of machinery, not of principle. The American manufacturer or merchant obtains credit from his banker by discounting a promissory note; the English customer obtains credit by means of an overdraft. In both cases the rate charged for credit is above the official rate of discount of the central bank; in both cases, when resort is made to the central bank the latter charges a rate which is higher than the rate prevailing for the most liquid form of "open-market" paper.

Opinions differ as to the adequacy of this reply. It is held by some people that the difference in technique is so important as to constitute a real difference of principle. When, in England, a joint-stock bank grants an overdraft to a client it does not secure possession of negotiable paper which may in turn be sold or re-discounted and thus become the basis of fresh credit; borrowing from the Bank of England, being done on paper which bears a lower rate of discount than the Bank Rate, is expensive and, therefore, an emergency measure. But when a member bank in America grants credit to a client it secures possession of paper which, bearing a higher rate of discount than the Federal Reserve rate, may be re-discounted; the proceeds may thus become the basis of fresh and profitable credit.

While the truth (not the importance) of this reply is admitted, it has been argued that the danger of inflation, under normal conditions, is insignificant. Experience has already shown that member banks do not automatically re-discount customers' notes with the Reserve Banks at a lower rate, lend the proceeds to fresh customers, re-discount the new paper, and so start a vicious circle of inflation. It is a banking tradition that member banks should only borrow in emergencies. The Federal Reserve Banks strongly disapprove a policy by which individual banks might increase their profits by utilising the combined reserves of all the banks, and if any bank borrows heavily under ordinary circumstances the fact reflects unfavourably upon its standing in the financial world. Moreover, if many banks pursued such a policy they would only be able to find fresh customers by reducing rates which are strongly competitive, and thereby reduce the margin between the member bank rates and the official rate to such a degree as to render any further expansion of credit unprofitable. Already, in financial centres, the margin is so small that such a policy would quickly defeat its own end.

This rejoinder may not fully meet the point at issue. Under normal conditions a trading community does not suffer from scarcity of credit, and the question whether one bank might seek to attract customers from others by offering lower rates for loans, and to extend such loans by re-discounting paper already held, is not of much importance. Banking tradition and the moral influence of the Reserve Bank may be left to deal with it. The real question at issue is whether, at a time when rapid trade expansion may pass almost unnoticed into unhealthy speculation, and all the member banks together desire to extend what appears to be legitimate credit to customers, the Federal Reserve Bank is able to maintain

control of the situation. Two questions arise in this connection. The first is whether, when desired, the Federal Reserve rate is, or can be, made effective; and the second is whether changes in the rate should precede or merely follow changes in the market rates. We know that the Federal Reserve rate moves with the movements of trade, and that the customer rates of member banks move in the same direction. But the precise relationship calls for closer examination.

Before dealing with the above questions it is desirable to refer to the relation of the reserves to the open-market policy of the Federal Reserve Banks. It will be recalled that the Act of 1913 empowered such banks to deal direct with the public to the extent of buying and selling Government and other approved securities, and certain types of credit instruments, known as eligible paper, and consisting of specified classes of trade bills, drafts and acceptances. This provision enables the Reserve Banks to derive an income from reserves which might otherwise lie idle. Thus the assets of such a bank are employed in two ways—first by granting credit to member banks in the form of re-discounts, and secondly by holding investments and discounting bills of exchange. One object of the provisions relating to the open market was to encourage the use of bills of exchange and to create a large discount market in which dollar bills arising from foreign trade would be freely discounted, thereby reducing the predominance of London and creating large centres of international exchange in New York and other cities. Expectations have not been realised, and the purchase sale of securities constitutes the more important part of the operations in the open market.

The proportions of the assets employed in the two ways (open market operations and re-discounting) may be altered without any change in the

total volume of such assets; moreover, *other things being equal*, a change in the volume of securities held by the Reserve Banks will produce a change in the volume of re-discounts by member banks.* Consequently, the investments appear to be valuable instruments in controlling the credit situation. If a Federal Reserve Bank purchases securities it releases funds which pass through the hands of the sellers to the member banks; the latter, in turn, repay their loans to the Reserve Bank and thereby reduce the amount of reserves employed in the form of re-discounts and loans to the member bank. Again, if the Reserve Bank sells securities it withdraws money from the market and tends to increase the amounts borrowed from itself by the member banks.

In this article I have been concerned only with general considerations which seem to be essential preliminaries to the central problems of banking policy. I have tried to show the similarity and difference between the rates structures in the two countries, and the relation between investments and re-discounts. The official rate of re-discount is below the rates at which member banks discount clients' notes, but the two rates normally move up and down together. Again, the investments of a Federal Reserve Bank are related to its re-discounts in the sense that, other things being equal, they tend to vary inversely with each other. In each case there is obviously some connection between the two. Is the relation in each case one of cause and effect? If so, which is cause and which effect? The tenth Report of the Federal Reserve Board states that "the difference between discount operations and open market operations is that the initiative in re-discounting lies with the member banks, while in the purchase and sale of

*It will be shown later that other things may not be equal. The influx of gold into the United States in the early years of peace exercised a profound influence upon the banking situation.

securities the initiative may be taken by the Reserve Banks. The extent to which member banks borrow in order to replace the funds withdrawn by the Reserve Banks through the sale of securities is a measure of the demand for Reserve Bank credit. The sale of securities by a Reserve Bank may thus serve as a test of the degree of adjustment between the demand for Reserve Bank credit and the outstanding volume of such credit."

