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Special Issue

Repurchase Agreements: Taking A Closer Look At Safety

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89-N	106.26	30	-2	9.79	10 1/2	10/31/1985-N	100.13	17	-2	6.73
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90-N	102.14	18	+2	9.76	10 1/2	11/30/1985-N	100.19	23	-1	7.12
90	91.03	3	+10	5.53	10 7/8	12/31/1985-N	100.31	3	-2	7.21
90-N	104.01	5	+3	9.82	14 1/8	12/31/1985-N	102.08	12	-1	6.34
90-N	102.12	16	+1	9.81	10 5/8	1/31/1986-N	101.03	7	-2	7.43
90	97.17	1	+1	8.77	9 7/8	2/15/1986-N	100.28	0	-2	7.50
90-N	105.12	16	+1	9.88	13 1/2	2/15/1986-N	102.19	23	-1	7.21
90-N	103.09	13	-1	9.85	10 7/8	2/28/1986-N	101.15	19	-1	7.47
90-N	100.10	14	-1	9.76	11 1/2	3/31/1986-N	101.31	3	-2	7.67
90-N	103.12	16	-1	9.84	14	3/31/1986-N	103.13	17	-2	7.55
90-N	106.06	10	+4	9.90	11 3/4	4/30/1986-N	102.12	16	-3	7.76
90-N	99.15	17	+4	9.72	7 7/8	5/15/1986-N	99.31	3	-2	7.73

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12 3/8	8/15/1987-N	105.29	1	+1	8.93	9 3/8	5/15/1986-N	100.29	1	-1	7.82	13 5/8	6/30/1988-N	110.09	13	0	9.
13 3/4	8/15/1987-N	108.11	15	0	8.91	13 3/4	5/15/1986-N	103.26	30	-3	7.82	14	7/15/1988-N	111.11	19	+1	9.
8 7/8	8/31/1987-N	99.28	30	+1	8.91	12 5/8	5/31/1986-N	103.06	10	-1	7.91	9 1/2	8/15/1988-N	100.16	20	+1	9.
11 1/8	9/30/1987-N	104.01	5	+2	8.88	13	6/30/1986-N	104.00	4	-1	7.71	10 1/2	8/15/1988-N	102.30	2	+3	9.
7 5/8	11/15/1987-N	97.28	4	+2	8.58	14 7/8	6/30/1986-N	106.03	7	-3	6.94	11 3/8	9/30/1988-N	105.06	10	+3	9.
11	11/15/1987-N	103.30	2	+2	8.92	12 5/8	7/31/1986-N	103.28	0	-2	7.95	15 3/8	10/15/1988-N	115.13	21	+2	9.
12 5/8	11/15/1987-N	107.00	4	+1	8.98	8	8/15/1986-N	100.01	5	+1	7.83	8 3/4	11/15/1988-N	98.21	29	+5	9.
11 1/4	12/31/1987-N	104.17	21	+1	8.98	11 3/8	8/15/1986-N	102.29	1	0	7.98	11 3/4	11/15/1988-N	106.04	8	+2	9.
12 3/8	1/15/1988-N	106.26	30	+2	9.05	12 3/8	8/31/1986-N	103.27	31	-1	8.11	10 5/8	12/31/1988-N	103.06	10	+2	9.
10 1/8	2/15/1988-N	102.03	7	+2	9.09	11 7/8	9/30/1986-N	103.20	24	-1	8.14	14 5/8	1/15/1989-N	113.31	3	+2	9.
10 3/8	2/15/1988-N	102.20	24	+1	9.09	12 1/4	9/30/1986-N	104.00	4	0	8.14	11 3/8	2/15/1989-N	105.06	10	+1	9.
12	3/31/1988-N	106.07	11	+2	9.17	11 5/8	10/31/1986-N	103.18	22	-1	8.21	11 1/4	3/31/1989-N	105.00	4	-1	9.
13 1/4	4/15/1988-N	109.01	5	+1	9.22	6 1/8	11/15/1986-N	97.30	30	+1	7.07	14 3/8	4/15/1989-N	113.24	0	+1	9.
8 1/4	5/15/1988-N	98.06	14	+2	8.91	11	11/15/1986-N	102.27	31	-2	8.34	9 1/4	5/15/1989-N	99.26	2	+2	9.
9 7/8	5/15/1988-N	101.12	16	+2	9.23	13 7/8	11/15/1986-N	106.02	6	-3	8.33	11 3/4	5/15/1989-N	106.08	12	0	9.
10	5/15/1988-N	101.21	25	+1	9.24	16 1/8	11/15/1986-N	109.05	9	-1	7.84	9 5/8	6/30/1989-N	100.06	8	+4	9.

