83-2

A Series of Occasional Papers in Draft Form Prepared by Members of the Research Department for Review and Comment.

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COMPARING ALTERNATIVE REPLACEMENTS FOR LAGGED RESERVES: WHY SETTLE FOR A POOR THIRD BEST?

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Comparing Alternative Replacements for Lagged Reserves: Why Settle for a Poor Third Best?

by

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*The views expressed are those of the author alone and do not represent the views of the Federal Reserve Bank of Chicago or the Federal Reserve System.

The author has benefited from the comments of Herb Baer, Henry Goldstein, Bryon Higgins, Paul Kasriel, Jim Kolari, Randy Merris, Larry Mote, and Steve Strongin.

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Much attention has recently been devoted to the effect of reserve accounting on monetary control. In the wake of the Fed's announcement of a shift to a reserve operating procedure, the deficiencies of the present lagged reserve system for such an operating procedure have been well publicized. As a result, it was decided to move towards a contemporaneous reserve accounting (CRA) system, though the precise replacement is still unclear. The decision to move towards CRA however, was made in a virtual vacuum of economic research. Those few studies that have compared CRA against other replacements for lagged reserves have used a somewhat complicated macro-economic approach which has tended to mute the differences in performance between the alternatives. This paper argues that a more appropriate, and much simpler, methodology for comparing reserve accounting systems uses a micro-bank approach that can be used to show that there are vastly superior alternatives to CRA as a means of controlling money.

This micro-bank methodology is specifically used to demonstrate the superiority of a reverse lag accounting (RLA) system.[1] Indeed, the paper argues that RLA is superior in every aspect except

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[1]The reverse lag system is presented in some detail in [4] and a capsule description is given in the Appendix.

familiarity. RLA would give accurate monetary control each settlement period. In addition, banks would find it much easier to operate under RLA than CRA or the present lagged reserve system, an important consideration since bank objections to the operational difficulties of CRA are the principal reason why a true CRA system is not being adopted. Indeed, RLA would vastly simplify the operations of the monetary authority, allowing accurate control of total reserves with just one open market transaction each settlement period. The paper argues further that under RLA, unlike CRA, the accuracy of monetary control is undiminished by a lowering of reserve requirements. Thus RLA has the additional attraction of allowing a reduction in the reserve requirement tax without diminishing its monetary control qualities. This is an important advantage because the lower are reserve requirements, the lower the tax imposed on the target monetary aggregate, and the greater the integrity of the target aggregate against money substitutes and market innovations.

Demand for Money

There are relatively few studies explicitly devoted to comparing the monetary control properties of different reserve accounting systems that could replace lagged reserves. To the author's knowledge all but one of these studies use a macro approach, that in most cases, includes the demand for deposits by the public.[2] At first glance it seems only reasonable to use the demand for deposits in doing an analysis of monetary control. After all, economists traditionally consider both supply and demand in analyzing the quantity of a good or service. However, if the supply function for money could be made

[2]See [1], [2], [3]. The exception is [6].

completely inelastic, then it alone would determine the money stock. In this case, demand conditions could be ignored since they simply determine the price necessary to allocate the fixed quantity supplied. Could a completely inelastic supply function be created for money? The fact that the monetary authority has a monopoly over the creation of reserves is conducive to such a supply function; it means that a completely inelastic supply of reserves might be accurately set.