V

THE RATE OF DISCOUNT

Discussions of discount policies of central banks revolve around two distinct though related questions, namely, the influences by which changes in the rate of discount should be governed and the measures, if any, necessary to make such changes effective. In this country the Bank Rate is normally governed by the state of the reserves, and the latter, before the war, was ultimately determined by the supply of gold within the country. The ratio of reserves to deposits might fall for either (or both) of two reasons, an internal expansion of credit or a foreign drain of gold. These cases may be examined separately.

When joint-stock banks allow customers' deposit credit to expand, the ratio of their reserves to liabilities is thereby reduced, and if the process is continued the ratio ultimately becomes so low as to call for restrictive measures. So long as the new deposits do not add much to the demand for currency the fall in the reserve ratio may not be so rapid as to create uneasiness, but when the expansion of trade, the growth of speculation, and the rise in prices and wages create a need for more currency, and the withdrawal of such currency from the Bank of England reduces the balances held at the central bank, the reserve ratio falls with greater—and increasing—rapidity. The supply of liquid capital available to the money market is reduced, the market rates for discounts and short loans are raised, and bill-brokers and Stock Exchange dealers are compelled to re-discount or borrow at the Bank of England at rates above the open market rates. The expansion of credit may

be so great that even the joint-stock banks find it necessary to replenish their reserves at the Bank directly by means of loans. Under such circumstances the Bank Rate may be raised ; moreover, the new rate is " effective " in that it prevents any further expansion of credit. Usually the rise in the Bank Rate (which means a higher price for all forms of credit), combined with the implied threat of a further rise if the first fails to achieve its object, results in a material reduction in the demand for credit, and, sooner or later, the situation is reversed. The reserve ratios of joint-stock banks rise, the supply of money in the open market increases, market rates of discount and rates for short loans fall, and the Bank Rate, having achieved its object, is reduced.

We may now consider the second case. Before the war, when most countries employed the gold standard, the exchanges frequently moved against this country to such an extent that gold either left or threatened to leave our shores. Unfavourable exchanges were due to the creation of excess claims against this country on account of either a temporary excess of imports over exports or the export of capital on too large a scale, the latter being either a permanent investment or a series of short loans secured by discounting foreign bills in London. If the Bank of England desired to prevent or check the export of gold it raised the official rate of discount. If the rate was effective—that is, if the rise was followed by a corresponding rise in market rates—the object in view was automatically achieved. But the new Bank Rate might not be effective. If, for example, the trade of the country was in a depressed state and the demand for deposit credit correspondingly low—that is, if the internal credit situation did not justify a rise in Bank Rate—money continued to be plentiful and market rates tended to remain at a low level: the margin between the Bank Rate and the market rate grew wider.

It is possible that such a situation will arise during the next few months, when the effect of the stoppage of the coal industry upon foreign trade may become even more marked than it has yet been. The adverse balance of trade may react so strongly upon the exchanges as to necessitate either an export of gold or a temporary loan. If, without borrowing, the Bank of England decides to conserve its gold reserve the Bank Rate will be raised. But the depression of trade within the country may be so pronounced as to require far less deposit credit than has hitherto been necessary; in that case, in spite of the fall in savings, loanable money will be so plentiful as to prevent the market rate from rising in sympathy with the Bank Rate. These are not inevitable but possible results.

When, before the war, the market rate did not respond to the rise in the Bank Rate the latter was said to be ineffective, that is, it no longer controlled the monetary situation. Foreign bills were still sent to this country and discounted by bill brokers; loans could still be obtained cheaply by foreign borrowers.

Consequently the Bank of England was compelled to take steps to make its rate effective. It borrowed money, through brokers, upon the market and sold Consols. By these means it obtained command of money hitherto in possession of the joint-stock banks, while the reserves of the latter at the central bank were thereby reduced. By draining the open market of its surplus funds it forced a rise in market rates and restored the exchanges. It will thus be seen that the effectiveness of changes in the Bank Rate is measured by the consequential changes in money rates in the open market.

The present situation differs materially from that which prevailed before the war. Gold movements appear to be of less importance as a factor determining variations in the Bank Rate. It should not be inferred that large-scale movements would not influence the rate. The reversion to the gold

bullion standard itself means that, in the last resort, the amount of bank credit, and therefore the Bank Rate, is determined by the supply of gold. That supply has varied during the last twelve months, but such variation has not produced any change in the Bank Rate. The March-April Review of the Midland Bank shows that the Bank of England neutralised the effects of gold movements by varying the amount of securities which it held and of loans which it made. When gold comes into the country it usually results in a fall in Bank Rate and an expansion of credit. Recently, however, the Bank has sold investments and called in loans, and thereby mopped up the additional balances of the joint-stock banks, which would otherwise have been used to expand deposit credit. Again, when gold has left the country the Bank, instead of endeavouring to recall it by raising the Bank Rate, has purchased securities and increased its loans to the market, thereby enabling the joint-stock banks to maintain their credits to clients. In other words, the gold reserve ratio, for the time being, has lost its significance and the policy of the Bank of England has aimed deliberately at credit stability. If the Bank Rate had been influenced by temporary changes in gold supply due to causes other than the fundamental trade situation the resulting instability of credit conditions would have proved a highly disturbing factor in industry and commerce.