Foreword

7/8	9/30/1985-N	100.06	10	-2	6.00	9 3/8	5/15/1986-N	100.29	1	-1	7.82	10 3/8	11/30/1986-N	102.07	11	-
7/8	9/30/1985-N	100.18	22	-1	5.40	13 3/4	5/15/1986-N	103.26	30	-3	7.82	9 7/8	12/31/1986-N	101.22	26	-
1/2	10/31/1985-N	100.13	17	-2	6.73	12 5/8	5/31/1986-N	103.06	10	-1	7.91	10	12/31/1986-N	101.28	0	-
3/4	11/15/1985-N	100.12	16	-1	6.92	13	6/30/1986-N	104.00	4	-1	7.71	9 3/4	1/31/1987-N	101.16	20	-
3/4	11/15/1985-N	100.25	29	-1	6.75	14 7/8	6/30/1986-N	106.03	7	-3	6.94	9	2/15/1987-N	100.19	23	-
1/2	11/30/1985-N	100.19	23	-1	7.19	12 5/8	7/31/1986-N	103.28	0	-2	7.95	10 7/8	2/15/1987-N	103.00	4	-
7/8	12/31/1985-N	100.31	3	-2	7.21	8	8/15/1986-N	100.01	5	+1	7.83	12 3/4	2/15/1987-N	105.17	21	-
1/8	12/31/1985-N	102.08	12	-1	6.34	11 3/8	8/15/1986-N	102.29	1	0	7.98	10	2/28/1987-N	101.28	0	-
5/8	1/31/1986-N	101.03	7	-2	7.43	12 3/8	8/31/1986-N	103.27	31	-1	8.11	10 1/4	3/31/1987-N	102.09	13	-
7/8	2/15/1986-N	100.28	0	-2	7.50	11 7/8	9/30/1986-N	103.20	24	-1	8.14	10 3/4	3/31/1987-N	103.00	4	-
1/2	2/15/1986-N	102.19	23	-1	7.11	12 1/4	9/30/1986-N	104.00	4	0	8.14	9 3/4	4/30/1987-N	101.16	20	-
7/8	2/28/1986-N	101.15	19	-1	7.47	11 5/8	10/31/1986-N	103.18	22	-1	8.21	12	5/15/1987-N	105.00	4	-
1/2	3/31/1986-N	101.31	3	-2	7.67	6 1/8	11/15/1986	97.30	30	+1	7.07	12 1/2	5/15/1987-N	105.24	28	-
	3/31/1986-N	103.13	17	-2	7.55	11	11/15/1986-N	102.27	31	-2	8.34	14	5/15/1987-N	108.02	6	-
3/4	4/30/1986-N	102.12	16	-3	7.76	13 7/8	11/15/1986-N	106.02	6	-3	8.33	9 1/8	5/31/1987-N	100.16	20	-
7/8	5/15/1986-N	99.31	3	-2	7.73	16 1/8	11/15/1986-N	109.05	9	-1	7.84	8 1/2	6/30/1987-N	99.14	18	-

The Federal Reserve System has a vital interest in the U.S. government securities market—the largest, most efficient, and most important securities market in the world. Recently, a number of investors, including public authorities and depository institutions, suffered financial losses when firms dealing in repurchase agreements using government securities failed. Repurchase agreements, or “repos” as they are called, have been used extensively in the money market in recent years by investors seeking to earn a return on idle cash and by institutions needing to raise funds on a short-term basis. While each recent failure had its own distinct traits, some common elements were evident. Had certain procedures been followed by all parties, losses could have been prevented or at least limited.

Because of the Federal Reserve’s interest in the government securities market, the System has embarked upon an educational program to reduce the likelihood of future losses. This program includes informational pamphlets pertaining to repurchase agreements as well as a nationwide series of workshops on the subject. The first of these seminars was sponsored by the Federal Reserve Bank of Atlanta in June. That and subsequent workshops being offered by the nation’s 12 District Banks are oriented toward state and local government investors and depository institutions.

This special issue of the *Economic Review* is a further contribution to this educational program concerning repos. The articles that follow include the material presented at Fed seminars as well as the results of a study conducted by the Atlanta Fed and additional information on several important issues pertaining to the use of repos.

This issue includes an overview of repurchase agreements and recent problems; the market in which repos are transacted and the operations of government securities dealers; the use of repos as a cash-management tool by state and local governments, particularly in the Southeast; various legal and custodial arrangements that can assure control of securities; and practices that can protect customers against credit and market risk.

I hope you find this issue thought-provoking and informative. Should you have unanswered questions, please write to the Public Information Center at 104 Marietta Street N.W., Atlanta, Georgia 30303-2713, or call (404) 521-8788. Our staff will be glad to put you in touch with someone in the Federal Reserve System who can answer your questions. You can also contact directly the public information department in your Federal Reserve District.

