Federal Reserve Control of Credit by Benjamin Strong

In the early days of the Federal Reserve, changes in the discount rate were the principal instrument through which the central bank exercised control over credit conditions In this address, Strong explains the use of discount rate changes as a means of controlling the volume of credit and influencing interest rate movements He considers criteria for discount rate changes, concluding that in the absence of gold movements under a reestablished gold standard, policy makers have no option but to look to general economic conditions

Since the Federal Reserve Banks were established, and, in recent years in increasing quantity, the reports of the System have been so complete and have described the operations in such detail that students of banking require hardly more than the official reports to gain a fairly complete knowledge of the business conducted by the System

Even those who have not studied this literature understand that the Reserve Banks hold the banking reserves of the country, that they discount paper for their member banks, that they invest in bills or bankers acceptances and in the securities of the United States government, that they issue and redeem the principal currency of the country and distribute the metallic money coined by the mints, that they collect checks and practically all other types of instruments of payment for their members, effect the settlement of the domestic exchanges, and, in their capacity as fiscal agents of the Treasury, borrow all the money required for the Treasury's operations, handle the Government debt, receive on deposit the revenues, and pay checks drawn by the disbursing officers

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It is important that this business be visualized as to volume as well as character Bearing in mind that the Federal Reserve Bank of New York does about 40 percent of the business of the whole System, its transactions for the 10 months of this year were briefly as follows It held an average of $1,150,000,000 of reserves, practically all gold, discounted $46,000 pieces of paper aggregating $5,200,000,000 for its members, purchased 81,000 acceptances for itself and for other Reserve Banks and for member banks and foreign banks aggregating $1,150,000,000, and for account of all Reserve and other banks and of the Government and foreign banks purchased and sold $2,400,000,000 of Government and other securities, it counted and handled 315,000,000 pieces of paper currency aggregating $2,000,000,000 and handled a daily average of 26 tons of coin, collected 118,300,000 checks, notes, drafts, coupons, and other negotiable instruments aggregating $51,000,000,000, and affected payments by telegraph, over the 15,000 miles of telegraph wires which the System now operates, aggregating $17,600,000,000 Its transactions for the Treasury as the Government's fiscal agent were of too great a volume and variety to express briefly in figures

These figures are recounted for the purpose of emphasizing the character and extent of the contact of the Reserve System with the credit and currency operations of the country and, consequently, the significance of the functions which the Reserve Banks exercise

As to the System's policies and the purposes which inspired them, there is now an extensive literature in the shape of critical books, magazine articles, and public addresses It would be but repetition for me to go over ground so fully discussed by so many competent students and critics

There is, however, one function of the Reserve System the importance of which cannot be overemphasized and which I have determined to discuss tonight because it is, in fact, the heart of the System upon which the operation of every other part depends. I refer to the entirely new element which was superimposed upon our banking System in 1914 by the establishment of the Reserves Banks, which were given the power to influence or to regulate or to control the volume of credit. Every other function exercised by the Reserve Banks sinks into insignificance along side of the far-reaching importance of this major function.

Without regard to the views which you may entertain as to the various theories in regard to the purchasing power of money, or what may be more popularly discribed as the quantity theory of money, there is hardly anyone who is familiar with these matters who will not agree that no influence upon prices is so great in the long run as is the influence of considerable changes in the quantity of money, by which I mean not only metal coins and paper money, but bank deposits upon which checks may be drawn. The Reserve Act did in fact, whether by conscious design of its authors or not, bring about an almost revolutionary change in three important particulars in bank credit which may in turn have had an important relation to prices. (1) The Act originally reduced the reserve requirements of the national banks, and, subsequently in 1917, reduced them again. The effect of this was to make reserve money more efficient in that it was permitted to sustain a larger volume of loans and deposits than previously had been permitted. (2) By conferring the so-called clearing house functions upon the Reserve Bank, it speeded up the whole System of payments; checks are collected and paid more promptly; the course of currency shipments throughout the country has been greatly shortened and currency passes more promptly to points of redemption; and the countrywide clearing house, known as the Gold Settlement Fund, operated on the basis of daily telegraph settlements, has greatly shortened the length of time required to effect settlement of the entire domestic exchanges of the country. (3) But the most important change, as I have stated, is that conferring the power upon the Reserve Banks to actually permit or influence changes in the volume of money which serves as bank reserves or circulates as currency. My thesis, therefore, is addressed solely to this question of the regulation of the volume of credit and to make clear what a change has taken place because of the granting of this power.

