

# Repurchase Agreements

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IN recent years, an increasing number of major financial developments have occurred, including such innovations as savings accounts subject to automatic transfer, NOW accounts, and money market mutual funds. Another significant financial development has been the rapid growth in repurchase agreements (RPs). RPs, or "repos" as they are frequently called, have existed for decades, but have risen substantially only in the last few years.

In view of the rapidly expanding role of RPs and the general lack of understanding of them by those outside the financial community, this article discusses RPs and their principal uses and provides a perspective on their recent growth. Further, this article explores the implications and potential importance of RPs for both financial markets and stabilization policy.

## *Description of the RP Market*

A repurchase agreement, as the term is used in the financial markets, is an acquisition of funds through the sale of securities, with a simultaneous agreement by the seller to repurchase them at a later date.<sup>1</sup> Basically they are a secured means of borrowing

and lending short-term funds. RPs frequently are made for one business day (overnight), although longer maturities are not uncommon.

An illustration of a "typical" RP transaction is helpful in understanding this financial instrument. Suppose that the treasurer of a large corporation calculates the firm's cash position for the day and determines that the firm has funds that are not required immediately, but will likely be needed to meet expected expenditures in a day or two. The treasurer, wishing to earn interest on these "excess" funds for a day, arranges to purchase a government security from a commercial bank with an accompanying agreement that the bank will repurchase the security on the following day. This type of transaction is illustrated in the following accounting entries.

	Bank	Corporate Customer
Before RP	\$1 Million Deposit	\$1 Million Deposit
Creation of RP	-\$1 Million Deposit +\$1 Million RP Borrowing	-\$1 Million Deposit +\$1 Million Collateralized Loan (RP)
Completion of RP Agreement	+\$1 Million Deposit -\$1 Million RP Borrowing	+\$1 Million Deposit -\$1 Million Loan (RP)

<sup>1</sup>For a detailed discussion of RPs, see Charles Lucas, Marcos Jones, and Thom Thurston, "Federal Funds and Repurchase Agreements," *Quarterly Review*, Federal Reserve Bank of New York (Summer 1977), pp. 33-48, and Thomas D. Simpson, "The Market for Federal Funds and Repurchase Agreements," Staff Studies 106, Board of Governors of the Federal Reserve System (July 1979).

At times the corporate treasurer may decide that excess funds will be available for a longer period. For example, if the corporation has just sold long-term bonds but will not make the capital expenditures for, say, 30 days, an RP can be arranged for this specific period. This would be beneficial because the transaction costs of a term contract are less than those for a series of daily contracts.

The advantages of RP transactions are numerous. Through the RP mechanism, corporations and other holders of large cash balances can earn a secured market rate of return on these balances until they actually are used for payments. At the same time, banks find these RPs a useful source of short-term funds. Interest rate ceilings do not apply to typical RP transactions, and member banks are not required to hold reserves against funds obtained through RPs as long as the securities involved are obligations of the United States government or federal agencies.<sup>2</sup> In addition, the parties to the transaction have greater flexibility in setting maturities than they do with certificates of deposit (CDs), which must have at least a 30-day maturity.

RP transactions must be settled in immediately available funds such as deposits in Federal Reserve Banks or collected liabilities of commercial banks that may be withdrawn in cash the same business day as the transaction occurs. Most new deposits in a commercial bank are not immediately available, since they result from the deposit of checks which may take several days to collect. During this time, the credit to the depositor's account is only provisional. A customer can make funds immediately available to a bank other than the bank where funds are deposited, however, by transferring them through the Federal Reserve electronic communications network.

In an RP contract, the borrower pays interest on the funds acquired at a rate negotiated with the lender. This interest rate is not determined by yields

on or changing market prices of the government securities bought and sold. The role of government securities is only to provide collateral for the lender. The interest rate on RPs usually approximates the federal funds rate, but frequently is slightly lower because RPs are collateralized borrowings whereas federal funds are not.

Most RP transactions are in amounts of \$1 million or more, but a few are smaller than \$100,000. Despite the large sums involved, there is little financial risk in RP transactions since securities issued or guaranteed by the federal government are used for collateral, since most transactions occur between institutions with high credit standings, and since repurchase is usually scheduled for only a short period after sale.

There is no central physical marketplace in which RPs are arranged. Transactions are negotiated by telephone, either on a direct basis between parties supplying and acquiring funds or through a small group of market specialists (U.S. government securities dealers). Most large banks and business firms employ traders who maintain telephone contact with potential suppliers (or borrowers) of funds, making offers to borrow (or lend) at specific interest rates.