**Robert P. Forrestal, President
Federal Reserve Bank of Atlanta**

Overview

Sheila L. Tschinkel

8/15/1987-N	105.29	1	+1	8.93	13 5/8	6/30/1988-N	110.09	13	0	9.34	14 1/2	7/15/1989-N	114.21	29	0	9.7
8/15/1987-N	108.11	15	0	8.91	14	7/15/1988-N	111.11	19	+1	9.29	13 7/8	8/15/1989-N	112.30	2	-2	9.8
8/31/1987-N	99.28	30	+1	8.91	9 1/2	8/15/1988-N	100.16	20	+1	9.25	11 7/8	10/15/1989-N	106.26	30	-2	9.7
9/30/1987-N	104.01	5	+2	8.88	10 1/2	8/15/1988-N	102.30	2	+3	9.29	10 3/4	11/15/1989-N	103.11	19	+1	9.6
1/15/1987-N	97.28	4	+2	8.58	11 3/8	9/30/1988-N	105.06	10	+3	9.34	12 3/4	11/15/1989-N	109.23	27	-2	9.8
1/15/1987-N	103.30	2	+2	8.92	15 3/8	10/15/1988-N	115.13	21	+2	9.45	10 1/2	1/15/1990-N	102.14	18	+2	9.7
1/15/1987-N	107.00	4	+1	8.98	8 3/4	11/15/1988-N	98.21	29	+5	9.15	3 1/2	2/15/1990	91.03	3	+10	5.5
2/31/1987-N	104.17	21	+1	8.98	11 3/4	11/15/1988-N	106.04	8	+2	9.44	11	2/15/1990-N	104.01	5	+3	9.8
1/15/1988-N	106.26	30	+2	9.05	10 5/8	12/31/1988-N	103.06	10	+2	9.44	10 1/2	4/15/1990-N	102.12	16	+1	9.8
2/15/1988-N	102.03	7	+2	9.09	14 5/8	1/15/1989-N	113.31	3	+2	9.62	8 1/4	5/15/1990	97.17	1	+1	8.7
2/15/1988-N	102.20	24	+1	9.09	11 3/8	2/15/1989-N	105.06	10	+1	9.53	11 3/8	5/15/1990-N	105.12	16	+1	9.8
3/31/1988-N	106.07	11	+2	9.17	11 1/4	3/31/1989-N	105.00	4	-1	9.52	10 3/4	7/15/1990-N	103.09	13	-1	9.8
4/15/1988-N	109.01	5	+1	9.22	14 3/8	4/15/1989-N	113.24	0	+1	9.69	9 7/8	8/15/1990-N	100.10	14	-1	9.7
5/15/1988-N	98.06	14	+2	8.91	9 1/4	5/15/1989-N	99.26	2	+2	9.23	10 3/4	8/15/1990-N	103.12	16	-1	9.8
5/15/1988-N	101.12	16	+2	9.23	11 3/4	5/15/1989-N	106.08	12	0	9.66	11 1/2	10/15/1990-N	106.06	10	+4	9.9
5/15/1988-N	101.21	25	+1	9.24	9 5/8	6/30/1989-N	100.06	8	+4	9.55	9 5/8	11/15/1990-N	99.15	17	+4	9.7

Repurchase agreements against government securities can be a safe, effective method of raising short-term funds and of earning a return on surplus funds available for a brief time. However, problems have arisen involving the use of repurchase agreements, or "repos." Since the beginning of the year, the failure of two firms—ESM Government Securities and Bevill, Bresler, and Schulman—has cost customers more than \$500 million. Losses associated with ESM triggered the temporary closing of 70 privately insured savings and loan associations in Ohio.¹ Although some problems were associated with allegedly fraudulent practices by government securities dealers, customers could have avoided or greatly limited losses by following certain procedures and prudent management practices.

This overview of current issues involving repos describes the mechanics of repurchase agreements and the market in which these transactions occur; summarizes how various customers, including state and local governments as well as banks and thrifts, find repos useful money market instruments; reviews recent problems; and outlines how customers can minimize associated risks. Subsequent articles consider these topics in greater depth.

Our discussion of government securities used in repurchase agreements refers primarily to

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direct obligations of the U.S. Treasury—bills, notes, and bonds. Only a few examples are provided of repos against federal agency issues such as those of the Government National Mortgage Association (GNMAs). However, in both instances the principles essentially are the same. Their application in the case of repos against federal agency issues might be more complex than for Treasuries, but the fundamental points, such as abiding by a master repo contract, evaluating collateral carefully, establishing control over collateral, and monitoring the value of collateral and interest accruals during the term of a repo, remain the same. In fact, many of these procedures can be used whenever a transaction is outstanding for some period of time and one party's exposure to another is linked to an instrument that is traded in a market. Thus, they are relevant to collateralized deposits, for example.

The Government Securities Market

Repurchase agreements are money market transactions in which one party sells securities to another while agreeing to repurchase those securities at a later date. Interest payments are an essential part of the transaction since the seller of the securities has use of the buyer's funds during the term of the repo. (For more detailed information on repurchase agreements, see Box.)

What is a Repo?

A repurchase agreement, or "repo," is the sale of securities on a temporary basis, involving the seller's agreement to repurchase the same or similar securities at a later date. The other party has a corresponding obligation to sell them back. The repurchase price can include an interest component, or the sale and repurchase prices can be the same with interest paid separately for the use of the acquired funds. Usually a "margin" is taken to protect the buyer should the seller later default. As a result, the amount of the funds transferred (sale price) is less than the market value of the securities transferred. This arrangement, though cast in terms of a purchase and sale, is in concept similar to a collateralized loan. Many parties in repos are legally constrained to treat repos as purchases and sales, while others can treat them as secured lending. Because of this situation, much of the popular terminology associated with repos is borrowed from the latter though those terms are not of controlling legal significance in the repo context. Securities, for example, are often called collateral.

A reverse repo is simply the same transaction viewed from the perspective of the other party. For example, a dealer may wish to buy securities from a customer, often a bank or a thrift, in order to make delivery to another customer interested in that particular security at that particular time. The dealer buys securities from a customer under an agreement to resell the same securities at the same price on some future date. Every repurchase agreement is composed of a repo on one side and a reverse repo on the other. However, the terms are sometimes used inconsistently. Usually both parties to a repurchase agreement use the dealer's perspective. Thus, for example, when a customer delivers securities to the dealer, the transaction is often termed a reverse repo by both parties.

Repos can be done on an overnight basis, on a term basis for a specified number of days, or on a continuing contract basis. Term repos rarely extend over 30 days because both parties may be unnecessarily constrained by such longer time spans. Repos are sometimes done under continuing contracts, whereby a new interest rate or the amount of funds invested may change from day to day. This permits an investor to manage cash while minimizing the interest rate risk that would arise with a longer term repo or security.

