

ECONOMIC COMMENTARY

Federal Reserve Bank of Cleveland

Replacing Reserve Requirements

by E.J. Stevens

The significance of the Federal Reserve System's reserve requirements has been fading for the last 50 years, moving toward more universal application at less onerous rates. At the outbreak of World War II, the requirements applied only to national banks and to state-chartered banks that chose to be members of the System. These institutions had to hold non-interest-bearing deposits at a Reserve Bank equal to 14 to 26 percent (depending on the bank's location) of their transaction deposit liabilities plus 3 percent of their time deposits. This was in addition to coin and currency that banks kept in their own vaults.

Today, reserve requirements apply to all depository financial institutions (DFIs).¹ The requirement is only zero to 10 percent of transactions deposits (depending on the amount of a bank's deposits) and zero on time deposits, with vault cash considered just as good as non-interest-bearing deposits in meeting the requirement.

Where will it all end? Most likely, reserve requirements will continue to fade away until the cost of meeting the requirement no longer acts as a siren song for avoidance. In the meantime, the search for alternatives goes on. This *Economic Commentary* examines the decline of reserve requirements and the recent flowering of required clearing balances — a relatively new and rapidly growing feature of Federal Reserve Bank operations that has the appearance of a substitute for reserve requirements. Upon closer inspection, however, the required clearing balance arrangement provides an uncertain alternative, at least as constrained by existing law.

■ **The Reserve Requirement Tax**
Reserve requirements tax DFIs by forcing them to hold non-interest-bearing cash. The "bite" of the requirement, or the net tax, comes from the need to hold more cash than ordinary business needs would dictate.

One clear business need is to hold enough coin and currency to stock human and automated teller stations. Less clear is the need to hold any significant deposit balance at a Federal Reserve Bank. An account relationship with a Reserve Bank is important for clearing and settling paper and electronic payments involving other banks and the Treasury. However, actually maintaining a balance at the Fed means leaving funds in an account at the close of a day's business to sit idle overnight. A DFI might just as easily maintain a zero balance, earning interest by wiring funds out for overnight investment near the close of business each day.

Perhaps the only reason to keep a substantial voluntary balance in a Fed account overnight would be to ensure an opening balance large enough to avoid a temporary ("daylight") overdraft when making payments the next morning. In the absence of reserve requirements, the alternative to holding an overnight balance at the Fed would be to use private systems for making and clearing payments.² A reserve balance avoids these costs, in effect reducing the net tax of reserve requirements.

The fading significance of the Federal Reserve System's reserve requirements has highlighted the search for alternatives. Required clearing balances, introduced in 1981, perform much the same functions as reserve requirements, but offer banks the possibility of earning an implicit market rate of return. However, with their volume dependent on both sales of Federal Reserve priced services and the level of short-term interest rates, required clearing balances provide only an uncertain alternative to reserve requirements. Paying explicit interest, whether on reserves or clearing balances, would ensure a more predictable system.

In general, however, reserve requirements apparently still impose some net tax on many DFIs. In a market setting, these institutions need some offsetting special advantage if they are to compete successfully with firms that are not subject to the same requirement. In the historical case of banking, those advantages might include exclusive rights to make commercial loans and to provide payment services with deposits, as well as government restrictions on the number of competing bank charters and direct access to the lender of last resort.

But no offsetting advantage will eliminate the two-pronged incentive to avoid the reserve requirement tax. DFIs have a continuing incentive to minimize reservable liabilities by designing new methods of financing that qualify for a lower reserve requirement. Non-DFIs have an incentive to imitate the special features of banking while avoiding the tax.