Reserve requirements connect reserves and the money stock. If all reserves were always used to satisfy reserve requirements then an inelastic supply of reserves would translate directly into an inelastic money supply. The problem is that banks may hold more reserves than are necessary to meet reserve requirements based on their deposits. Uncertainty as to the level of these excess reserves is the fundamental problem in translating accurate control over reserves into accurate control over money. A system that eliminates excess reserves is capable of accurately setting the money stock, regardless of the demand for money.[3]

There are indications that one could ignore such macroeconomic considerations as the demand for money in evaluating the monetary control properties of different reserve computation systems. First, the standard textbook exposition of the money multiplier process proceeds through a sequence of banks expanding or contracting the money supply by buying or selling assets until required reserves equal the level of reserves supplied with never a mention of the demand

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[3]In theory, accurate control could be achieved even with a large level of excess reserves, as long as it was predictable. In practice, at least to the author's knowledge, every very accurate system of monetary control utilizes a zero, or near zero, level of excess reserves.

for money. The only apparent demand side condition required is that there be interest rates at which the public is willing to accept or provide additional credit. A second indication is provided by 100% reserve requirements. Since at least the 1930's, economists have known that a 100% reserve requirement system could accurately control the money stock, and yet the demand for money was never considered in the analysis. The reason is that one can almost intuitively see that 100% reserve requirements is a system in which excess reserves are eliminated.

Excess Reserves

Excess reserves have generally declined in the period since 1940 until they now stand at a very low level historically. In addition, a monetary policy directed in part to smoothing the federal funds rate, as policy has, must involve the avoidance of fluctuations in excess reserves. Thus historically, the level of excess reserves has been both small and non-volatile. As a consequence, economists sometimes consider excess reserves to be unimportant and for many purposes completely ignore this magnitude. Excess reserves, however, would play a very different and much larger role under a monetary control process implemented through control over total reserves. Under such a process the monetary authority initiates policy by producing disturbances to the banking system's excess reserves without concern for the effects on the federal funds rate.[4] It is the reaction of banks as they collectively exchange assets with the public

[4]It's worth recalling that neither CRA (the accounting system before September 1968 was actually a 1 day lag) nor a total reserves operating procedure has ever characterized monetary policy in the U.S. An analysis of the comparative qualities of CRA and RLA must, therefore, be completely based on a theoretical analysis.

in response to changes in the federal funds rate arising from changes in excess reserves that produces the changes in money which affect the aggregate level of required reserves and excess reserves. The process by which the banking system adjusts the level of required reserves (and excess reserves following a change in reserves) is the key process in monetary control through reserves.

The analysis of the monetary control qualities of different reserve accounting systems, involving as it does the question of the excess reserve holdings of the system, leads inexorably to an analysis of the "demand for excess reserves". The "demand for excess reserves" is the name given to the relationship between the excess reserve holdings of the banking system and the interest rate charged on the overnight use of reserves (federal funds rate). The accuracy of monetary control through reserves is advanced by any change which stabilizes the demand for excess reserves. Ideally for monetary control, the demand for excess reserves would be identically zero, so that excess reserve holdings would be zero.[5] The major impact of any reserve accounting system on monetary control through total reserves is determined by how it affects the demand for excess reserves.

The demand for excess reserves differs from the typical demand function in one very important aspect. Ordinarily, the demand for a good or service is based on the assumption that more is preferred to less. In the case of excess reserves, banks actually prefer less to more. Excess reserves represent resources on which banks earn no return and on which an alternative return in foregone. So why don't

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[5]At least for any federal funds rate above some very low level at which the return does not cover transactions costs.

banks completely eliminate excess reserves? The problem is that banks are not sure ex-ante how to achieve zero excess reserves ex-post. One might think of reserves as insurance and excess reserves as unused insurance. It is the ex-ante uncertainty as to future events that can lead to the ex-post holding of insurance against an event that did not occur. If follows then, that one can allow banks to eliminate excess reserves (unused insurance) if one can let banks know what future disturbances to excess reserves (event insured against) will occur.