Repurchase agreements typically involve relatively large transfers of funds, short maturities, and thus a small volume of earnings per transaction relative to

potential changes in value in the underlying securities. The return to any investor is calculated by the following basic formula:

$$\text{Earnings} = \text{funds transferred} \times \text{interest} \times (\text{number of days}/360)$$

$$\text{Funds Transferred} = (\text{par amount of securities} \times \text{market price}) + \text{accrued interest} - \text{margin}$$

The denominator is 360 because calculating interest on the basis of a 360 day year is typical money market practice. Assuming an investor has \$1 million in surplus funds to invest overnight and the best rate he can get is 7 1/2 percent, he would earn:

$$\frac{(\$1,000,000 \times .075)}{360} \text{ or } \$208.33$$

If the investor held this surplus for 5 days and entered into a continuing contract, his earnings might look like this:

Day	Rate	Calculation	Earnings
Monday	7 5/8	$(\$1,000,000 \times .07625)/360$	211.81
Tuesday	7 1/2	$(\$1,000,000 \times .07500)/360$	208.33
Wednesday	7 3/4	$(\$1,000,000 \times .07750)/360$	215.28
Thursday	7 5/8	$(\$1,000,000 \times .07625)/360$	211.81
Friday	7 3/4	$(\$1,000,000 \times .07750)/360$	215.28
Total Interest			\$1,062.51

Interest rates on repurchase agreements are generally lower than those on federal funds or deposits because the agreements are collateralized by government securities. Thus, if a depository institution owns eligible securities, it can use them to raise money cheaply. Since repurchase agreements can be written with tailor-made maturities, they provide these institutions with flexibility in asset-liability management. Similarly, investors with surplus cash can invest for short periods of time while keeping interest rate risk at a minimum.

NOTE

¹For example, the SEC defines repos and reverse repos from the dealer's perspective, but the Government Accounting Standards Board uses an inverted definition for municipal investors.

State and local governments use repos to earn extra income on idle cash they have on hand for short periods.² Their earnings from repos help hold down taxes while maintaining a given level of public services. Many banks and thrifts also use repos to raise needed cash. Since such institutions often hold government securities in their portfolios, they can use them to obtain funds, usually on a short-term basis, at a rate generally below the fed funds rate. Dealers often

use repos to finance their positions in securities, from which they earn a major portion of their profits, as discussed below. Since repurchase transactions figure importantly in the financing of government securities holdings, we must know how the government securities market and dealers participating in it work to understand both the importance of repos and how recent problems developed.³

The U.S. Treasury is the preeminent issuer of short- and long-term debt securities on a regular basis. The Treasury auctions bills, notes, and bonds to meet U.S. government financing requirements.⁴ The majority of these securities are issued and held in book-entry form, basically as messages or data stored in a computer.⁵ They are transferred over a wire system, called "Fedwire," operated by the Federal Reserve in much the same way that money is transferred from one depository to another. The Fed, as the U.S. Treasury's fiscal agent, maintains the securities for the Treasury on the Fed's computerized book-entry system and issues new securities to investors on the Treasury's behalf. In addition, the Fed buys and sells Treasury issues in the market, dealing with some 36 firms, including banks, diversified investment houses, and specialty firms. These transactions are an essential part of the Fed's conduct of monetary policy.

The firms with which the Fed transacts are known popularly as primary dealers. Many other firms of all sizes and types trade government securities on a routine basis, and dealers are serviced by a number of brokers and clearing banks. The final tier of the market is the array of customers in government securities—banks, thrifts, state and local governments, pension funds, and individuals, among others.

Anyone—or any firm—can become a government securities dealer. There are no uniform or comprehensive margin or capital requirements with which all dealers must comply. A dealer's inventory of securities usually is financed with a small amount of capital combined with funds raised in the market—often through the use of repurchase agreements. Capital can, at times, be as low as one percent of securities holdings.

There is, of course, regulation of many types of dealers. Dealers related to banks are supervised by one of three federal banking regulators—the Fed, the Federal Deposit Insurance Corporation (FDIC), or the Office of the Comptroller of the Currency (OCC). Other firms may be subject to regulation by the Securities and Exchange Commission (SEC) or the Commodities Futures Trading Commission (CFTC), according to the type of instruments in which they deal. However, firms that deal only in government or other exempt securities are free from comprehensive oversight or regulation.⁶ This can also be the case for subsidiaries of otherwise regulated firms, often called Government Securities, Inc. (GSIs), which are themselves not subject to regulation.

The free entry that characterizes the market adds to its efficiency, since the large number of firms able to provide these services minimizes costs to those using them. Customers can compare the prices of several dealers by telephoning them or by subscribing to a service that reports such information continuously via computer. Thus, transactions usually can be executed at the best price. The market's intense competitiveness also reduces the Treasury's cost of issuing debt, and the liquidity that results from an efficient market makes the securities attractive to a variety of investors.

Although the market is characterized by highly favorable features, including liquidity, efficiency, innovation, and a good safety record, free entry can allow problems to go undetected unless customers adhere to prudent business practices and respect the rule of caveat emptor—let the buyer beware. Transactions involving government securities can involve significant risk even if the securities themselves are free of default risk. To understand better how problems can develop, consider some common patterns that appeared in recent losses.

Common Elements in Recent Problems

In recent cases where dealers failed and customers lost money, some common patterns were apparent. Had all of the customers involved exercised judicious management and followed certain procedures, they could have avoided such losses. Some customers assumed they were dealing with one counterparty, or dealer firm, only to find they had been dealing with an affiliate, often an insolvent one whose earlier losses had been masked by various transactions. Certain investors failed to gain control of the securities used as collateral during the life of the repurchase agreement. Others, who held control, did not require securities whose market value exceeded the cash they had provided in an amount sufficient to protect themselves against fluctuations in the market value of those securities. Many customers failed to monitor the value of their securities to see that they continued to have sufficient coverage. Even though some dealers who failed were allegedly engaging in fraud, losses could have been avoided or greatly limited if customers had followed specific procedures. In fact, many customers who did business with the failed firms did not lose money.