The policy of the Bank has been simplified if not, indeed, rendered possible by the fact that gold movements have only taken place upon a comparatively small scale. Relatively small purchases and sales of securities have sufficed to neutralise their effects. If the movements of gold had assumed large dimensions it is clear that the difficulties encountered in the pursuit of the new policy would have been vastly increased. In the United States of America the supply of gold was more than doubled during the first nine years of the operation

of the Federal Reserve system. Between May 1920 and December 1923 the stock was increased from 2,664 to 4,210 million dollars, and at the present time it is said to be approximately one-half the total supply of the world. It is probable that the controversy regarding the discount policy of the Federal Reserve system has been largely influenced by failure on the part of many to distinguish between what happens under normal conditions and what happened under conditions rendered highly abnormal first by the necessities of war finance and afterwards by the vast inward rush of gold. I shall therefore endeavour to disentangle the issues, always remembering that our main purpose is to try to understand the part which United States banking is likely to play in the immediate economic future of the world. I shall first assume normal conditions and afterwards—in the next article—examine the actual (and, for nine years, highly abnormal) conditions that have prevailed in the United States.

The following statements, which bear upon the sentences quoted from the tenth report of the Federal Reserve Board in the previous article, summarise relevant points which have already been discussed. (1) Bank credit used in industry and trade is mainly supplied by member banks for their customers. Other things being equal, the demand for such credit varies with the rate of discount, being less at one rate than at a higher rate. The volume of credit is therefore immediately determined, not by the Federal Reserve Rate but by the customer rates of member banks. It follows that the Federal Reserve Bank is able to control the credit situation only in so far as it is able to control such customer rates. (2) Member banks, working for profit, and able to increase their profits if and when they re-discount customers' paper with the Federal Reserve Bank and with the proceeds discount additional paper—i.e. extend further

credit—are normally in the position of making use of Federal Reserve Credit. (3) The Federal Reserve Bank uses its funds in two ways—first, as already stated, by re-discounting paper presented by member banks, and secondly by open market operations, mainly the purchase of securities. (4) It is an observed fact that the Federal Reserve rate of re-discount and the customer rates of member banks move in sympathy.

It will immediately be evident that the combined total of the re-discounts and open market operations represents the total of Federal Reserve funds used in the conduct of business in general. If, under normal conditions, the Reserve Bank sells securities the purchasers withdraw funds from member banks, which are therefore compelled to seek fresh credit from the Reserve Bank. It will thus be seen that, assuming the total earning assets of the Reserve Bank to be unchanged (and they normally change but slowly), a fall in the amount of securities which it holds not only is followed by but actually produces an increase in the demand for reserve credit by member banks, which are therefore more or less in the hands of the Reserve Bank. If the Federal Reserve rate is raised the margin of profit obtained by re-discounting is reduced and threatens to disappear; if the member bank raises its rate to customers the demand for credit will fall. Under such circumstances, therefore, the Federal Reserve rate is effective—that is, the Reserve Bank controls the credit situation. Similarly the Bank, by purchasing securities, releases funds which become available to member banks and may be used either to reduce re-discounts at the Federal Reserve Bank or to extend further credit to customers. If the rate of re-discount remains unchanged the former result is likely to be achieved, but if the purchase of securities is accompanied by a fall in the Reserve Rate the member banks will also endeavour to

stimulate the demand for business credit by reducing their own rates of discount.

It follows that the open market operations of the Reserve Bank may be, and usually are, employed as an instrument for making the Reserve Rate of discount effective. It will be observed that the conditions differ in one important respect from those which obtain in this country; they also differ in different Federal Reserve districts in the United States. The chief operators requiring funds on the London money market are bill brokers and Stock Exchange dealers; the chief instrument dealt in is the bill of exchange, and the funds employed are normally provided by the joint-stock banks. It may be said that in a Federal Reserve district there is usually no similar market where bill brokers and others utilise most of the available bank money in discounting bills carrying stock and shares. Unlike the Bank of England, the Federal Reserve Bank is itself the chief operator upon the open market, and uses its own funds; it virtually controls open market rates by its own importance as buyer or seller. The money market thus differs in structure from our own, and the effectiveness of the Federal Reserve rate of discount has to be judged, not by the rates prevailing for the most liquid investments, but by the rate charged by member banks to their customers.