Unexpected disturbances produce excess reserve holdings because the possibility of unexpected future disturbances to excess reserve positions and the existence of transactions costs mean that it is not always optimal for a bank to adjust excess reserves to zero with the obtaining of new information. Profit maximization might dictate that a bank adjust only to that part of a disturbance to its excess reserve position which it is reasonably certain will not be reversed in the remaining portion of the settlement week. It follows then that the elimination of unexpected disturbances to a bank's excess reserve position will eliminate the bank's demand for excess reserves. Consider a hypothetical example. Suppose one could tell a bank at the beginning of the settlement week that the net effect of all the unexpected outside disturbances to the bank's excess reserve position over the remainder of the week would have the effect of leaving the bank with some daily average figure (say $300,000) in excess reserves. The bank would probably take immediate steps to eliminate these excess

reserves, and most certainly plan to reduce its reserve holdings by that exact amount ($300,00) per day over the settlement period.[6] The elimination of the unexpected disturbances to the bank's excess reserve position allows the bank to eliminate excess reserves.

The Criterion

The analysis above indicates that excess reserve holdings are positively related to the aggregate amount of unexpected disturbances to individual banks' excess reserves. This immediately suggests a criterion for comparing the monetary control properties of different reserve accounting systems. Given the same degree of control over reserves by the monetary authority and the same configuration of reserve requirements on different types of deposits,[7] that system is best which reduces aggregate excess reserves to the lowest level. The analysis above suggests that, other things being equal, that reserve accounting system is best which minimizes unexpected disturbances to a bank's excess reserve position.

This criterion suggests a methodology for comparing the monetary control properties of different reserve accounting systems which depends on an analysis of the bank at the micro level. It involves

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[6]The preference for immediate adjustment arises from the existence of transactions costs. The bank would only delay adjustment until later in the week if its expected future interest rates were far enough above the implicit rates in the term structure of market interest rates to overcome the increased transactions costs.

[7]In fact, it will be argued later in the paper that RLA is also better both at controlling reserves and in allowing a superior (i.e. lower) configuration of reserve requirements.

comparing the unexpected disturbances to a bank's excess reserve position under different reserve accounting systems. The criterion immediately shows why 100% reserve requirements under CRA are such a good monetary control system. Under 100% reserves, deposit changes on a bank's books change both reserves and required reserves by the same amount, leaving excess reserves unchanged and inducing banks to greatly reduce or eliminate their excess reserve holdings. The criterion also shows why under CRA, other things being equal, higher reserve requirements give better monetary control. The higher are reserve requirements the smaller are the disturbances to excess reserves arising out of a given deposit shift.

The criterion also shows that there are reserve accounting systems which are vastly superior to CRA. One of those systems is RLA.[8] It might seem that comparing RLA to CRA would be complicated, requiring estimation and comparison of various advantages and disadvantages of the two systems. However, the comparison is simplified by the fact that RLA is superior to CRA in every circumstance. This superiority can be demonstrated by examining two groups of mutually exclusive and completely exhaustive disturbances. The first group is that in which deposits are merely exchanged by the

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[8]Another is the 100% marginal reserve requirement system proposed by Poole [7]. Indeed, with regard to the reduction in disturbances to excess reserves considered here, 100% marginal reserve requirements and RLA are absolutely identical. Using the criterion developed in this paper, a 100% marginal reserve requirements system is also vastly superior to CRA. Perhaps one should not be too surprised at the inferiority of CRA. The other systems are designed to control money, whereas CRA was originally designed to increase bank liquidity.

public and the only other impact on banks is a shift of non-earning assets (reserves). The second group of disturbances is that in which the level of deposits in the banking system changes because a bank either implicitly or explicitly exchanges earning assets with the public.

The Comparison

The superiority of CRA is based on the following demonstration. First, it is shown that the great majority of disturbances that occur under CRA are totally eliminated under RLA. The small minority of disturbances which remain are common to both RLA and CRA. Those remaining disturbances which affect banks under both systems could be reduced and perhaps eliminated, under RLA, by further changes. But even without these further changes, adjustment to these remaining disturbances would be easier, for banks and the banking system, under RLA than under CRA. In addition, it is shown that under RLA the monetary authority could accurately set reserves with one transaction a settlement period. Finally, it is shown that as reserve requirements are lowered the monetary control characteristics of RLA are unchanged while those of CRA deteriorate.