Credit conditions before 1914

Let me refresh your memory as to how credit matters operated prior to 1914: Practically all of the commercial banks and trust companies of the country were subject to various statutory limits as to the minimum amounts of cash and redeposited reserve which they were required to carry. Except by legislative change in reserve requirements, there was no possibility of increasing the supply of reserve money beyond what arose through gold production or gold imports, neither could the supply of reserve money be contracted unless gold was exported. So it may be generally stated that the total reserves of all the banks was incapable of contraction except by paying it out to the public or exporting it; and equally incapable of expansion unless redeposited by the public or unless gold flowed into the country from abroad or was produced from the mines. Bear in mind I say total and not percentage. This had serious consquences in its relation to that mysterious phenomenon which is now being so carefully investigated and which we call the business (or, as I would prefer to call it, the credit) cycle.

At one extreme of the cycle the reserves of the banks regularly became impaired. With deficient bank reserves we were liable to see rates for "speculative" money advance to 100 percent or even more at times, and the charge for credit to merchants and manufacturers became a severe burden upon production and distribution. In such a situation almost any percussion cap would start an explosion. In 1893-95 deficient revenues of the government and an unfavorable trade balance which resulted in gold exports, coming at a time when there was agitation for a change in our monetary laws, led to great uneasiness. The reserves of the New York Clearing House banks showed shortages from $1,300,000 to $16,500,000. Fear developed that the Treasury would not have sufficient gold to meet its obligations and finally the crash came on June 21, 1893, resulting in the New York banks, and banks generally throughout the country, suspending currency payments; very largely suspending cash settlements between themselves for checks sent for collection not only through the local Clearing House but throughout the country. At that time a total of $41,490,000 Clearing House loan certificates were issued.

Much the same thing happened in 1907, when after a period of deficient banking reserves running from $1,200,000 to $54,100,000, the extended condition of a number of New York City banks caused alarm and general suspensions of like character to those of the early 1890s throughout the country. Call money loaned as high as 125 percent; currency went to 4 percent premium; and the domestic exchanges again were frozen.

Then again at the other extreme of the cycle, after a period of liquidation, surplus reserves poured into the money centers. After this same liquidation in the early 1890s the New York Clearing House banks at one time showed surplus reserves of $111,600,000. And bear in mind that at that time the total required reserves of the

New York Clearing House banks were but 27 percent of what they now are. Money then loaned at less than 1 percent. And the same occurrence was witnessed after the liquidation of 1907 when the surplus reserves of the New York City Clearing House banks rose to $71,000,000.

While under the conditions first described, every bank was seeking to withdraw loans, under the conditions last described, the banks were forcing money into the market. Money would become almost unloanable and the temptation to the speculator and his kind was extreme. I personally recall making loans on the New York Stock Exchange at 3/4 of 1 percent.

These extreme credit conditions arose because there was no stretch. When the period of surplus reserves arose, funds poured into the speculative markets. When the period of deficient reserves arrived, all the banks sought to contract their loans to make good their reserves and we witnessed the extremes of speculation and of business embarrassment. There was neither control of the volume of credit, nor moderating influence as to rates of interest. And, finally, there was no control over the movements of gold in and out of the country. I recall the Governor of the Bank of England telling me in 1916 that one of the most menacing influences on their reserves position was the possibility of a gold movement to America or from America as a result of our erratic money market, which no influence that they could exert was capable of stemming; of their regarding our so-called free gold market as one of the worst menaces to the stability of their own credit position.

I have refreshed your memory as to the conditions which prevailed under the old System in order to bring out in contrast the extent to which it differs from present conditions. As things are now, when a period of business expansion arrives, whether it be an annual and seasonal one, or whether it be due to a series of favorable crops at home and bad harvests abroad—in other words whether it be the short cycle of seasons or the long cycle of periods of years—such expansion, whatever its cause, can now be easily financed because of the power of the Federal Reserve System to furnish the required reserve money as needed and thereby permit the member banks in turn and in larger volume to increase their loans discounts, and, correspondingly, their deposits.