The term "reverse repurchase agreement," frequently used by participants in the RP market, signifies the same transaction viewed from the perspective of the lender. In an RP, the borrower sells a security in order to receive funds and repurchases it at maturity. In a reverse RP, the lender buys a security and resells it at maturity. Large commercial banks and government securities dealers frequently arrange reverse RPs in order to obtain government securities with which to engage in an RP.

### *Growth of the RP Market*

The market for RPs has increased dramatically in the past few years, and it has become one of the major financial markets in the nation (Table 1). Since 1969, RPs of commercial banks with the nonbank public have grown at an average 26 percent annual rate, although the pace has been uneven. The sharpest gain occurred in 1973 when outstanding RPs more than doubled. In the following two years, RPs increased at an average annual rate of 8 percent. During 1976, there was another jump (80 percent) in RPs, and since then the average annual growth rate has been 21 percent.

<sup>2</sup>Effective August 1, 1979, interest rate ceilings were imposed on repurchase agreements of less than \$100,000 with maturities of 90 days or more. To prevent undue hardship, a three-year phase-out period was provided.

Effective in the statement week beginning October 11, 1979, a marginal reserve requirement was placed on "managed liabilities" of member banks, Edge corporations, and U.S. agencies and branches of foreign banks. These liabilities include repurchase agreements against U.S. government and federal agency securities as well as large time deposits (\$100,000 and over with maturities of less than a year), Eurodollar borrowings, and federal funds borrowings from a nonmember institution. The base for the marginal reserve is \$100 million or the average amount of managed liabilities held as of the two statement weeks ending September 26, 1979 whichever is larger. Any increase in managed liabilities above this base is subject to an 8 percent reserve requirement.

Table 1

Year-end	Outstanding RPs*
	(Billions of Dollars)
	Amount
1969	\$ 4.9
1970	2.8
1971	4.9
1972	6.0
1973	13.3
1974	14.8
1975	15.5
1976	27.9
1977	36.3
1978	43.8
1979	45.0 (June)

\*Estimates of RPs of all commercial banks with the nonbank public by staff of Federal Reserve Board of Governors.

The growth in RPs over this period reflects several factors. The most important motivations for lending in the RP market are the prohibition of interest payments on demand deposits and the higher market interest rates since the mid-1960s. Also, both the wider use of computers and more sophisticated cash management systems have facilitated the collection and transfer of large volumes of funds, contributing to the growth of the market.

### *Participants in the RP Market*

Over the past decade, banks have obtained increasing proportions of their total resources in the open market. This activity, which involves bidding for liabilities in order to expand assets, is commonly called liability management. This behavior differs from the traditional role of banks, which is to receive deposits from customers and to use these funds to lend or invest. Devices now used to obtain such funds include federal funds borrowing, negotiable CDs, commercial paper, Eurodollar borrowing, and RPs.

Large banks usually are borrowers of funds in the RP market. These institutions typically seek funds and have portfolios of government-issued and -guaranteed securities with which to transact.

Government security dealers also are important participants in the RP market. They are generally net borrowers of funds so that they can carry their sizeable portfolios of government securities. Occasionally, however, when their inventories are low or when

other sources of funds are plentiful, they supply RP funds. In addition, dealers act as financial intermediaries or brokers between demanders and suppliers of funds. By "matching" an RP transaction and a reverse RP transaction, they may profit by the difference in interest rates. Dealers sometimes use reverse RPs to acquire securities in order to make a short sale; the net cost of obtaining the securities through reverse RPs is frequently less than the cost of borrowed securities.

Many types of institutions supply immediately available funds in this market, including nonfinancial corporations and state and local governments. Business firms and municipalities with large cash balances are able to earn sizable returns (averaging about a 10 percent annual rate in the first nine months of 1979) on these funds by arranging RPs. Such a transaction converts the corporation's or municipality's demand deposit balance into an interest-earning asset. Yet, since the funds are committed for only a brief period, they are still readily available for transactions purposes.

Another advantage of RPs to certain nonbank investors is the flexibility in recording these transactions on their books. Some investors choose to record the ownership of U.S. government securities rather than the ownership of RPs. This reporting feature is particularly appealing to those institutions, such as state and local governments, that are required to invest in Treasury securities.

Business firms and others hold cash primarily to bridge the periods when expenditures exceed receipts. Traditionally, most of these cash balances have been held in the form of demand deposits in commercial banks and, as a result, have not earned explicit interest since 1933. This was not of great significance during the low interest rate periods prior to the 1960s. The higher interest rates in the sixties and seventies, however, created the incentive for businesses to develop better cash management techniques just as banks were developing liability management techniques. A variety of procedures were adopted to achieve a reduction in cash balances, including speeding up receipts, slowing down disbursements, and converting cash into interest-bearing liquid assets. RPs have become a particularly useful tool of cash management. They generate sizable income during periods of relatively high short-term interest rates. Moreover, they are relatively secure and liquid. In short, some corporations and municipalities treat RPs as income-earning "demand deposits."