■ Evolution of the Fed's Reserve Requirements

Changes in the structure of the Fed's reserve requirements over the last 80 years reflect the incentive for avoidance. In 1917, member banks were required to maintain reserves that varied by type of deposit and location of bank. A three-way location classification, carried over from previous federal requirements for national banks, reflected the unit-banking environment of the early twentieth century. Banking markets could be defined geographically, and membership in the Federal Reserve System was apparently thought to confer special advantages that were more valuable, the more dense was the concentration of population and industry near a bank's offices. Requirements were highest (13 percent) in "central reserve cities," including New York, Chicago, and (briefly) St. Louis. They were intermediate (10 percent) in about 50 other large urban centers, called "reserve cities," and lowest (7 percent) in the remaining locations, where smaller state-chartered "country" banks were likely to be ambivalent about the advantages of membership in the System.

Reserve ratios had doubled for each location category by the mid-thirties, but the drift from unit to branch banking in the postwar period created a growing threat that banks could avoid high reserve ratios. That is, as fast as the Fed might redefine the boundaries of reserve cities, banks might redesignate country bank branches as head offices. The size of a bank's deposits officially replaced location in determining reserve ratios in 1972, when banks were designated country banks — regardless of location — if they had deposits of less than \$400 million. All larger member banks were classified as reserve city banks and faced higher reserve ratios.

By 1980, two other distinctions had become the focus of reserve requirement avoidance. First, member banks faced the Fed's reserve requirements, while nonmember banks faced only state reserve requirements, which were typically less onerous. Even some very large banks were withdrawing from the Federal Reserve System because of the cost disadvantage of membership. Second, banks and nonbank thrift institutions were developing deposit products that competed favorably in the household market with commercial banks' transactions accounts — without being subject to the high reserve ratio for those accounts.

The Depository Institutions Deregulation and Monetary Control Act of 1980 responded to these two forces. All member and nonmember banks, and all bank and nonbank depository institutions, became subject to Federal Reserve reserve requirements, graduated by the size of an institution's deposit base. The upshot is that all DFIs in the United States now compete within the same structure of reserve requirements. Nonetheless, all must still compete with foreign DFIs and with non-DFIs that are *not* subject to reserve requirements (such as mutual funds and life insurance companies) as well as with direct issues of securities. It is no accident, then, that the recent reductions in reserve requirements have focused on improving the ability of depository institutions to lend.

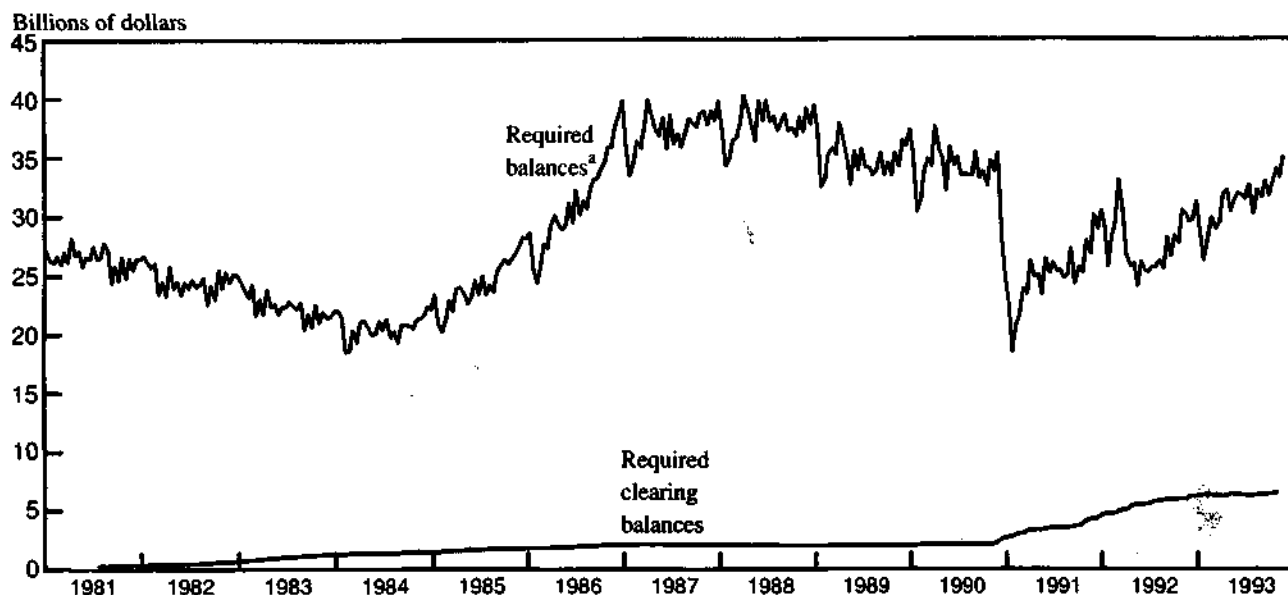
■ Would We Miss Them If They Were Gone?