The Federal Reserve and credit

But now we come to one or two grave fallacies in regard to the Reserve System. I fear there are many people who still hold to the notion that some mysterious influence or process will operate when this enlarged volume of credit is no longer needed so that it will be induced, without any compulsion or persuasion, complacently to walk back to the Reserve Bank and surrender itself for cancellation. And possibly another fallacy still prevails among those who believe that because of certain very exacting requirements of the Federal Reserve Act and the regulations of the Reserve Board as to the type of loan which the Reserve Banks may make or the character of the paper which they may discount, that there is some control exercised by the Reserve System as to the uses to which the credit so extended by the Reserve Banks shall be applied by the borrowing member bank. Practical experience in the operation of the Reserve System seems to have disclosed something of importance as to the way credit is extended; as to the way that credit is retired when it is no longer needed; and as to the impossibility of control of the use that shall be made of it while it is in existence.

First as to the extension of credit, which may be described as normal or seasonal or necessary and legitimate. Practically the only motive which impels a member bank to borrow from the Reserve Bank is to make good an existing, or expected, impairment of its reserve. I think you may accept my statement that this is true, but let me give one illustration. Every member bank is required by law to maintain a certain minimum reserve on deposit with its Reserve Bank and, if it fails to do so, it is subject to an interest penalty upon the amount of the impairment considerably higher than the regular rate of discount of the Reserve Bank. This reserve in some cities is figured as a weekly average and in the rest of the country as the average of a fortnight. Every member bank must report its reserve position and submit to penalty if the average is impaired. Now, in practice, the way this works is very simple, and I shall use the case of a large New York City bank to illustrate: Early in the morning it sends its exchanges through the Clearing House and, as the result, it has to pay out reserve money or receives surplus reserve money according to whether it is debtor or creditor. Throughout the day it has deposits made and withdrawn; it makes new loans and has old loans repaid; it buys and sells securities and foreign exchange and furnishes currency to customers. And as the result of these and other transactions, at some hour of the day the member bank must make up what it calls its "position." If its reserve has become impaired as the result of the day's business, it borrows from us to make good its reserve. If the day's transactions give rise to a surplus reserve with us, the proper thing for the member bank to do would be to at once repay any funds which it had already borrowed from the Reserve Bank, although it may not do so. The chances are that if it does not do so it will be because it has an opportunity to employ the funds in some more profitable way than in paying off the Reserve Bank—that is to say, it can lend the money at a higher rate than the rate which it pays us upon its loan, namely our discount rate.

You will observe that in every case, and practically every day, the member bank, in gauging its reserve position, must of necessity determine whether it shall borrow, and if so how much, or whether it shall repay borrowings already made, and if so how much, and the alternative to borrowing or repaying is either withdrawing loans from the market in some form, if it is short, or making additional loans, if it is over, without recourse to the Reserve Bank in either case. Now, in the long run, it is my belief that the greatest influence upon the member bank in adjusting its daily position is the influence of profit or loss; that while it may regularly borrow to make good impaired reserves, it will repay its borrowing at the earliest possible moment unless the inducement of profit leads it to continue borrowing and to employ any surplus that arises in fresh loans. It may, therefore, be safely stated that as business expands for seasonal reasons or for any other reason, member banks will borrow from the Reserve Banks to make good deficient reserves caused by the expansion of their loans, provided the rate at the Reserve Bank is not so high as to make that borrowing too costly. But, on the other hand, if borrowing at the Reserve Bank is profitable beyond a certain point, there will be strong temptation to use surplus reserves when they arise for the making of additional loans rather than for repaying the Reserve Bank.

I shall discuss the question of rate control later, but I wish first to emphasize this important fact: Practically all borrowing by member banks from the Reserve Banks is ex post facto. The condition which gave rise to the need for borrowing had already come into existence before the application to borrow from the Reserve Bank was made, and experience has shown that large borrowings in New York City have in the past usually been explained by the member bank as caused by the borrowing operation of the Treasury, by seasonal demands, but more frequently because of the withdrawal of deposits.