Federal Reserve System regulations play an important role in the RP market by limiting the type of transactions member banks may undertake. Federal Reserve actions also influence federal funds rates which, in turn, dominate the interest rates available on RPs from day to day. The Fed is also a large direct participant in the RP market. Although the Federal Reserve supplies reserves primarily through outright purchases of government securities, it also uses RPs and reverse RPs to temporarily supply or absorb reserves.

### *Implications of RPs for Financial Markets*

The development of the RP instrument has led to increased efficiency in financial markets. Both investors and borrowers are provided with an instrument which has a combination of risk, maturity, flexibility, and liquidity characteristics not previously offered by other money market instruments. RPs are backed by government securities and are adaptable for a wider range of uses than most other financial instruments. While participation in the federal funds market is limited to commercial banks, mutual savings banks, savings and loan associations, and federal agencies, any person or firm may deal in RPs. RPs can be arranged for any maturity, while CDs, an alternate source of funds to banks, cannot be issued for less than 30 days, and commercial paper is seldom written for a period as brief as a day or two. Judging by the rapid growth of RPs since 1970, the demand for financial instruments with the combination of characteristics of RPs has been substantial.

By providing a mechanism through which large supplies of liquid balances are "auctioned" daily, the RP market has improved the ability of the economy to channel short-term funds into areas of greatest demand. Thus, they enhance the efficient allocation of resources.

Moreover, RPs have bolstered the liquidity of the instruments eligible as collateral against RP borrowings, including longer-term government and agency obligations. The securities become more liquid since they may be used to raise funds on short notice without incurring the risk of capital loss that might occur if an outright sale were the sole option.

RPs also facilitate arbitrage between financial instruments, as well as provide a straightforward source of cash or investment outlet for short-term funds. For example, RPs have broadened the sources of securities

available to traders active in short selling. In addition, RPs can be used during a period of rising interest rates to supplement the yield on portfolios by allowing investors to purchase higher-yielding instruments without having to sell outright and take a capital loss on the securities in the portfolio. Those securities may be sold under an RP and the funds used to buy new securities.

### *Implications of RPs for Monetary Policy*

Whether RPs should be included in measures of the money supply is still an unsettled issue. Unlike currency and demand deposits, RPs are not used directly as a medium of exchange, nor are they likely to be used for transactions in the near future. Nevertheless, the maturities of RPs are so short (frequently just overnight) that owners of the funds can treat them virtually as demand deposits. They may even write checks on the funds since the RPs will become available as deposits before the checks clear. In fact, the RP mechanism permits demand deposits to be much larger during the day, when transactions are conducted, than at the close of the day when the money stock is measured and reserve requirements are imposed.<sup>3</sup>

The accounting entries on the opposite page illustrate the balance sheet effects of a typical \$1 million bank demand deposit with and without the use of RPs. By using the overnight RP, the customer has access to the funds (deposit) during the banking day and earns a return on the funds for the overnight loan (RP). Also, with the RP the bank is able to extend more credit from the funds supplied. In addition, the reserves supplied to the banking system are then available to support further bank credit and deposit expansion.

In practice, although many RP contracts are written for very short terms, a sizable portion of the funds used remains in RPs for relatively long periods. A number of RP contracts initially are written for longer terms, and some are made under continuing contracts, with the provision that either party can withdraw from the arrangement at any time.<sup>4</sup> In many cases, the daily contracts are simply "rolled over" (extended for

<sup>3</sup>However, many customers are likely to perceive their demand deposits to be reduced at the time the RP is arranged, usually early in the day. Thus, the timing of the bookkeeping may have little significance.

<sup>4</sup>According to a Federal Reserve survey in the week ending December 7, 1977, about 10 percent of the RPs with nonbank customers had maturities of over 30 days, 22 percent had maturities of 8 to 30 days, and 17 percent had maturities of

	Bank		Nonbank Customer	
Deposit of Funds (no RPs used)	\$850,000 Loans and Investments	\$1 Million Deposit	\$1 Million Deposit	\$1 Million Net Worth
	\$150,000 Required Cash Reserves (15% assumed requirement)			
Deposit of Funds Using RPs: During Day	\$1 Million Loans and Investments	\$1 Million Deposit	\$1 Million Deposit	\$1 Million Net Worth
	No reserves required since not imposed until close of day			
At Close of Bank Day (RP in effect)	\$1 Million Loans & Investments	\$1 Million RP Borrowing	\$1 Million Government Security or \$1 Million Collateralized Loans (RP)	\$1 Million Net Worth
	No reserves required on RP funds			

a longer period). Corporations use these longer-term arrangements when they are accumulating funds in anticipation of payments for taxes, dividends, payrolls, construction, or other large outlays.