The steps normally taken by the Federal Reserve Bank to meet a change in the monetary situation will be evident from what has been said above. Suppose in the first place that a speculative boom has started which will necessitate a considerable increase in the community's demand for bank credit, and that the Federal Reserve Bank desires to hold it in check. First it will sell securities, thereby reducing balances at member banks, forcing the latter to seek more credit from the Reserve Bank itself. Secondly, it will raise the rate of re-discount and threaten a further rise if the first

is not effective. As the member banks are already using Reserve Bank credit and additional profit is determined by the difference between re-discount and customer rates, it will soon be compelled to raise the latter. When credit becomes more expensive the demand falls off, and the speculative boom disappears. It is important to observe that in this case the Reserve Bank takes the initiative; as in our own case, the rise in the discount rate of the central bank precedes and produces the rise in the rate charged for customer's credit. If the Reserve Rate merely followed the customers' rate it would not exercise a controlling influence on the market.

In the second place, suppose that the tide of trade is receding: the demand for goods is decreasing, prices are weakening, wages are being reduced and the demand of the community for bank credit is falling. It follows that the amount of customer paper presented for re-discount by member banks will also be reduced, that is, the reserves of the central bank will increase. The latter, in order to earn something on its assets, will naturally purchase securities and so release funds to the member banks. But as the banks are already plentifully supplied the result will only be a transfer from one treasury to another. Nor is it likely that a fall in the Federal Reserve Rate, after the event, will immediately affect the situation. For the member banks may be unable to dispose even of those funds which are available without any addition of credit from the Reserve Bank. It is, indeed, possible that the member banks will already have reduced their customer rates in order to stimulate trade.* In the face of an actual fall in the community's demand for credit the Federal Reserve Bank, like the Bank of England, is almost

*During the period immediately following a crisis a considerable amount of bankers' credit will be "frozen." Bankers will need to carry customers (whose position is fundamentally sound) until debts are repaid and the process of liquidation is far advanced. They will be anxious not to extend further credit in the meantime, so that the rate of discount will not immediately fall. It usually falls when assets again become liquid.

powerless ; all it can do is to pave the way for the restoration of trade when other favourable factors make their appearance. But if the recession of trade is anticipated well in advance, if the Reserve Bank reduces its re-discount rate before the reduction in credit demand sets in, and the member banks are thereby enabled to reduce their own rates to customers, it is possible, we are often told, that it may neutralise the tendency for trade to fall.† Whether such action has been taken, and, if so, has been successful, is a question to which no satisfactory answer is forthcoming. But it will be shown that it lies within the scope of the Federal Reserve Board's ambition.

So far we have assumed normal conditions. Nor have we yet discussed the influences by which the Federal Reserve Banks have actually been guided in fixing the rate of re-discount. The real and supposed necessities of war finance, along with an influx of gold upon a scale unprecedented in history, forced the hand of the Federal Reserve Board and compelled the adoption of new criteria in relation to the rate of discount.

†The orthodox view is that just as, in England, the Bank Rate should not be reduced until market rates have already fallen, so, too, in the United States, the Federal Reserve Rate should not be reduced until member bank rates to customers have fallen.

VI

HISTORICAL SURVEY

The significance of the events to be described in this and the next article and of the figures to be submitted in an appendix next week will be more easily appreciated if we bear in mind the following elementary facts. We have already seen that the funds of a Federal Reserve Bank consist, in the main, of the reserve deposits of member banks. The latter are required, by law, to maintain a specified minimum reserve*; further, only such funds as are deposited with the Reserve Bank may be reckoned as legal reserve. For this reason a member bank retains only what is absolutely required for current transactions. A country bank may, and usually does, deposit a small part of its balance with banks in reserve and central reserve cities; the remainder is deposited with the Federal Reserve Bank and becomes the basis of credit to its own customers. If the minimum is allowed to fall below the legal limit the member bank is penalised, consequently the bank, when necessary, brings it up to the required limit by re-discounting or borrowing. It will thus be seen that the reserve deposits of the Federal Reserve Bank are fairly constant. They may increase when member bank credits to customers increase, but as the member bank retains as reserve an average of only 10 per cent. of its liabilities, the increase is very slight. Moreover, the reserve deposit of a Reserve Bank

* In the first article the pre-war legal requirements were specified for central reserve city banks, reserve city banks and country banks. These were reduced by the Act of 1913, and further reduced in 1917, to 13, 10 and 7 per cent. respectively of demand deposits and 3 per cent., in all cases, of time deposits.

tends to increase when the number of member banks increases ; and as the number has steadily increased since the new system was established, the reserve deposits of all Federal Reserve Banks are obviously extremely unreliable as a measure of the volume of general credit over the whole period of its operation.

Changes in the discounts of Federal Reserve Banks, on the other hand, exaggerate changes in the total volume of credit. The bulk of the latter is supplied from the funds of member banks, and such banks may provide all the credit required by the community without the aid of re-discounts. But when the need of the community increases beyond that amount the member banks begin re-discounting customer paper, and the volume of re-discounts is apt to expand very quickly, and afterwards to contract with equal or even greater rapidity.

What is true of credit is also true of currency. The currency of the country consists of coins and various kinds of paper : Federal Reserve notes form the elastic part. Other things being equal, changes in the total volume of currency appear to understate, while changes in the issue of Federal notes actually exaggerate, changes in the currency situation.