Now as to the limitations which the Federal Reserve Act seeks to impose as to the character of paper which a Reserve Bank may discount. When a member bank's reserve balance is impaired, it borrows to make it good, and it is quite impossible to determine to what particular purpose the money so borrowed may have been applied. It is simply the net reserve deficiency caused by a great mass of transactions. The borrowing member bank selects the paper which it brings to the Reserve Bank for discount not with regard to the rate which it bears, but with regard to various elements of convenience, that is, the denomination of the paper, its maturity, whether it is in form to be easily and inexpensively delivered physically to the Reserve Bank or not, and it makes little difference to the borrowing bank what transactions may have caused the impairment of its reserve, because the paper which it discounts with the Reserve Bank may have no relation whatever to the impairment that has arisen. To specify more exactly, because this is an important point, suppose a member bank's reserve became impaired solely because on a given day it had made a number of loans on the stock exchange; it might then come to us with commercial paper which it had discounted two months before and which had no relation whatever to the transactions of the day; and with the proceeds of the discount make good the impairment. If it was the design of the authors of the Federal Reserve Act to prevent these funds so advanced by Federal Reserve Banks from being loaned on the stock exchange or to nonmember state banks or in any other type of ineligible loan, there would be only one way to prevent the funds being so used, and that is by preventing the member banks from making any ineligible loans whatsoever, or deny it loans if it had. And, in fact, during the peak of the period of expansion I believe the amount of paper which had been discounted with the Federal Reserve Bank equalled only about 14 percent of the loans and discounts of the member banks. The member banks undoubtedly had a very much larger amount of eligible paper than indicated by this small percentage, but, beyond that, a great mass of ineligible loans, and surely it cannot be claimed that the provisions of the Act, which specify so exactly what paper is eligible, can possibly have exercised any influence upon the application of the proceeds of these loans by the member banks.

I have enlarged upon this point so as to bring out this fact: that the expansion of the loan account of the Federal Reserve Banks, which as you know furnishes the foundation for a much greater expansion of loans and deposits of the commercial banks, can be brought about as the result of any expansion in the banking position of the country, no matter what may be its cause. The eligible paper we discount is simply the vehicle through which the credit of the Reserve System is conveyed to the members. But the definition of eligibility does not effect the slightest control over the use to which the proceeds are applied.

Going a step further, this means that the Reserve Banks will be subject to demands upon them, expressed to be sure in the form of eligible paper but which may have had their origin in any sort of expansive development, stock speculation, real estate speculation, crop moving, building operation, foreign bond issues, or anything else. Such an influence can arise through the borrowings not only of the United States Government in the market, but indirectly through borrowings of all kinds which have the effect of impairing reserves.

Now going still one step further, let me emphasize the contrast between the conditions which prevailed in the old System and those which have now arisen. I have pointed out how, in the extremes of the trade cycle, we have on the one hand impaired reserves and very high interest rates and on the other hand surplus reserves and very low interest rates. That condition has now quite disappeared. In actual operation, when the reserves of the member banks become impaired, they promptly borrow and they do not have to scramble around among their customers or on the stock exchange to call loans so as to make good the impairment. So, on the other hand, when they have surplus reserves, they are generally inclined to repay what they may have already borrowed from us rather than make new loans, provided of course our rates are properly adjusted to market rates, and they will continue to do so unless borrowing from the Reserve Bank becomes so profitable as to be a temptation.

Now you will observe that under the old System we experienced these periods of reserve deficiency and extremely high rates for money and reserve surpluses and extremely low rates for money, but under the present System all that has changed. Broadly speaking, there is no surplus reserve in the hands of the banks, whether members of the System or not. When business expansion or new loans cause impaired reserves, the member banks borrow from us; when surplus reserves arise for one reason or another, they repay to us. The consequence of this is, of course, that we have no such extraordinarily high or low interest rates as sometimes obtained. The funds flow in and out of the Reserve Bank day by day as sort of a leveling off process, so to speak. Now in a banking System where 10,000 banks, which represent over 55 percent of the banking deposits of the country, have convenient access to a source of borrowing such as the Reserve Banks, what are the possibilities that this borrowing may get beyond control; that the volume of credit may become dangerously enlarged and that in consequence we may be guilty of furnishing credit which might only result in marking up prices without any increase in production, with all of the injustices which are sure to result?