Today, federal reserve requirements are at their lowest levels since the Civil War.³ Many thousands of small DFIs (hereafter, simply "banks") and even some relatively large commercial banks face no net tax, either because they have a zero requirement or because they more than meet their requirement with vault cash needed for routine business.⁴

Why not reduce the tax on the remaining affected banks by lowering the transactions deposit ratio from 10 percent to the statutory minimum of 8 percent, or perhaps even eliminate the tax completely by legislative action? Reluctance centers around the potential evaporation of banks' deposits at the Fed. That is, while voluntary holdings of vault cash might be little different from current holdings, what would become of the inventory of immediately transferable cash available to banks for their own use or for lending in the overnight federal funds market?

If the effect of lower reserve requirements were simply to reduce the inventory of Fed deposits, two problems could arise. Interest-rate signals from monetary policy would become less clear because the federal funds rate would become more volatile in the absence of an inventory of cash upon which markets could draw. Alternatively, monetary targeting would become less precise if the Fed were to adopt a reserves-based approach to targeting money. Second, without any inventory for payors to draw on directly or through borrowing in the money market, risk exposure would increase in the payment system. Payment delays or defaults would be more likely to bring the payment system to a halt as banks sought to negotiate settlements.⁵

FIGURE 1 REQUIRED BALANCES AT FEDERAL RESERVE BANKS



a. Required balances equal required reserve balances plus required clearing balances.

SOURCE: Board of Governors of the Federal Reserve System.

Monetary policy implementation and payment system risk are important matters, but there are ways to compensate for lack of an inventory of immediately available funds. For example, banks in the United Kingdom have operated with no reserve requirements and with virtually no balances at the central bank for over a decade. Instead, the Bank of England engages in frequent open-market operations to provide a "just-in-time" source of funds.⁶ Likewise, the Canadian banking system is currently adjusting to the elimination of reserve requirements. In this new framework, the Bank of Canada makes direct loans or advances that ensure a just-in-time source of funds to institutions needing to cover temporary deficits in their cash positions.⁷

Furthermore, removing reserve requirements may have a more limited effect on banks' demand for balances in the United States, even though the British and Canadians have learned to live without an inventory of immediately available funds. After all, in addition to vault cash, only about \$27 billion of the \$34 billion of bank balances at Reserve Banks is required *reserve* balances. The remaining \$7 billion includes about \$1 billion of ex-

cess reserves as well as \$6 billion of required *clearing* balances. These balances have grown rapidly enough to offset almost two-thirds of the \$6 billion decline in required reserve balances that has taken place over the last three years (see figure 1).

■ Clearing Balance Requirements

About 5,000 banks now maintain required clearing balances at the Federal Reserve Banks. These range from small retail depositories with a \$25,000 minimum requirement to giant money center institutions with clearing balance requirements of several hundred million dollars. These requirements differ from reserve requirements in three significant ways. First, a bank's agreement to meet the requirement is typically a business decision, not a legal necessity. Second, the amount of the requirement is unrelated to the amount of a bank's deposit liabilities. And third, the rate of return on a clearing balance can be about equal to the federal funds rate, not zero, if the bank uses its earnings to pay for services it buys from a Federal Reserve Bank.