Far the greatest share of unexpected disturbances to a bank's excess reserve position under CRA arises from deposit transfers between members of the public. Such transactions increase excess reserves at the bank of the recipient and decrease excess reserves at the bank of the payer. Under RLA, bank excess reserves would be insulated from all transfers of funds between non-bank parties.[9]

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[9]A demonstration that RLA insulates banks from outside disturbances is given in the Appendix.

At one fell swoop, this eliminates the vast majority of unexpected disturbances to a bank's excess reserve position and establishes, by itself, the superiority of RLA.[10]

The remaining disturbances to a bank's excess reserve positions are those which involve changes in deposits in the banking system because earning assets are, implicitly or explicitly, exchanged between the public and a bank. These disturbances affect banks under both CRA and RLA and can either increase excess reserves (e.g. loan prepayments, repurchases) or decrease excess reserves (e.g. overdrafts, take down of loan committments). Only disturbances which are both unexpected and uncontrollable would be problems in the sense of possibly leading banks to hold excess reserves. Thus, changes in security holdings by banks would be no problem since banks have control over these changes. Problems arise with unexpected and uncontrollable changes in loans.

There are additional changes which could eliminate the major sources of these disturbances (i.e. overdrafts and repurchases). For example, imposing reserve requirements on unused overdraft lines would eliminate overdraft disturbances under RLA. Indeed, any instrument that allows bank customers to immediately and unilaterally transfer funds and increase deposits, as overdraft lines do, could justifiably qualify as a candidate for reserve requirements.[11] This change is

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[10] A very conservative estimate using figures for debits, loans, and overnight repurchases is that RLA would eliminate at least 88% of the volume of unexpected disturbances to banks.

[11] The proposal of putting reserve requirements on overdraft lines raises important questions of whether money should be considered as a means of readily performing transactions or as a measure of liquid assets. Overdraft lines clearly force one to discriminate between these two approaches.

particularly attractive under RLA where reserve requirements could be set at a very low level (e.g. [5] argues for reserve requirements of approximately 1/3 of 1%). One solution for disturbances from repurchases utilizes the fact that repurchases basically arise from ceilings placed on interest rates payable on deposits, particularly corporate transaction deposits. The elimination of all interest rate ceilings and the sharp reduction of reserve requirements possible under RLA, would seem to eliminate the need for repurchases. The volume of disturbances from unexpected loan pre-payments would seem to be minor, but if it led banks to hold unacceptable levels of excess reserves, it's possible that further changes could eliminate even this minor source of unexpected disturbances to excess reserves.

It should be emphasized that the superiority of RLA to CRA does not depend on placing reserve requirements on unused overdraft lines or eliminating interest rate ceilings. These changes are only material for the issue of how close to zero excess reserves will be under RLA. Even if these changes are not made, RLA will be unambiguously superior to CRA. This superiority rest on the already noted fact that unexpected disturbances to excess reserves under RLA are a small subset of unexpected disturbances under CRA. In addition, it will be shown that adjustment to the disturbances common to both RLA and CRA will be easier, for banks and the banking system, under RLA. It will also be shown the monetary authority can, under RLA, accurately control reserves with one open market transaction a settlement period and that the monetary control properties of RLA, unlike those of CRA, do not deteriorate as reserve requirements

are lowered. Finally, it will be argued that the bank operations required to assure satisfaction of reserve requirements will be much easier under RLA than under CRA.

The Adjustment Process

Under CRA the individual bank basically accepts deposits as given and views the problem of managing its reserve position as one of adjusting reserves to match required reserves. A bank with fewer reserves than required reserves views its situation as one of being deficient reserves, not as having excess deposits. A bank in the reverse position views itself as having excess reserves, not insufficient deposits. Yet, clearly for the banking system as a whole, the situation is exactly the reverse. The banking system as a whole cannot change reserves and must come to equilibrium through deposit changes. One problem with CRA is that it produces a very contorted mechanism of banking system adjustment. In effect, the equilibrating deposit changes occur as a side effect to the individual bank's attempts to move reserves into balance with required reserves.