The chances of such a development can only be understood if one is familiar with credit conditions in all parts of the country. They could well be expressed in the form of a map upon which current local rates of interest throughout the country would be expressed as maps are shaded to indicate mountain ranges and their peaks. It would be found that over a large part of the south, considerable portions of the middle west, and generally throughout the Rocky Mountain region, interest rates are not only high, but in many cases as high as 12 percent. Not only do the usury laws of some states permit banks to lend money as high as 10 percent or 12 percent, but in practice a very large number of the smaller banks throughout the country in states which permit high rates make practically all of their loans at rates ranging all the way from 8 percent to 12 percent, and there are many banks that charge even higher rates by various roundabout methods. But the rate difficulty becomes more acute when it is realized that even within one Federal Reserve district of large area like Kansas City or San Francisco, there may be sections where rates as high as 12 percent are charged, but on the contrary, in the money centers, especially in the city where the Reserve Bank is located, the rates may be little if any higher than those prevailing in New York City.

Bearing in mind, however, that a member bank may be impelled to borrow not only because deposits are withdrawn but equally because it has made loans, in all of those sections where the loaning rate is much higher than the Reserve Bank rate, the temptation will naturally be ever present to expand loans indefinitely so long as the Reserve Bank is in a position to lend. This situation, which prevails in some parts of the country, is quite different from that in New York City, where the vast bulk of bank loans are made at a fairly uniform rate and where it is possible for the Reserve Bank, by an adjustment of its rate, to exert some restraint upon the extent to which its members borrow from it.

Discount rate changes and gold movements

Deferring until later any further discussion of methods of control of borrowing, which means control of the volume of credit, let me now refer to what appears to me to be the most perplexing difficulty in the exercise of such control as may be possible through the discount rate. It is a condition which has arisen as a result of the war and it is appropriate to introduce this part of the discussion by quoting from the report made by the British Committee on Currency and Foreign Exchange,[1] freqently called the Cunliffe report, as follows:

> Whenever before the war the bank's reserves were being depleted, the rate of discount was raised. This, as we have already explained, by reacting upon the rates for money generally, acted as a check which operated in two ways. On

[1] "Committee on Currency and Foreign Exchanges after the War," better known as the Cunliffe Committee after its chairman Lord Walter Cunliffe, former Governor of the Bank of England.

the one hand, raised money rates tended directly to attract gold to this country or to keep here gold that might have left. On the other hand, by lessening the demands for loans for business purposes, they tended to check expenditures and so to lower prices in this country, with the result that imports were discouraged and exports encouraged, and the exchanges thereby turned in our favor. Unless this twofold check is kept in working order the whole currency system will be imperilled. To maintain the connection between a gold drain and a rise in the rate of discount is essential.

Various influences were set in motion by the war which resulted in our receiving over $2,000,000,000 in gold in excess of what we held before the war started, giving us now a total gold stock of about $3,800,000,000, of which nearly $3,100,000,000 is held by the Reserve Banks. This is roughly a billion and three-quarters in excess of what the minimum legal reserve requirements of the Federal Reserve Act would now require us to hold against our present deposit and note liabilities. Under the provisions of the Federal Reserve Act as originally passed by Congress, the Federal Reserve Banks, when all of the reserves had been paid in, would have had a loaning power of roughly $900,000,000. With this enormous mass of gold now in our hands, we have a lending power at present in excess of the billion and one-quarter of loans and investments now made of roughly $4,400,000,000. Had there been no war there would have been no disturbance to the foreign exchanges. With the foreign exchanges fluctuating within the gold shipping points, any considerable expansion of credit in this country which caused prices to sharply advance would very probably have been penalized by a gold export movement. With the exchanges as they now are, that is, with the dollar at a premium practically the world over, gold cannot be exported, certainly not in large quantity except after such a period of expansion and rising prices in this country as would entail a veritable orgy of speculation; such a debauch in credit, in fact, as would reduce the purchasing power of the dollar progressively, first possibly to the level of the currencies of the neutral countries, then to sterling, then to the franc, etc. And this brings me to the point which is of such importance to the management of the Reserve System.