To the extent that RPs are used to accumulate liquid balances over a period for some anticipated future outlay, they may be more appropriately classified as time deposits rather than demand deposits; such balances would be more appropriately included in the  $M_2$  concept of money which includes liquid savings, rather than the  $M_1$  concept which does not. Even if it is concluded that RPs are not money ( $M_1$ ), however, the rapid growth of this highly-liquid asset has almost certainly affected the velocity of demand deposits by permitting corporations to obtain desired liquidity with fewer demand deposits than otherwise.

The existence of the RP market, as well as the RPs themselves, have probably reduced the demand to hold demand deposits. For instance, the greater ability of nonbanking firms to borrow on short notice by

“selling” government securities on RPs reduces the price risk which otherwise exists if the securities were sold outright when cash needs arise. Hence, business firms are better able to substitute government securities for some demand deposits.

Money plays a unique role in economic stabilization. Since the demand for money relative to total spending has usually been relatively stable, changes in the money stock produce similar changes in total spending for goods and services. A number of researchers working with economic models of the economy, however, have found an apparent shift in the money demand equation in the mid-1970s.<sup>5</sup> Preliminary analyses suggest that the apparent shift in the money demand function would have been somewhat smaller if RPs are included in the stock of money. The evidence does not settle the conceptual issue of whether RPs are money, but the studies do provide some empirical support for including RPs in the definition of money for policy purposes. Even if RPs are not judged to be money, they are closer substitutes to it than other near monies and help explain the problems in estimating the money demand function.<sup>6</sup>

On the other hand, it has been argued that RPs are not money ( $M_1$ ).<sup>7</sup> Most RP transactions are actually made by early afternoon, and thus do not represent an automatic investment of end-of-day balances. Also, if the shift in money demand in 1974 was a one-time exogenous shock, the more stable relationship by including RPs in the money demand function would not necessarily last, and money-demand specifications without RPs would be correct.

In any case, the effect of RPs on the money stock (or money demand) is less than indicated by the total RPs outstanding. Interbank RPs are offsetting and have no net effect on the demand to hold money. Transactions among the nonbank public — for example, an RP between a business concern and a govern-

<sup>5</sup>Jared Enzler, Lewis Johnson, and John Paulus, “Some Problems of Money Demand,” *Brookings Papers on Economic Activity* (1: 1976), pp. 261-80.

<sup>6</sup>Gillian Garcia and Simon Pak, “Some Clues in the Case of the Missing Money,” *American Economic Review* (May 1979), pp. 330-34. See also John Wenninger and Charles Sivesind, “Defining Money for a Changing Financial System,” *Quarterly Review*, Federal Reserve Bank of New York (Spring 1979), pp. 1-8, and John Scadding, “Are RPs Money?” *Federal Reserve Bank of San Francisco Weekly Letter*, Federal Reserve Bank of San Francisco (June 29, 1979), pp. 1-3.

<sup>7</sup>Richard Porter, Thomas Simpson, and Eileen Mauskopf, “Financial Innovation and the Monetary Aggregates,” *Brookings Papers on Economic Activity* (1: 1979), pp. 213-29.

2 to 7 days, and slightly over half were 1 day or continuing contract. Wayne Smith, “Repurchase Agreements and Federal Funds,” *Federal Reserve Bulletin* (May 1978), pp. 353-60.

ment bond dealer — also have little net effect, since what one firm gains the other forgoes. Similarly, when a bank engages in a reverse RP in order to obtain government securities to facilitate an RP, these matched transactions become largely counterbalancing. Transactions that have the largest monetary effects are those in which a commercial bank deals with the nonbank public, securing the transaction with government securities from its own portfolio.

### *Conclusions*

Repurchase agreements have grown markedly in recent years, attaining the status of a major financial instrument. Since RPs provide a market yield on funds available virtually on demand, they are useful for pri-

vate businesses and municipalities which must hold large highly-liquid balances. RPs are also valuable to banks and government bond dealers as a source of short-term funds. The public generally has also benefited since funds and resources have been more efficiently channelled by RPs.

Everything else being equal, the pronounced expansion in RPs has stimulated total demand for goods and services. Because of data limitations and many offsetting impacts, however, knowledge of the net extent of this stimulative effect is limited. It is unsettled whether analysis of the impact of RPs would be improved by considering them (or a portion of them) as money or as a force affecting the demand for money.