The financial history of the United States since the Federal Reserve System came into operation (November 1914) may be divided into four chapters. The first ends with the entry of the United States into the war ; the second covers the period (1917 to 1919) during which banking policy was under Treasury control and determined by the necessities of war finance ; the third covers the speculative boom of 1920 and the slump which followed ; the fourth started about the middle of 1922 and is characterised by the steady inflow of gold in payment of European obligations contracted during and after the war.

During the first period member banks were possessed of ample funds. Not only had the reserve requirements been reduced by the new Act, thus releasing funds for the extension of credit, but a large quantity of gold (about 1,000 million dollars) was imported from Europe in payment of munitions and other necessities. The gold was first sent to member banks and deposited by the latter with the Reserve Banks. Credit to customers was therefore cheap, and as the world needed goods it was rapidly expanded and prices rose. The rise in prices was intensified by scarcity of goods due to the fact that all that could be spared was sent to Europe and other parts of the world. But the expansion of credit did not extend beyond the limits rendered possible by the reduction in the legal reserve ratio and the influx of gold—that is, the member banks were not compelled to replenish their stock of credit by re-discounting customer paper at the Reserve Bank. The operations of the latter were almost entirely confined to the purchase of securities and acceptances on the open market and the average reserve ratio never fell below 75 per cent. But the demand for currency increased with the expansion of credit, and in spite of the influx of gold and the consequent increase in the issue of gold certificates there was a steady growth in the volume of Federal Reserve notes which, when the United States entered the war, exceeded 500 million dollars. The Federal Reserve Rate of discount during this period was of practically no importance, it did not control the credit policy of the member banks for the simple reason that the latter were neither re-discounting nor borrowing to any appreciable extent.

During the second period there was a rapid increase both in re-discounts and in the issue of Federal Reserve notes. The member banks had exhausted their own credit and reached the legal reserve limit. Even if the Reserve Bank had

desired to prevent any further expansion of credit, the momentum already acquired by industry and commerce would probably have proved irresistible. But the Government needed money to carry on the war, and the Reserve Banks were invited to facilitate the issue of loans by maintaining a low rate of discount, namely, 4 per cent. Citizens were encouraged to subscribe to war loans with money obtained from their banks upon the security of the script, and the script was re-discounted with the Federal Reserve Banks.† That the advice of the Treasury was followed is shown by the fact that by November 1919 the total discounts of the Federal Reserve Banks had increased to 2,140 million dollars, of which amount about 80 per cent. was covered by securities representing Government obligations. The expansion of credit necessitated a corresponding increase of currency; moreover, the Government, like the Governments of all belligerent States, conserved the supply of gold and substituted Federal Reserve notes for gold certificates. Consequently, the issue of the former had increased by November 1919 to approximately 3,000 million dollars, while the issue of gold certificates, which in 1916 amounted to 1,282 million dollars, was reduced by nearly 50 per cent. It will thus be seen that during the period when the United States participated in the war, and for some months afterwards (during the issue of the Victory Loan), the rate of discount was not used to control credit but to assist in financing the war.‡ For a time the Federal Reserve Banks even gave preferential rates on loans secured by Government obligations.

† This policy, which was concurrently pursued in Great Britain, is similar in its essentials, to the policy pursued in Germany during the early days of the war. Germans were asked to pledge securities with war-loan banks in return for war-loan notes—*darlehnskassenscheine*. These were exchanged for Reichsbank notes, which, in turn, were invested in war-loan stock. When credit required to finance current transactions is obtained on a large scale upon securities representing long-term investments, inflation is in practice almost inevitable.

‡ It does not fall within my province to discuss the merits of this policy.

The Federal Reserve rate of discount became an important factor in the financial situation during the third period, when the United States experienced the same crisis as we suffered in this country. After the Armistice there was considerable doubt in business circles as to the immediate future of trade, and this was partly reflected in the demand for credit. But after the middle of 1919 a speculative boom developed and the demand for Federal Reserve credit rapidly increased until the third quarter of 1920, when the total discounts of the Reserve Banks exceeded 2,600 million dollars, the issue of Federal Reserve notes exceeded 3,500 dollars, and the reserves of the Reserve Banks fell to about 42 per cent. of the combined note and deposit liabilities. The hesitation in the minds of business men down to the middle of 1919 was only partly reflected in the demand for credit; the issue of the Victory Loan maintained the latter at a relatively high level. As the instalments on the loan were paid off the Federal Reserve credit thus released was absorbed by the community, through the member banks, and the development of the speculative boom necessitated still greater demands for credit. Whereas, in November 1919, about 80 per cent. of the total discounts of the Federal Reserve Banks was covered by Government obligations, a year later, when the total discounts were considerably higher, the proportion so covered had fallen to 43 per cent., and by November 1921, when the total discounts had been reduced by considerably more than one-half, it had fallen to 36 per cent. These figures show the extent to which the war-time boom had been transformed into a speculative boom of the type which frequently appears in the world of industry and commerce.