Before the war, as is set out in the Cunliffe report, a large gold export movement was the visible and convincing evidence, not only to the management of the bank of issue, but to the country generally, that the bank rate must be raised. To be sure, other conditions than a gold movement could well justify increasing the rate of discount of the bank of issue, but a large gold export movement, such, for instance, as we suffered in the early 1890s, which even impaired the gold reserves of the Government of the United States, would require little argument or explanation to convince the country that the bank of issue must take steps to protect the gold reserve.

As we are now situated, it is true that we may from time to time lose small amounts of gold to those countries where the currency has not been greatly depreciated. We have recently shipped some gold to Canada and it was a natural movement because the Canadian exchange had gone to a premium and dollars to a discount as the result of a large loan which the Canadian Government floated in this country. And from time to time the currents of trade and the balance of international payments may indeed result in small amounts of our excessive gold holdings being withdrawn, but with the currencies of most of the trading and banking nations of the world so much depreciated below ours—ranging from 10 percent in the case of sterling to the vanishing point in the case of Germany, Austria, and Russia—it seems altogether unlikely that any considerable amount of our surplus gold will be taken from us. Other than such a debauch of expansion as I have described, the only possibilities of early losses in gold that I can see would be through radical changes in the monetary laws of those nations whose currencies are greatly depreciated, implying, of course, the balancing of their governmental revenues and expenditures.

In the absence of the possibility, I may say even the remote possibility, of any such movement and in the face of the conditions which I have described as to interest rates in different sections of the country, what should be the policy of the Federal Reserve System in exercising this function which is of such supreme importance of regulating or influencing the volume of credit?

Methods of regulating credit volume

This brings us in fact to those important questions of policy in which human judgment plays so large a part. Various suggestions as to the policy of the Reserve System have been advanced by critics and students. They all seem to lead back to the two methods of regulation of credit volume which are, after all, fundamental. One may be described as the exercise of discretion by each Reserve Bank as to the amount which it is willing or which it thinks wise to lend to borrowing members. The other is the exercise of such influence or control as is possible through the fixing of the discount rate. It might at first seem that these two methods of regulation were in conflict with each other, but they are in fact both necessary and complementary; both have advantages and limitations.

In a general way it is my opinion, although others may differ from me, that so long as present conditions exist, rate regulation will operate effectively in the long run as to the great mass of American bank credit, that is, as to those banks which hold the principal amount of deposits and loans, provided the rates are wisely established by all of the Reserve Banks, and especially by those Reserve Banks which are located in the larger cities of the East. It is in those centers that interest rates are lowest and most stable and where the range is narrowest between minimum and maximum rates; but in the sections of the country more remote from the money centers, where interest rates are higher, as was earlier described, the exercise of a wise discretion by the management of the Reserve Bank is imperative, otherwise the facilities of the Reserve System might be abused by member banks borrowing excessively for profit.

Let me describe some of the difficulties of exercising discretion. First, the discretion, as I have earlier described, must be exercised ex post facto. The transactions giving rise to impaired reserves by the borrowing members have already occurred when the borrowing from the Reserve Bank is desired. Applying discretion to the borrowings of members under these circumstances really means that all one can do is to scold them. If the funds are not advanced to make good the reserve, then indeed the reserve balance is used by the member just the same only the penalty rate is higher. In the course of time that bank would restore its reserve because the law would prevent its paying dividends or making new loans until it is restored. That type of scolding, however, generally causes irritation.

A second difficulty is geographical. How can discretion be exercised in the case of applications for loans by member banks so remote that even the mail takes four days one way?

A third difficulty arises as to the basis upon which discretion shall be exercised. Who is to judge as to whether the transactions which cause the reserve impairment were justified or unjustified? A loss of deposits, theoretically, would always justify borrowing, but if the impairment arises because of loans made how is a judgment possible as to any one loan without judging equally of all loans made by a member bank?