Consider a situation under CRA where all the banks in the banking system are in equilibrium with reserve requirements of 10% when a bank customer decides to run $100 in repurchases. Though deposits have fallen $100, the affected bank sees its new situation as one of having $10 in excess reserves. It, (or after a federal funds transaction, some other bank) adjusts by purchasing $10 in earning assets from the public. This leaves an as yet undetermined bank with $9 in excess reserves. This next bank will adjust by purchasing $9 in earning

assets and the process continues through an infinite series of adjustments of declining magnitude until deposits have increased enough to equate required reserves to reserves again. The adjustment process is spread out over time and banks before CRA achieves equilibrium.

Consider the same situation under RLA. The affected bank sees its situation as either one of holding $10 too much in reserves in the relevant preceding period or as holding $100 too little in earning assets in the current period. The affected bank, (or some other banks if reserves held in the previous week are exchanged) knows immediately that $100 in earning assets must be purchased in the current week to move the system to equilibrium. That purchase of $100 in earning assets immediately moves the adjusting banks to equilibrium without disturbing any other bank.[12] Of course, reserves are redistributed through the system in an unpredictable way as a result of the adjustment, but that is only of concern for the satisfaction of reserve requirements in some future week when banks would know their reserve holdings and reserve needs with accuracy, and reserve positions could be adjusted without fear of disturbance.

Level of Reserve Requirements

RLA and CRA also differ in their response to changes in the level of reserve requirements. Under CRA, lowering reserve requirements weakens monetary control while lowering reserve requirements leaves monetary control unaffected under RLA.

To see the reason for these differences, consider the effects of a potential $100 overdraft under the two systems. Under CRA this

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[12]For a demonstration that earning asset purchases will move the adjusting banks to equilibrium without disturbing other banks see the Appendix.

would result in a fall of $100 in excess reserves at the affected bank. A bank worried about this possibility would hold the same dollar level of excess reserves, no matter what the level of reserve requirements. The same dollar levels and dollar fluctuations in excess reserves disturb the money stock more, the lower are reserve requirements, for they represent larger and more volatile percentage holdings of excess reserves.

Under RLA, the impact of the unexpected $100 overdraft is to raise required reserves just as though the bank's demand deposits increased by $100. A bank worried about this possibility would hold the same amount of earning assets and therefore produce the same level of required reserves, no matter what the level of reserve requirements. The cushion provided against such disturbances is the difference between required reserves (which the bank affects by its asset holdings in the current week) and reserves in the relevant preceding week. For example, if a bank thought it optimal to be able to fully offset an $80 increase in required reserves, it would hold $80 less in earning assets than it could support on the basis of its reserves in the preceding week - irrespective of the level of reserve requirements. This would produce the same money stock no matter how low the level of reserve requirements. The reason why the monetary control properties of RLA are invariant to the level of reserve requirements is that any outside disturbances that might occur do not affect the reserve measure that matters (reserves in some previous week) for the satisfaction of reserve requirements in the current week.

This invariance of monetary control to changes in reserve requirements is a very important characteristic of RLA. It allows the monetary authority accurate monetary control no matter how low the level of reserve requirements. This is important because the problem of defining money appears to stem from market innovations motivated by a desire to avoid interest rate ceilings and the reserve requirement tax. The elimination of interest constraints on deposits (Regulation Q) and a sharp lowering of reserve requirements under RLA could then eliminate the problem of defining money while still providing accurate weekly control over money. Indeed, in many ways the real problem of a monetary policy directed to the money stock, is not the problem of controlling the money stock accurately. As noted earlier, economists have known, since at least the 1930's, that 100% reserve requirements will provide such control. The real problem is how to control money accurately while not destroying the integrity of the monetary aggregate. RLA, by allowing accurate monetary control at very low levels of reserve requirements can solve this fundamental problem.[13]

Aggregation

This paper has, up to now, concentrated on a micro-level analysis of RLA to the complete neglect of macro-level analysis. However, it's clear that the micro-behavior of the individual bank must be consistent with macro-equilibrium for the banking system. A description of how individual bank behavior aggregates into banking system equilibrium is helpful in understanding the operation of RLA.