A bank may have either or both of two motivations for holding a required clearing balance. One is to save money on priced services purchased from a Reserve Bank. This saving is possible if the bank can maintain a positive spread between the earnings credit rate received on its clearing balance and the average rate it pays for funds invested in the clearing balance. The earnings credit rate is based on the average of all the rates at which overnight federal funds trade in the market each day.⁸ These rates can include quality spreads, day-of-the-week effects, and other anomalies. Thus, a high-quality bank with confidence in its ability to "buy low and sell high" in the funds market might expect to earn a positive spread on a required clearing balance.

A second and more fundamental reason for banks to maintain a required clearing balance is to reduce the possibility of account overdrafts. The Reserve Banks penalize overnight overdrafts at a 10 percent annual rate (or higher) and are moving toward a regime of explicit fees for excessive daylight overdrafts, starting in April 1994. Moreover, even if penalties and fees don't induce a bank to hold a larger balance, a Reserve

Bank may insist that it do so as a means of overdraft protection.⁹

In many respects, a required clearing balance is comparable to the traditional compensating balance that a respondent bank or commercial customer might maintain with its bank. A bank reaches an agreement with its Reserve Bank about the average balance it will maintain during a required reserve maintenance period, in addition to any required reserve balance and allowable carryover of a surplus or deficiency. At the end of the period, the bank is penalized if its actual maintained balance, net of whatever amount is needed to satisfy its reserve requirement, has fallen short of the required clearing balance by more than a penalty-free band. On the other hand, the bank receives earnings credits on the amount by which its maintained balance has exceeded the amount needed to satisfy the reserve requirement, up to the required clearing balance plus the penalty-free band.¹⁰ These earnings credits accumulate for use in offsetting charges for priced services, but expire after 52 weeks.¹¹

■ A Potential Replacement for Reserve Requirements?

Basing a bank's reserve requirement on payment system activity rather than on its deposit base is not a new idea.¹² What's different about the required clearing balance arrangement, in addition to earnings credits, is the potential link between the size of a bank's required clearing balance and the account *overdrafts* it would otherwise generate. Overdrafts are one indicator of a bank's contribution to payment system risk, and required clearing balances reduce this risk. Of course, a bank can avoid a required clearing balance, but only by shifting its payment business from the Fed to correspondent banks, or directly to either private payment networks or private same-day wire transfer networks such as CHIPS.

Replacing reserve requirements with required clearing balances could be safe, then, as long as all the private alternatives had risk protections equivalent to those required by the Fed — a reasonable expectation, since the Fed has regulatory

authority over payment-system-risk aspects of private networks. Equivalence of the *cost* of risk protection, however, might be impossible to achieve because of earnings credits. For example, the CHIPS network limits each participating bank's use of daylight credit in much the same way that the Fed limits daylight overdrafts. In addition, CHIPS requires participants to maintain a settlement guarantee fund invested in earnings assets whose income benefits participants.

A required clearing balance differs from participation in the CHIPS guarantee fund in one crucial respect. The positive return on required clearing balances is realized only through a bank's use of the Fed's priced services. There is no mechanism to ensure that charges for the priced services a bank wants to buy will exhaust the earnings credits the bank receives on its required clearing balance. Unused earnings credits do reduce prices of the Fed's services, because such credits are deducted from the costs of production. But an individual bank will see balances that earn unused credits as no different from the net tax of reserve requirements. The problem is simply that the Federal Reserve Banks cannot pay explicit interest on the balances that banks hold with them.¹³

It is true that, in the aggregate, earnings credits don't exhaust charges for Reserve Banks' priced services. If this were also true of each individual bank, there might be room to replace required reserve balances with required clearing balances. However, the aggregate statistic masks substantial variation among individual banks. A study of banks in the New York Federal Reserve District found a tendency toward a bipolar distribution of large institutions.¹⁴ One group placed little or no reliance on required clearing balances to pay for priced services and therefore could profitably add to required clearing balances in place of required reserves.