Fourth, even assuming that such judgment were possible, who shall say how much each member bank shall be permitted to borrow without exceeding the bounds of prudence? Is it fair to assume that a member bank should liquidate once a year, or twice a year, so that its borrowing requirements are seasonal only, or should we admit that a certain amount of borrowing from the Reserve Banks may be permanent? Section 4 of the Act provides that a Reserve Bank shall "extend to each member bank such discounts, advancements and accommodations as may be safely and reasonably made with due regard for the claims and demands of other member banks." Much difficulty will be experienced by the bank managers of any one district in making these nice decisions as to its own district members only but, extending this to all the managers of the 12 Reserve Banks, with the 10,000 members with which they must deal, it would indeed appear to be impossible to exercise such discretion with universal justice. Indeed it may well be that in the absence of a Branch Banking System the Federal Reserve System will be the vehicle for furnishing a certain amount of credit permanently to those remote sections of the country where interest rates are high and where liquid capital is deficient.

A fifth difficulty appears to arise as to the regulation of the total amount of credit for the whole banking system, as distinguished from the total which any one member may be allowed to borrow. Obviously the 12 Reserve Banks cannot work out such a nice mathematical arrangement of credit as would serve the requirements of all the banking System and work smoothly, because these requirements vary greatly at different seasons of the year and in different sections.

A sixth difficulty is at once obvious were the System to assume responsibility for declining loans to members which made it necessary for those members to decline loans to customers. It has always seemed to me that the primary responsibility for any loan made by a bank to its customer should rest with the officers and directors of that bank and that the Reserve Bank should never assume that responsibility nor be willing to accept the consequences of exercising it.

And a seventh and last difficulty, although this may not indeed be all of them, is one which I regard as more serious than any of the others — The exercise of powers conferred by the Reserve Act upon the Reserve Banks by this rule of personal discretion, I fear, would develop inevitably in time a bureaucratic attitude of mind on the part of the managers of the Reserve Banks which would be unfortunate indeed for the welfare of the whole banking System. Power excites appetite for more power. Bankers in time would rebel and the public would rebel.

Now, on the other hand, it must be admitted that if a member bank is able to loan all of its funds at 10 percent or at 12 percent, and if it is paying as high as 5 percent interest upon its deposits and has the opportunity to discount paper at its Reserve Bank at 4½ percent, the temptation to make the additional profit by enlarging its business and discounting freely cannot well be escaped. Nor can the Reserve Bank charge that member bank a rate which would operate as a restraint to its borrowing without charging a like rate to member banks in its own city or in the money centers of its district, which would put the resources of the Reserve Bank entirely beyond the reach of most, if not all, of the large banks of the district. Therefore, however difficult may be the exercise of discretion, in some Reserve districts that would appear for the present to be the only means of exercising a regulatory influence.

On the other hand, let us see how the rate will operate. I think one should look upon the credit structure of the country as an inverted pyramid at the base of which is a foundation of bricks of gold which enjoy the peculiar power of sustaining each its own proportion of the entire inverted pyramid. Those bricks of gold are the bank reserves held by the Reserve Bank. If one brick is taken out of the base, the series of stones resting upon it, representing the volume of credit sustained by that reserve brick, must inevitably come down. And if a brick is added, by so much the pyramid is very shortly enlarged. If the Reserve Bank rate is so low as to be an inducement to borrowing, additional tiers of bricks will be laid at the foundation and the pyramid will be by so much enlarged; and the reverse is equally true if the rate does not induce borrowing—the size of the pyramid may be kept unchanged, or even reduced.

A rate control of the volume of credit has a variety of advantages. One is that it is democratic. It applies to all alike and it requires little, if any, expostulation and remonstrance to make it effective. It must be admitted that an advance in the discount rates by the Reserve Banks will not necessarily influence promptly the mountain peaks of high interest rates in some sections. But I rather doubt whether it is necessary that it should do so. Although not capable of statistical support, I think the statement may be hazarded from past experience that a rate which is effective in checking borrowing in the money centers, or even in reducing borrowing, will indirectly be an influence in all sections of the country. It certainly has the effect of what I might describe as "driving borrowers back home." It is customary for many concerns which do a large business to borrow in the cheapest money markets, no matter where their offices and business may be located. If New York, for instance, should advance discount rates and member banks in turn advanced rates to their customers, a certain number of these out-of-town borrowers would go to their local banks for their loans if the rates there are satisfactory so as to enable the borrower to pay off in New York. This process I believe would be found, could it be analyzed, to be many times repeated, so that the effect of rate changes in the 12 Reserve cities is not confined alone to those cities but extends throughout the country.