The financial situation obviously called for stern measures. So long as the instalments on the Victory Loan remained unpaid the Treasury was

naturally opposed to such measures, but when these had been collected its interest ceased to dominate policy. Meanwhile, prices were advancing rapidly, while gold, after the removal of the embargo early in 1919, was leaving the country for South America and the Far East. In November 1919 the New York rate of discount was advanced from 4 to $4\frac{1}{4}$ per cent., and similar advances took place in other Federal Reserve districts; in January of the following year a further advance to 6 per cent. took place, and on the 1st June the rate reached 7 per cent. Moreover, in order to secure an equitable distribution of credit to member banks, the Federal Reserve Banks were authorised to charge progressive rates above a specified datum line. This authority, which was exercised by some of the Reserve Banks, was withdrawn in 1923, when it was no longer required.

The policy of the Reserve Banks was extremely effective. The member banks had extended credit to such an extent that, as we have already seen, they were in the hands of the Reserve Banks—that is, they were re-discounting on a large scale. Consequently, when the Federal Reserve Rate was raised they were compelled to raise their own rates to customers. The effect was not immediately seen. Business men usually prepare plans several weeks ahead and, having embarked upon a policy, are more or less compelled to carry it through. In spite, therefore, of the rise in discount rates and the fall in prices which began in June, the demand for credit continued to increase until about October, when it began to fall. Trade depression set in, and the fall in the demand for general credit, which at first was very rapid, continued through 1921. It is difficult to fix any date to indicate the end of the period of liquidation, but we shall not be far wrong if we regard the middle of 1922 as marking a real change in the financial situation.

The extent of liquidation in domestic trade is

roughly measured by the change in the currency requirements of the country, and this is indicated by the change in the issue of Treasury notes, the elastic part of the currency. The issue of such notes fell from 3,349 million dollars at the end of 1920 to approximately 2,200 million dollars in the summer of 1922. The extent of liquidation in foreign trade is measured by the movement of gold. The precious metal was imported, on balance, in 1920, and within two years the effects of growing imports were observable in the sphere of banking. During the same period the discounts of the Federal Reserve Banks fell with great rapidity. In November 1920 they were above 2,600 million dollars, but by the middle of 1922 they had fallen considerably below 500 million dollars. By the latter date, however, other influences were at work which will call for later consideration; moreover, as I have already pointed out, the fall in discounts and in the issue of notes exaggerates the change that actually occurred in the credit situation.

The collapse of the boom and the consequent reduction in the demands upon the Federal Reserve Banks resulted in an improvement in the reserve ratio, which rose from about 42 per cent. in the middle of 1920 to about 80 per cent. two years later. As the reserve increased the rate of discount was reduced, and at the end of this period it reached 4 per cent. in some districts and $4\frac{1}{2}$ per cent. in others. It will thus be seen that during the third period the rate of discount was governed, as in this country, by the reserve position of the central bank. When the reserve ratio became dangerously low the rate of discount was raised sufficiently high to reduce the demand for credit; when the reserve ratio was high the rate was reduced. But we shall find that the conditions prevailing during the fourth period necessitated the abandonment of the accepted criterion and the introduction of a criterion of a wholly different character.

The open market policy of the Federal Reserve Banks during the greater part of the third period calls for little comment—it was of little significance. The volume of acceptances and securities increased during the second half of 1919, and afterwards fell steadily until the second half of 1921, when the rise of the reserve ratio and the need for using the assets for the purpose of securing an income led to the purchase of more securities. The increase in 1919 was due mainly to the purchase of acceptances which at that time promised to come into common use; the subsequent decrease reflected the fall in trade and the ease with which private traders were able to secure commercial capital from member banks, or, alternatively, to discount bills with people who not only had money to lend but had also discovered this new and profitable method of employing such money. The open market policy of the Federal Reserve Banks only came into prominence during the fourth period, which will be examined in the next and concluding article.

The above brief survey of the operations of the Federal Reserve system down to 1922 shows that the rate of discount was only employed to control credit and trade during and after the post-war trade boom. For the first two and a half years the member banks were practically independent of the Reserve Banks, and customer rates were apparently determined by competition in relation to the general demand for accommodation. During the second period the Federal Reserve rate of discount was effective; member banks had exhausted their surplus funds and re-discounts rapidly increased. But the rate itself was determined by Government needs. During the post-war boom and slump the rate was not only effective but determined by economic rather than political considerations. The criterion adopted in varying the rate was the criterion accepted as desirable in

this country—namely, the reserve ratio. Since 1922, however, the stock of gold in the United States has increased to such an extent that the old criterion has been abandoned. The discount policy pursued during the last four years has been forced upon the Federal Reserve Board by influences largely beyond its control.

VII

THE PRESENT SITUATION

The fourth period in the history of the Federal Reserve System extends from the middle of 1922 down to the present time, and is characterised by two facts, first, a steady inflow of gold and, secondly, the adoption of a new credit policy. Last year, on account partly of the reversion to the gold standard in a number of countries, and partly of the loans granted to Germany, the exports of gold were considerably in excess of the imports, but in all other years after 1919 imports were far in excess of exports, and the total stock in the United States rapidly increased. Until the middle of 1922 the member banks used the imported gold to cancel most of their re-discounts with the Federal Reserve Banks, which, in turn, increased their holdings of securities. At that time the volume of re-discounts and of Federal Reserve notes in circulation reached a temporary minimum, and the reserve was approximately 80 per cent. of the liabilities. The period of liquidation following the crisis and subsequent depression was at an end.