As noted previously, some of the customers who suffered losses failed to follow the old adage of good business, "Know your counterparty." Customers should investigate the history, financial condition, business practices, and regulatory status of their dealer.⁷ Some investors had not even obtained an up-to-date audited financial statement. While such a statement is not a guarantee of a firm's condition at any time, it is an essential part of the process of finding out about one's counterparty.

A second and related pattern in recent losses involved collateral risk. Insolvent firms could continue raising funds because customers had not taken the necessary steps to evaluate collateral or had not established sufficient control over the securities used in repos. Because the dealer and not the customer controlled the securities, the dealer could raise funds using the same securities twice or as many times as there were customers willing to leave the securities with the dealer. When the dealer defaulted and investors tried to recover the securities underlying the repos, they found their securities had been used as collateral for other repos or did not exist at all.

Generally speaking, risk associated with custodial arrangements is best minimized by taking the securities out of the control of the dealer. Legal reasons may exist for doing so.⁸ In addition, should a dispute arise over the terms of the agreement or should the dealer become insolvent, the customer is in a more desirable position if the securities are in the customer's (or the customer's custodian's) control or with an independent custodian responsible to both the customer and dealer. The first type of arrangement is known as a "delivery repo"; the second a "three-party repo" or "tri-party repo." The safety of these arrangements entails the added costs of transfer fees and paperwork by the external parties.

In a third type of custodial arrangement involved in recent losses, called a "letter repo," the dealer retains control over the customer's securities. The securities remain with the dealer or his clearing bank. This type of arrangement is inexpensive since delivery fees are unnecessary and generally no costly contractual arrangements need to be drawn up. However, this obviously can be much riskier for the customer. Making the proper arrangements for custody of the securities is a critical safeguard against losses even if it costs money and lowers an investor's rate of return.

Another pattern in recent losses entails market or interest rate risk. Once customers have taken steps to gain control of their collateral, they still must protect themselves against fluctuations in prices of government securities that occur whenever interest rates change. Investors providing funds to a dealer should start by valuing the securities at their current market price rather than at their par value. Then they should protect themselves against changes in the market prices of securities they receive by requiring a package of securities whose total market value exceeds the value of cash they exchange. This process is called "taking margin" and is especially important the longer the maturities of the securities and the longer the term of the repurchase agreement.

In addition, since interest rates can fluctuate substantially during the life of a repo, no matter how short, customers need to assess frequently whether the collateral remains of sufficient value to protect their interest. This process of monitoring the value of securities is called "marking to market." It should be done at least daily. When the market value of the securities being held as collateral slips below the preestablished margin, a margin call should be made on the dealer. Of course, a dealer also may ask for margin calls when the margin grows too large.

Customers who have raised funds by selling securities from their portfolio must follow these procedures as well. However, in their case, they need to determine whether the margin given the dealer is appropriate, and they should not let it grow too large if interest rates decline. The margin given when an investor borrows using repos is equivalent to an unsecured loan of securities to the dealer.

One problem in earlier losses was a failure to account properly for interest that was accruing on a coupon of a note or bond. The funds that can be obtained by selling a security increase each day as a result of interest accruing. Controlling for this type of risk is especially important for those using their securities to raise funds in the repo market since they stand to lose from ignoring this feature of government securities.⁹

How To Prevent Future Losses

Losses can be limited in doing repos, if not avoided entirely, by following four basic rules: (1) operate under the terms of a clearly specified and executed master repurchase agreement, (2) properly assess counterparties including their

corporate structure and capital strength, (3) use appropriate procedures for obtaining control of securities, and (4) evaluate securities appropriately and monitor them regularly, making margin calls when necessary.

The Federal Reserve and other regulatory and industry groups will continue to work toward developing better systems to curb abuse. The Fed's approach at this time is twofold. One part is an extensive educational effort to inform investors and other market participants of the risks involved in repos and of these four ways to minimize the chance of losses. The other is the development of a voluntary capital adequacy guideline that customers can use to help them evaluate the creditworthiness of dealers with whom they transact.

The Federal Reserve's voluntary capital adequacy guideline is designed for those who do not already comply with some standards such as bank capital ratios or the SEC's Uniform Net Capital Rule. The guideline calls for dealers to comply voluntarily with a minimum ratio of liquid capital to risk at any point in time of 1.2 to 1. That is, dealers are asked to make sure their ready capital exceeds their risk by 20 percent. The measurement of risk takes into consideration various aspects of dealer operations. Dealers complying with these guidelines are to certify

their compliance in each of three ways: a general letter from the dealer to the customer, audited financial statements, and a letter from the dealer's certified public accountant indicating that there are no material weaknesses in the dealer's internal procedures for compliance.

These standards will not be enforced by any federal regulatory agency. Rather, their effectiveness will depend on primary dealers, clearing banks, and customers, all of whom should request the relevant certifications and then trade only with those dealers that provide them.

In addition, the Federal Reserve regards as desirable some form of minimum regulation, including registration, inspection, and financial standards. That approach, however, requires congressional action. Currently, several bills are before Congress that would subject the market to additional regulation. Whether or not the government securities market becomes subject to additional regulation, market participants need to work together to preserve the generally good record of safety. The customer shares responsibility for safety, not only by requiring capital adequacy from his counterparty but also by implementing proper internal procedures, controls, and contractual arrangements. Prudent management practices can go a long way toward preventing fraud.