Another point frequently overlooked in regard to the effect of the rate is due to lack of understanding of the way in which borrowing from the Reserve Bank originates, that is, through impaired reserves. Every bank knows about what its loanable funds cost it on the average and about what it receives on all of the money which it is loaning. It knows about what its expenses and overhead amount to, and the difference is its profit. When a bank's reserve becomes impaired so that it must borrow, it does not pick out a particular piece of paper which it has discounted at a higher rate of interest and then rediscount that paper at the Reserve Bank rate and figure that it is making a profit, but it is much more liable to see whether the borrowing from the Reserve Bank at the Reserve Bank rate involves in point of fact an absolute loss, or whether it may not be less expensive to reduce loans or sell investments and avoid borrowings. Expressing it differently, the rate at which a Reserve Bank lends to its member bank has no particular relation to the rate which a member bank receives on any of its transactions, but it has a relation to the average of all rates received by the member bank and the average cost of all of its loanable funds. And from this I have always concluded what I firmly believe to be the fact, that a Reserve Bank rate in order to be effective in restraining undue borrowing does not necessarily need to be a penalty rate, that is to say, a rate fixed so high that there will be no differential in favor of the borrowing bank on *any* paper which it may have taken from its customers, even the highest rate paper. But an effective rate will likely be somewhere within the range between the average cost of all its loanable funds, including overhead, and the average that it receives upon all of its earning assets, with due allowance, of course, for loss of interest on reserves.

The chief advantage of rate control, however, is in the way it serves more definitely to regulate the total volume of credit as distinguished from the total amount of loans to any one individual member bank. I would regard the determination of the amount to be loaned to an individual member bank as a credit matter to be determined just as any loan would be determined by any bank to any customer. But on the other hand, I would regard the rate policy of the Federal Reserve System as a national credit policy more directly related to regulating the volume of credit in the country so as to maintain stable credit conditions.

Finally, however, we must recognize that there are many people who believe that more money, and cheap money, means prosperity and happiness. To those people an advance of discount rates may at times be difficult to explain. It is on that account that the absence of natural movements of gold is most unfortunate; and it is for that reason, as well as for many others, that the world will be better off by a prompt return to the gold standard and free gold payments.

Permit me now to make a brief resume of this long argument: The Reserve Banks have been given the power to create reserve balances and to a large extent to regulate the volume of credit. That volume of credit expands in response to ex post facto borrowing by member banks; the mass of their transactions causing the borrowing having already occurred, there is no means by which the Reserve Bank can control the use which is made of the funds which it loans to its members. Credit so borrowed from the Reserve Banks is less likely to return for cancellation when no longer legitimately required if discount rates are too low, and a high discount rate will operate to induce its return. The present banking System has created a situation where there is no surplus of banking reserves in the country, and where there is not likely to be a deficiency. The real reserve barometer is the reserve percentage of the Reserve Banks. The impulse which will lead the Reserve System to change rates must for the present largely arise from general conditions, and it cannot be expected that the impulse to advance rates will be given by gold exports for a long time to come. Therefore, the regulation of the volume of credit which is the chief function of the Reserve System must be effected by a combination of rate changes and due caution as to members' borrowings.

The Federal Reserve System has always impressed me as being essentially a social institution. It is not a supergovernment, it is simply the creature of Congress, brought into being in response to a public demand. It was not created only to serve the banker, the farmer, the manufacturer, the merchant, or the Treasury of the United States. It was brought into being to serve them all. Its guiding influence is not profit. Practically all its receipts over expenses go to the government. For some the service it performs is direct, for others it is indirect, but it is not less definite nor any less important. It needs and asks that it be given the benefit of intelligent study and enlightened criticism. Its future depends upon its own good behavior and upon its success in winning and holding the confidence of the public.