The depression in trade was also passing away, and the demand for credit steadily increasing. The improvement in trade was so rapid that before the end of 1923 the country was said to be in a highly prosperous condition. In the absence of any special circumstance one would expect to find that the increase in the community demand for credit was reflected in the re-discounts and note issues of the Reserve Banks, but although, within two years, the member banks had increased their

credits to customers by more than 3,000,000,000 dollars, the total volume of re-discounts at the top of the 1923 boom was less than at the beginning of 1922, when trade was very slack.* Moreover, the issue of Federal Reserve notes remained fairly constant during the same period.

The cause is to be found in the influx of gold. We have seen that until the middle of 1922 the member banks used the imported gold to cancel re-discounts; after that time it was used mainly as a basis of fresh credit to customers. The minor fluctuations in the re-discounts of Reserve Banks were thus influenced by two factors, which were closely interwoven—the demand for business credit and the rate at which gold flowed into the country. Over the period of two years (1922-23) the net increase in credit granted to customers was wholly met by the growth in the reserves of member banks, the latter being due to the imports of gold. Moreover, the increase in the supply of gold was so rapid that the total increase in the currency in circulation, required as the result of the growth of trade and the expansion of credit, was met by the issue of gold certificates. It was for this reason that the volume of Federal Reserve notes in circulation remained fairly constant. Even at the height of the 1923 trade boom the cash reserve hardly ever fell below 75 per cent. of the liabilities.

Broadly speaking, these conditions have continued down to the present. The fluctuations in re-discounts and in the Federal Reserve note issue have been of a minor character. The present cash reserve is over 70 per cent. of liabilities; the general demand for credit is probably greater than ever, and the required increase of currency in

* It should be added, however, that between July 1922 and July 1923 it increased from about 380,000,000 dollars to about 826,000,000 dollars. At one period in 1920 it had exceeded 2,800,000,000 dollars. In August 1924 it fell to 263,000,000 dollars; by October 1925 it had increased again to 633,000,000 dollars, and on 1st October 1926 it amounted to approximately 716,000,000 dollars.

circulation has been met by the issue of gold certificates. Neither re-discounts nor Federal Reserve notes can now be said to act as a reliable trade and credit barometer. The continuous increase in the supply of gold has enabled the member banks to increase accommodation without much, if any, additional assistance from the Reserve Banks. The assets of the latter are employed with such difficulty that profits are negligible. The limitation of profits imposed by the Federal Reserve Act prevented the profit-making motive from influencing policy during the trade boom, but the desire to make *some* profit may reasonably be expected to influence policy, sooner or later, under the conditions now prevailing.

It does not appear to have done so yet. With so large a cash reserve the Federal Reserve Board realised the danger of allowing the reserve ratio to determine credit policy, and adopted a new principle. The rate of discount was to be determined by the real economic need of the community. So long as the expansion of trade was of a healthy character, that is, so long as it meant a real increase in the volume of goods and services, it was to be assisted by easy credit conditions. But when production had reached the maximum of which industry was capable, and the production boom was merging into a speculative boom, the latter being reflected in a pronounced upward tendency in prices, the rate of discount was to be raised and the speculative tendencies thereby held in check. The rate of discount was thus to be determined by the official estimate of the state of trade, such estimate being based upon such factors as the volume of member bank borrowings from Federal Reserve Banks, the market rates for money, the volume of trade, production and employment, and the movement of prices at home and abroad.*

* We have already seen that the first two, considered separately, are not reliable guides during a period when gold is being imported or exported on a large scale.

When the trade situation in 1923 began to reveal speculative tendencies the rate of discount was raised to $4\frac{1}{2}$ per cent. in all districts. Shortly afterwards trade began to fall off, and early in 1924 a serious depression was threatened. The rate was reduced to 4 per cent., and afterwards to $3\frac{1}{2}$ per cent. In New York the rate fell to 3 per cent. during the summer. The fall in prices was checked, and it was the subsequent rise that partly accounted for that improvement in our exchange with America which led to the establishment of the gold bullion standard in this country. The fall in the rate of discount was followed by an improvement in trade which has not since been checked.

I have tried to show that during the last four years the member banks provided the increase in the credit required by the community without utilising Federal Reserve funds to any greater extent than in 1922, their ability to do so being due to the continued importation of gold. It would therefore appear reasonable to assume that the variations in the Federal Reserve rate of discount would not have influenced the rates charged by member banks to their customers. In its tenth report the Federal Reserve Board seems to argue that the Federal Reserve Rate was effective on account of the fact that member banks did, in fact, re-discount some of their notes with the Reserve Banks, but the argument is not convincing. The volume of re-discounts and that of open market operations were so small in comparison with the total demand for credit in the community that the charge made by member banks *need* not have been influenced by the rate of discount. The conditions were so abnormal that the member banks might have smiled even at a rate of six or eight per cent. The real explanation seems to me to be the one already suggested in a previous article. It has become a tradition that a member bank should

vary its rate of discount to customers according to variations in the Federal Reserve rate of rediscount. If that custom were abolished the Reserve Banks might even now lose control of the credit situation. Whether the tradition will survive the crucial test remains to be seen; the system has not been in operation long enough to justify dogmatic statements. All that can be said is that it has so far realised expectations.