The other group was already relying heavily on earnings credits, holding close to the "maximum useful balance" at which charges for priced services exhaust earnings credits. All else equal, these banks would be no better off replacing required reserve balances with required clearing balances, because they would be unable to realize the income potential of additional earnings credits.

An important unanswered question is, would these "exhausted" banks increase their use of Fed priced services in order to realize income on clearing balances, or would they increase their use of private priced services to avoid the need for so large a clearing balance? Equally important, note that overdraft protection is inversely proportional to the level of the federal funds rate. Charges for the Fed's priced services totaled about \$750 million in 1992. If *all* of these charges had been paid with earnings credits when the funds rate was 3 percent, banks would have had to hold \$25 billion of required clearing balances. But if the funds rate had risen to 6 percent, banks would have needed balances of only \$12.5 billion.

■ Concluding Comment

It seems indisputable that a payment system and a financial system are safer and less volatile when banks hold more rather than less cash. But how can that safety be encouraged? The impermanence of reserve requirements results from their net tax, which acts as an incentive for avoidance. Those subject to the tax search for ways to get around it even while those not subject to the tax search for ways to compete tax-free.

Required clearing balances show some promise as a replacement for reserve requirements. They too can encourage banks to hold balances of immediately available funds as a cushion to fall back on when payments are unexpectedly delayed. The availability of this cash fund helps to ensure both a safe flow of payments and a stable monetary policy signal in the money market.

Banks hold a relatively small amount of clearing balances today. The important question, however, is how they might respond to further reductions in reserve requirements. The ability to earn a market rate of interest would make required clearing balances an attractive option for institutions seeking to avoid overdrafts, especially with the anticipated introduction of charges for daylight overdrafts this year. However, as matters now stand, the Reserve Banks cannot pay explicit interest on required clearing balances, but only earnings credits against charges for priced services.

Especially in times of high interest rates, a bank may need to maintain a balance on which earnings credits exceed charges for priced services. Under these circumstances, the future of required clearing balances is not clear. If banks were to shift their patronage away from private providers of payment services and to the Reserve Banks, increased charges would be covered by otherwise unused earnings credits. Just as plausibly, shifting patronage away from the Reserve Banks and to private providers might reduce the size of the clearing balance required.

Paying explicit interest, whether on reserves or clearing balances, would ensure a more predictable system.

■ Footnotes

1. Depository financial institutions include commercial banks, mutual savings banks, savings and loan associations, credit unions, agencies and branches of foreign banks, and Edge corporations.
2. See E.J. Stevens, "Removing the Hazard of Fedwire Daylight Overdrafts," Federal Reserve Bank of Cleveland, *Economic Review*, vol. 25, no. 2 (1989 Quarter 2), pp. 2-10.
3. Requirements are zero for all nonpersonal time deposits (reduced from 3 percent in December 1990, within a legislated range of zero to 9 percent) and zero, 3, and 10 percent on transactions deposits (reduced from zero, 3, and 12 percent in April 1992, within a legislated range of 8 to 14 percent on deposits in excess of the 3 percent tranche).
4. "The Garn-St Germain Depository Institutions Act of 1982 ... requires that \$2 million of reservable liabilities of each depository institution be subject to a zero percent reserve requirement. The Board [of Governors] is to adjust the amount of reservable liabilities subject to this zero percent reserve requirement each year for the succeeding calendar year by 80 percent of the percentage increase in the total reservable liabilities of all depository institutions, measured on an annual basis as of June 30. No corresponding adjustment is to be made in the event of a decrease.
"The Monetary Control Act of 1980 requires that the amount of transactions accounts against which the [lowest nonzero] 3 percent reserve requirement applies be modified annually by 80 percent of the percentage change in transactions accounts held by all depository institutions, determined as of June 30 each year." (*Federal Reserve Bulletin*, August 1993, table 1.15) The amount was set at \$46.8 million in December 1992.
5. In addition to monetary policy and payment-system-risk repercussions, lower reserve requirements would reduce Treasury revenue. The Fed remits to the Treasury almost all of the income earned on securities financed by bank reserves. However, the drop in Treasury revenue would be only about two-tenths of 1 percent even if all current reserve deposits were eliminated. See the appendix to E.J. Stevens, "Is There Any Rationale for Reserve Requirements?" Federal Reserve Bank of Cleveland, *Economic Review*, vol. 27, no. 3 (1991 Quarter 3), pp. 2-17.