NOTES

¹The Bevill, Bresler and Schulman failure triggered the failures of several small securities firms in the Midwest. Recently some smaller failures have occurred, such as Parr Securities. Earlier failures included the Lion Capital Group and RTD in 1984 and Drysdale Government Securities in 1982.

²See Bobbie H. McCrackin, A. E. Martin III, and William B. Estes, III, "State and Local Governments' Use of Repos: A Southeastern Perspective," this issue.

³See Richard Syron and Sheila L. Tschinkel, "The Government Securities Market: Playing Field for Repos," this issue.

⁴For more information on government securities, see Box 1 in Syron and Tschinkel.

⁵See Box 2 in Syron and Tschinkel.

⁶Transactions in certain securities have traditionally been exempt from regulation. These include Treasury and agency issues, bankers' acceptances, commercial paper, and CDs.

⁷See Gary Haberman and Catherine Piche, "Controlling Credit Risk Associated with Repos: Know Your Counterparty," this issue.

⁸See Don Ringsmuth, "Custodial Arrangements and Other Contractual Considerations," this issue.

⁹See Sheila L. Tschinkel "Identifying and Controlling Market Risk," this issue.

11	3/4	11/15/1985-N	100.25	29	-1	6.75
10	1/2	11/30/1985-N	100.19	23	-1	7.19
10	7/8	12/31/1985-N	100.31	3	-2	7.21
14	1/8	12/31/1985-N	102.08	12	-1	6.34
10	5/8	1/31/1986-N	101.03	7	-2	7.43
9	7/8	2/15/1986-N	100.28	0	-2	7.50
13	1/2	2/15/1986-N	102.19	23	-1	7.11
10	7/8	2/28/1986-N	101.15	19	-1	7.47
11	1/2	3/31/1986-N	101.31	3	-2	7.67
14		3/31/1986-N	103.13	17	-2	7.55
11	3/4	4/30/1986-N	102.12	16	-3	7.76
7	7/8	5/15/1986-N	99.31	3	-2	7.73
9	3/8	5/15/1986-N	100.29	1	-1	7.82
13	3/4	5/15/1986-N	103.26	30	-3	7.82
12	5/8	5/31/1986-N	103.06	10	-1	7.91
13		6/30/1986-N	104.00	4	-1	7.71
14	7/8	6/30/1986-N	106.03	7	-3	6.94
12	5/8	7/31/1986-N	103.28	0	-2	7.95
8		8/15/1986-N	100.01	5	+1	7.83
11	3/8	8/15/1986-N	102.29	1	0	7.98
12	3/8	8/31/1986-N	103.27	31	-1	8.11
11	7/8	9/30/1986-N	103.20	24	-1	8.14
12	1/4	9/30/1986-N	104.00	4	0	8.14
11	5/8	10/31/1986-N	103.18	22	-1	8.21
6	1/8	11/15/1986	97.30	30	+1	7.07
11		11/15/1986-N	102.27	31	-2	8.34
13	7/8	11/15/1986-N	106.02	6	-3	8.33
16	1/8	11/15/1986-N	109.05	9	-1	7.84
10	3/8	11/30/1986-N	102.07	11	-1	8.34
9	7/8	12/31/1986-N	101.22	26	-1	8.40
10		12/31/1986-N	101.28	0	-2	8.37
9	3/4	1/31/1987-N	101.16	20	-1	8.50
9		2/15/1987-N	100.19	23	0	8.46
10	7/8	2/15/1987-N	103.00	4	-2	8.53
12	3/4	2/15/1987-N	105.17	21	-1	8.50
10		2/28/1987-N	101.28	0	-2	8.54
10	1/4	3/31/1987-N	102.09	13	+1	8.58
10	3/4	3/31/1987-N	103.00	4	+1	8.58
9	3/4	4/30/1987-N	101.16	20	-1	8.67
12		5/15/1987-N	105.00	4	-1	8.68
12	1/2	5/15/1987-N	105.24	28	0	8.70
14		5/15/1987-N	108.02	6	0	8.70
9	1/8	5/31/1987-N	100.16	20	+1	8.73
8	1/2	6/30/1987-N	99.14	18	+1	8.77
10	1/2	6/30/1987-N	102.25	29	+1	8.74
8	7/8	7/31/1987-N	99.30	0	+1	8.88
12	3/8	8/15/1987-N	105.29	1	+1	8.93
13	3/4	8/15/1987-N	108.11	15	0	8.91
8	7/8	8/31/1987-N	99.28	30	+1	8.91
11	1/8	9/30/1987-N	104.01	5	+2	8.88
7	5/8	11/15/1987-N	97.28	4	+2	8.58
11		11/15/1987-N	103.30	2	+2	8.92
12	5/8	11/15/1987-N	107.00	4	+1	8.98
11	1/4	12/31/1987-N	104.17	21	+1	8.98
12	3/8	1/15/1988-N	106.26	30	+2	9.05
10	1/8	2/15/1988-N	102.03	7	+2	9.09
10	3/8	2/15/1988-N	102.20	24	+1	9.09
12		3/31/1988-N	106.07	11	+2	9.17
13	1/4	4/15/1988-N	109.01	5	+1	9.22
8	1/4	5/15/1988-N	98.06	14	+2	8.91
9	7/8	5/15/1988-N	101.12	16	+2	9.23
10		5/15/1988-N	101.21	25	+1	9.24
13	5/8	6/30/1988-N	110.09	13	0	9.34
14		7/15/1988-N	111.11	19	+1	9.29
9	1/2	8/15/1988-N	100.16	20	+1	9.25
10	1/2	8/15/1988-N	102.30	2	+3	9.29
11	3/8	9/30/1988-N	105.06	10	+3	9.34
15	3/8	10/15/1988-N	115.13	21	+2	9.45
8	3/4	11/15/1988-N	98.21	29	+5	9.15
11	3/4	11/15/1988-N	106.04	8	+2	9.44
10	5/8	12/31/1988-N	103.06	10	+2	9.44
14	5/8	1/15/1989-N	113.31	3	+2	9.62
11	3/8	2/15/1989-N	105.06	10	+1	9.53
11	1/4	3/31/1989-N	105.00	4	-1	9.52
14	3/8	4/15/1989-N	113.24	0	+1	9.69
9	1/4	5/15/1989-N	99.26	2	+2	9.23
10		5/15/1989-N	106.08	12	0	9.66
10	5/8	6/30/1989-N	100.06	8	+4	9.55
14	1/2	7/15/1989-N	114.21	29	0	9.77