If we assume that the rate of discount continues to be effective in the sense that it determines the rate charged to customers by member banks, the question remains, as already stated, whether the Federal Reserve Board and Banks will be content to allow the present large supply of gold to be held in cold storage. Much of it now represents a dead loss; it is not an earning asset. A reserve 30 per cent. above the legal minimum seems to be ridiculously high, when so much of it consists of gold rather than self liquidating assets; moreover, a further large supply of gold is held against certificates which might be replaced by Federal Reserve notes, and a still further supply held as a Government asset. The alternative is either to allow credit to expand or directly to export the surplus gold. In either case world prices would rise. In other words, the value of gold (in terms of commodities) is being maintained at an arbitrarily high level by the secretion of part of the present American supply; the Americans have placed in an artificial mine most of the gold that has been extracted in recent years from the mines of the world. It seems to be a foolish policy, yet a change in policy may cause considerable disturbance. It is often wise to persist in folly already begun.

The final question that arises is one which cannot be discussed within the limits of this series of articles. It is whether the present credit control policy has achieved, or may be expected to achieve, its object, which is to prevent undue fluctuations

in industry and trade by preventing speculation in time of great activity and stimulating the demand for credit in time of comparative depression, irrespective of the reserve ratio. The recent experience of America affords presumptive evidence that the policy has achieved a measure of success, but other factors in the situation have exercised so important an influence that the cautious student will use the old Scotch verdict "Not Proven."

CONCLUSION

In the first article of this series I described the defects of the old system of banking, but in the remaining articles I have confined my attention to the manner in which the Federal Reserve system has overcome some of those defects. The remainder were ignored on account of the fact that they were either technical in character or of merely domestic interest. The new system has created controversies which have also been ignored on account of the narrowness of the issues involved. My chief object has been to discuss the currency and banking principles upon which the system is based and the way in which elasticity has been given to both currency and credit. The Act of 1913 served as a final indorsement of the fundamental principle upon which the English system was founded. It enabled the United States not only to finance the war with greater ease than would otherwise have been possible, but also to handle a post-war situation rendered extremely difficult by the absorption of a large proportion of the world's supply of gold. If the old system had not been abolished it is not unlikely that the inflowing gold would have caused a financial and social catastrophe. The new system has yet to show that it is capable of utilising that gold wisely. It has achieved so much in the difficult years of the recent past that it may be expected to achieve still more in the near future, and thereby facilitate the restoration of stable conditions throughout the world.

APPENDIX

Statistics concerning the ~~World~~ **International** ~~League of Nations~~ **League of Nations** ~~and Central Banks, 1913-25~~ **and Central Banks, 1913-25 (2 vols.) League of Nations**
 I. II. III. IV. and V. VI. VII. and VIII. IX. X and XI.

Year	Wholesale Prices; Federal Reserve Board Index Number.	Net Imports (+) and Exports (-) of Gold.	Federal Reserve Board Dollars; 000,000's omitted	End of year holdings of Coin and Bullion. Dollars; 000,000's omitted	Total* Dollars; 000,000's omitted	Gold in held Federal Reserve System	Federal Reserve Notes	Gold Certificates	Total Circulation	Clearings. New York and 117 Towns.	Federal Reserve Board Assets. Dollars; 000,000's omitted	X. Securities	XI. Commercial Investments
1913	..	—	—	1,924	—	—	—	1,028	2,575	13,635	2,052	238	
1914	..	—	—	1,816	—	—	(17)	(921)	2,680	12,420	2,789	300	
1915	..	—	—	2,312	—	—	(204)	(1,281)	3,061	15,093	2,947	287	
1916	..	—	—	2,912	—	—	258	1,282	3,032	21,011	1,289	234	
1917	..	—	—	3,042	328 ¹	1,741 ¹	1,228	700	3,392	24,518	2,289	436	
1918	..	—	—	3,081	915	1,343	2,632	420	4,368	26,679	1,077	133	
1919	..	—	—	2,788	1,451	886	2,987	306	4,597	33,594	37,069	542	
1920	..	+ 106	—	2,929	1,350	665	2,987	212	4,813	36,062	1,112	380	
1921	..	+ 668	—	3,657	2,110	710	3,349	179	3,953	28,406	1,112	380	
1922	..	+ 238	—	3,933	2,455	708	2,443	303	3,997	31,362	1,112	380	
1923	..	+ 294	—	4,247	2,498	977	2,373	582	4,216	33,080	1,112	380	
1924	..	+ 258	—	4,547	2,242	1,509	2,224	582	4,211	37,069	1,112	380	
1925	..	— 134	—	4,409	1,940	1,712	1,842	971	4,254	41,730	1,112	380	

*The difference between this amount and the sum of IV and V for any year represents the gold held as a Government asset, together with the gold in circulation outside the Treasury and Federal Reserve Systems.