6. See E.J. Stevens, "Comparing Central Banks' Rulebooks," Federal Reserve Bank of Cleveland, *Economic Review*, vol. 28, no. 3 (1992 Quarter 3), pp. 2-15. See also Bruce Kasman, "A Comparison of Monetary Policy Operating Procedures in Six Industrial Countries," in Marvin Goodfriend and David H. Small, eds., *Operating Procedures and the Conduct of Monetary Policy: Conference Proceedings*, Board of Governors of the Federal Reserve System, special issue of Finance and Economics Discussion Series, March 1993.
7. See Donna Howard, "The Evolution of Routine Bank of Canada Advances to Direct Clearers," *Bank of Canada Review*, October 1992, pp. 3-22.
8. The earnings credit rate varies with a bank's marginal reserve requirement ratio to avoid giving a competitive advantage to Reserve Banks and banks with low reserve requirement ratios. See E.J. Stevens, "Required Clearing Balances," Federal Reserve Bank of Cleveland, *Economic Review*, vol. 28, no. 4 (1993 Quarter 4), pp. 2-14.
9. Daylight overdrafts in excess of a pre-established amount trigger conversations with a bank's management and, starting in April, will result in a fee. Overnight overdrafts are penalized at a rate equal to the greater of the discount rate plus 2 percent, or 10 percent.
10. Earnings credits are not added to the balance in the account, but accumulate for use on a first-in/first-out basis. They cannot be used to pay penalties for clearing balance deficiencies or for charges related to nonpriced service functions, such as penalties for deficient required reserve balances, interest on discount window loans, and cost recoveries for providing accounting information services. Penalties are 2 percent on the first 20 percent and 4 percent on the remainder.

11. The Reserve Banks set prices for services that, by law, must cover costs. Required clearing balances enter priced services costs in two largely offsetting ways. Total cost includes the earnings credits Reserve Banks grant on clearing balances (\$177.8 million in 1992), reduced by a cost offset for unused earnings credits. Total cost also includes a cost offset for the income that the Reserve Banks could earn on assets financed with required clearing balances, imputed at the coupon-equivalent yield on three-month Treasury bills (\$180.2 million in 1992). These items are reported as components of "Other income and expenses" in the pro forma income statement for Federal Reserve priced services, published in the Board of Governors' *Annual Report*.

12. For example, see Neil Jacoby, "The Structure and Use of Variable Bank Reserve Requirements," in Deane Carson, ed., *Banking and Monetary Studies*, Homewood, Ill.: Richard D. Irwin, Inc., 1963.

13. The only statutory provision for explicit interest on reserve deposits arises in a provision for a supplemental reserve requirement of up to 4 percent of transaction accounts. If imposed, these reserves would receive earnings at a rate not to exceed the rate earned on the Federal Reserve System's portfolio of securities in the previous calendar quarter. The supplemental reserve requirement can be imposed only if "the sole purpose of the requirement is to increase the amount of reserves maintained to a level essential for the conduct of monetary policy" and not to reduce the cost of the basic reserve requirement, nor to increase the amount of balances for clearing purposes." [Federal Reserve Act, Section 19(b)(4)]

14. See Spence Hilton, Ari Cohen, and Ellen Koonmen, "Expanding Clearing Balances," in Ann-Marie Meulendyke, ed., *Reduced Reserve Requirements: Alternatives for the Conduct of Monetary Policy and Reserve Management*, Federal Reserve Bank of New York, April 1993, pp. 109-35.



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