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[13] A more extensive discussion of how RLA can solve this problem is presented in [5].

Under RLA, each bank begins the period by comparing its average level of reserves in some earlier settlement period with the level of required reserves against its deposits at the end of the preceding settlement period. This comparison immediately tells the bank exactly what changes in earning assets (or equivalently the demand deposits to be created or destroyed) are required to just match required reserves to its previous level of reserves. After making this comparison, the individual bank has a choice in how it adjusts. It can either make the asset adjustment in the current settlement period or adjust its reserve holdings in the earlier settlement week. For the banking system as a whole however, adjustment must occur through changes in earning assets. If for example, the banking system has more reserves in the earlier settlement week than its required reserves entering the current week, then there will be downward pressure on the cost of reserves in the earlier week. The rate for reserves in the previous week falls until some banks find it attractive relative to the rate that could be earned on earning assets in the current week. The required net addition to earning asset holdings is allocated through the holdings of previous reserves, so that each bank will know and choose its contribution to the required changes in deposits in the current week.

Notice that the market in the previous week's reserves means that the monetary authority can, with one transaction, accurately set the level of reserves, even alongside the existence of Fed float and fluctuations in treasury deposits. The monetary authority simply lets disturbances occur, and then after observing the net effects, performs one open market operation in the previous week's reserve market to precisely set the aggregate level of reserves.

Banks would change their behavior in one very important respect under RLA. The focus of a bank's attention and monitoring in order to assure satisfaction of reserve requirements would be shifted from reserves and deposits to earning assets. Under RLA, only changes in a bank's earning assets, could affect its excess reserves. Under CRA, changes in deposits and reserves as well as changes in earning assets, could affect it's excess reserves. RLA greatly simplifies bank operations since it's intrinsically much easier for a bank to anticipate, control or offset changes in its earning assets than changes in earning assets plus changes in its reserves and deposits.

Conclusion

This paper compares a reverse lag reserve accounting (RLA) system to contemporaneous reserve accounting (CRA) and argues that RLA is vastly superior. In contrast to the few other studies which have compared the monetary control properties of reserve accounting systems through a macro-analysis of the banking system, this paper uses a micro-bank approach. The paper argues that the micro-bank approach is more appropriate because it allows one to analyze differences in the demand for excess reserves resulting from changes in the reserve accounting system. It's further argued that the comparison between reserve accounting systems simplifies into a comparison of the unexpected disturbances to a bank's excess reserve position. It's demonstrated that RLA would vastly reduce, if not totally eliminate, unexpected disturbances to a bank's excess reserves. By sharply reducing the level and variability of excess reserves, the adoption of

RLA produces a much superior system of monetary control as compared to CRA. Simultaneously, RLA would virtually eliminate current bank operational problems in managing their reserve positions. Aside from its advantage of sharply reducing unexpected disturbances to bank excess reserve positions, RLA has other advantages over CRA. It allows a smoother and quicker adjustment to equilibrium if disturbances do occur, and its monetary control properties do not deteriorate with a lowering of reserve requirements. RLA also allows the monetary authority to accurately control total reserves with one open market operation a settlement period. The analysis in this paper argues that CRA is at best, a third best reserve computation system - and a very poor third at that.

APPENDIX

The key operational aspect of reverse lag accounting (RLA) is that a bank's required reserves within the settlement week are affected only by those deposit changes in the system produced by the bank itself within the settlement week. This appendix demonstrates how RLA operates to produce this result. RLA involves four changes:

1) A bank satisfies reserves requirements if its required reserves on deposits in the current week are less than or equal to reserves in some previous week.