The Government Securities Market: Playing Field for Repos

Richard Syron and
Sheila L. Tschinkel

Our nation's government securities market is characterized by its huge volume, its efficiency, and its lack of comprehensive regulation. Here is a look at how the market operates and why it has grown so rapidly.

Repurchase agreements are important transactions in the U.S. government securities market, the world's largest and most liquid capital market—having absorbed over \$1 trillion in gross new issues in 1984 to raise close to \$200 billion in new funds and to refinance maturing debt.

The market has grown substantially in recent years because of the rapid expansion of Treasury debt. Trading in the secondary market has grown at an even faster pace. One salient characteristic of this market is its lack of comprehensive regulation. This freedom has encouraged rapid entry into the market by many types of firms, keen competition, and extraordinary innovation.

Understanding the market's structure and functions is essential to gaining a sound understanding of repurchase agreements, including recent problems involving their use and the procedures necessary to avoid loss. This article describes the market's structure, the organization and operations of major participants, and its performance.

The Market's Structure

The government securities market consists of five broad categories of participants: the

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U.S. Treasury Department, the Federal Reserve System, primary securities dealers, other dealers, and a wide array of investors. The fount of this market is the Treasury Department, the pre-eminent issuer of short- and long-term debt securities on a regular basis. The Treasury auctions bills, notes, and bonds to finance new U.S. government debt as well as maturing securities (see Box 1). Several government-sponsored agencies also issue securities. Government and agency securities have a wide variety of maturities, and this along with particular characteristics and the level of interest rates determines their market values.

The Treasury does not market its securities directly but relies on the Federal Reserve to serve as its fiscal agent. The Fed's fiscal agency role has several aspects. The Fed issues most new securities on behalf of the Treasury through a computerized book-entry system (see Box 2). Most Treasury securities no longer are issued in a tangible form as engraved certificates that can be kept in a vault, technically referred to as "definitive securities," and the issuance of definitive securities soon will be discontinued altogether. The Fed transfers most securities between depository institutions over its own wire system, called the Fedwire, in much the same way money is transferred electronically among depository institutions. The Fed not only maintains and transfers securities but also handles the initial sale of the securities. The Fed conducts auctions of new Treasury securities by collecting and processing competitive and noncompetitive bids from dealers, banks, individuals, and others.

Although the Fed serves as fiscal agent for the Treasury, it does not buy securities directly from the Treasury (except to roll over maturing holdings). Rather, if the System wishes to change its own holdings of Treasury securities for monetary policy reasons, it does so by transactions in the open secondary market. Thus, the Federal Reserve has a key interest in the government securities market because of its responsibility for implementing monetary policy as well as executing investments for foreign central banks. The New York Fed's trading desk purchases and sells government securities to implement the directives of the Federal Open Market Committee.² The Fed's open market operations—or transactions in government

securities—influence the pace of monetary expansion. The New York Fed often uses repos and a transaction similar to reverse repos to provide or absorb bank reserves on a temporary basis. Last year the aggregate gross volume of open market transactions including repurchase agreements and transactions similar to reverse repos exceeded \$200 billion in addition to Fed market transactions on behalf of 150 foreign central banks and other foreign official institutions.

In its market operations the Fed transacts only with certain dealers, known as primary dealers. Among these primary dealers currently are banks or bank subsidiaries, diversified investment houses, and specialty firms. There are now about 36 of these so-called primary dealers. Ten years ago there were about 25. No formal limit governs their number.

Primary dealers serve two crucial functions in the market: they help distribute the Treasury debt and they stand ready to "make markets," or buy and sell securities for customers. Their selection by the Fed as counterparties revolves around their ability to fulfill these two functions. Besides their ability to meet the needs of the Fed, criteria for being a primary dealer include volume of activity and participation in Treasury auctions, breadth of customer base, ability and commitment to buy and sell securities for customers even when market conditions are unfavorable, financial strength, depth of experience of management, and commitment to fulfilling this role over the long term.

In addition to primary dealers, many other firms routinely trade in U.S. government securities. These also include a mix of depository institutions, diversified securities firms, and specialty firms. Some participating firms are as large as primary dealers but have elected not to seek designation as such. Others service clients in a particular region. Still others may specialize in small transactions or odd lots.

This diversity is advantageous to investors because it provides them a greater choice of firms and services. Of course, these investors in government securities make up the largest sector of the market, and they include individuals; insurance, financial, and other corporations; pension funds; state and local governments and authorities; banks and savings institutions; and foreign investors.

Treasury Securities

Lisa Rockoff

The market for Treasury securities has grown rapidly in recent years largely in response to the federal government's expanding financial requirements. In addition to the growth in new issue activity, trading in the secondary market also has increased even more rapidly, attracting new dealers and greater customer participation.