2) Changes in a bank's reserves that arise from deposit changes (e.g., from check clearings or wire transfers) would be called reserve clearings at the Fed (RCF). In computing required reserves, a bank's RCF so far in the settlement week would be subtracted from demand deposits.

3) All deposit changes within the week would be treated as demand deposits for reserve requirement purposes.

4) Current vault cash would be subtracted from demand deposits in computing daily required reserves.

The demonstration involves two parts. First, it is shown that the deposit changes in the banking system produced by a bank within the week impact on its own required reserves. Second, it is shown that outside factors which affect deposits at the bank within the week will not affect its required reserves. In effect, a bank's required reserves in the current week are equal to its required reserves at the end of the preceding week plus the reserve requirement against demand deposits times the average net change in its earning assets in the current week.

A bank changes deposits in the banking system by buying or selling assets in exchange for a check. Buying assets increases deposits while selling assets reduces deposits. Consider a bank which, on the basis of last week's reserves and its level of deposits entering the current week, could hold $100 more in demand deposits in the current week. The bank knows that it can purchase $100 in assets in the current week. As soon as the bank writes the check, its required reserves increase as though its demand deposits were $100 higher, moving the bank to equilibrium. If the check is deposited in a checking account at the bank itself then the bank clearly remains in equilibrium. Even if the check is deposited in a time or savings deposit, the bank remains in equilibrium since the additional deposits have the same effect as demand deposits on required reserves within the week. Suppose that the recipient of the check brings it to the bank to cash for currency. In this case the bank pays out vault cash. Because vault cash is subtracted from demand deposits in computing required reserves, the bank's required reserves are still affected as though demand deposits increased $100.

The bank cannot be sure that the check will come directly back to it. Instead the check could be deposited at another bank and cleared through the Federal Reserve. In this case, the clearing will create a -$100 reserve clearing at the Fed (RCF) which will, since it is subtracted from demand deposits, have the same effect as a $100 increase in demand deposits. Alternatively, the check could be cleared through a correspondent bank. In this case, the effect will be to reduce the issuing bank's "due from" balances by $100, which has the same impact on required reserves as a $100 increase in demand deposits.

This example demonstrates how RLA insures that the changes a bank produces in aggregate deposits impact on its own required reserves. The sale of assets by the bank would have the opposite impact through the same channels.

The second part of the demonstration is to show that deposit changes produced within the week by outside factors will not affect the bank's required reserves. It follows from the rules of accounting that a deposit change produced by outside factors does not occur in isolation; something else on the balance sheet must also change. RLA utilizes this fact to offset outside disturbances to a bank's required reserves.

Suppose that deposits increase as a result of a shift out of another deposit account at the same bank. Since all changes in deposits within the week are treated as demand deposits, this has no effect on required reserves. If the deposit increase occurs as a result of an inflow of currency, then the increase in vault cash will offset the increase in deposits. Note that it makes no difference what type of deposits increase, since all are treated as demand deposits for reserve requirement purposes within the week.

Another possibility is that the deposit increase occurs as the result of a check written on a different bank being deposited at the bank. Notice again that, regardless of which type of deposits increases, the deposit will initially be offset by the check which represents a cash item in the process of collection. If the check is cleared at the Federal Reserve, the bank will have a positive Reserve

Clearing at the Fed, (RCF) which replaces the cash item in the process of collection in offsetting the effect of the deposit increase on required reserves. If the check is cleared through a correspondent bank the effect will be to increase the bank's "due from" deposits at the correspondent bank. Under present reserve accounting as well as under the reverse lag, "due from" deposits are subtracted from demand deposits so that required reserves do not change.

These examples demonstrate how the reverse lag would insulate a bank from the impact of deposit changes produced by outside factors. The same devices would work in the opposite direction in the case of a deposit outflow.

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