What Are Treasury Securities?

The U.S. Treasury provides for the federal government's financial needs. In this capacity the Treasury is responsible for debt management, which includes borrowing funds to cover any shortfall between outlays and revenues and arranging for the refinancing, servicing, and repayment of maturing debt.¹ To meet this responsibility the Treasury issues debt securities in a wide variety of initial maturities. The best-known Treasury securities are bills, notes, and bonds. Bills are short-term, one year or less; notes are medium-term, one to 10 years; and bonds are long-term issues, greater than 10 years. Currently, the Treasury issues three-month, six-month, and one-year bills in minimum denominations of \$10,000, with multiples of \$5,000; two- through 10-year notes; and 20- and 30-year bonds in denominations of \$1,000, \$5,000, \$10,000, \$100,000, and \$1 million. Occasionally, the Treasury issues very short-term cash management bills, with minimum denominations of \$1 million, to bridge gaps when its cash balances are temporarily low.

The increasing size of the federal budget deficit in recent years has enlarged the volume of debt that the Treasury needs to sell. Because the timing and amount of its offerings can have a substantial impact on the financial markets, the Treasury has adopted a practice of issuing specific maturities on a regular schedule in order to facilitate absorption of its marketable debt with minimal disturbance. Quarterly Treasury announcements of the major mid-quarter refundings provide information on the exact amounts of each maturity to be offered, the amount of new cash to be raised by the operation, and the amount being refinanced. It also indicates the total amount of financing remaining to be done in that quarter and a range of financing likely to be done in the following quarter. Other auctions generally are announced about a week before they are held. The public can determine when an issue is forthcoming by consulting the financial sections of major daily newspapers or the 24-hour information lines on scheduled auctions at all 12 Federal Reserve Banks. In addition, customers may request that their names be added to any Federal Reserve Bank's mailing list for note and bond circulars.

How Are Treasury Securities Marketed?

Aside from nonmarketable securities, such as savings bonds, most Treasury securities can be bought in two ways—at Treasury auctions when they initially are offered or in the secondary market through a dealer.

Initial interest rates on marketable, or negotiable, Treasury securities (and the coupons on coupon-bearing notes and bonds) are established at auction.

Bids are made on both a competitive and a noncompetitive basis. A competitive bidder submits a tender for the amount of securities he or she wishes to purchase at a specified rate carried out to two decimal places. The Treasury generally limits competitive tenders to 35 percent of the amount offered to the public in each auction per single bidder. A noncompetitive bidder specifies the amount of securities he wishes to purchase but agrees to accept the average rate (and price) established through competitive bidding. The Treasury limits noncompetitive tenders, except those of the Federal Reserve System and its customers, to \$1 million per bidder. Therefore, most noncompetitive bids come from smaller investors.

On the day of the auction, all Federal Reserve Banks receive tenders until a specified time, usually 1 p.m. Eastern time. Subsequently, these are wired to the Treasury. After all timely bids have been received, the volume of noncompetitive tenders is subtracted from the total amount to be issued. Allowable noncompetitive tenders are accepted in full. The remainder of the issue is allocated to competitive bidders, beginning with those who bid the lowest rate. After filling the bids at the lowest rate, the Treasury awards issues at the next higher rate and so on until all of the issue has been awarded. A partial award may be made at the highest accepted rate (the stop-out rate) in order to come as close as possible to the exact amount the Treasury plans to sell. Once the stop-out bid is reached, a weighted average rate is computed from all accepted competitive bids. Noncompetitive bidders are awarded their securities at a price based on the established average rate. Competitive bidders whose tenders have been accepted pay the price equivalent to the rate they specified. Auction results can be found in the financial sections of many major daily newspapers on the day following the auction.

In most respects, auctions for bills are conducted in a manner similar to those for notes and bonds. There are a few key differences, though, largely due to differences in the way the two types of Treasury securities are priced, discussed below.²

How Are Prices and Rates of Return on Treasury Securities Determined?

Treasury Bills. Treasury bills, or T-bills, are non-interest bearing securities issued at a discount. That is, Treasury sells the bills at a price that is below their face value—or at a discount—and redeems them at face value. Thus, the return to the investor is determined by the discount at which the securities are bought and the length of time until maturity. The Treasury computes the price per \$100 face value of discount securities using the following formula:

$$P = \left(1 - \frac{r_d \times D}{360} \right) \times 100$$

where

P = price per \$100 face amount,

r_d = interest rate on a discount basis
decimalized (e.g. 7.36% = 0.0736),

D = days to maturity.

For example, assume six-month (182-day) bills are purchased at a 7 percent discount rate. The price of the bill is calculated as follows:

$$P = \left(1 - \frac{0.07 \times 182}{360} \right) \times 100$$

$$= 96.4611112$$

The Treasury rounds the price to three decimal places, so \$96.461 is the price per \$100 face value of securities. Thus, the purchase price of \$1 million of these bills would be \$964,610.00.

Rates quoted on a discount basis do not reflect the fact that the amount invested is less than the face value of the securities. In addition, Treasury bill rates are calculated on a 360-day basis, whereas interest on longer-maturity Treasury securities is computed on a 365-day basis. To allow rate comparisons, bill rates are often converted into bond-equivalent yields (BEY). The BEY on a discount instrument with a maturity of six months or less is derived as follows:

$$BEY = 100 \times \left[\frac{(100 - P) \times 365}{P \times D} \right]$$

Using our earlier example, the bond-equivalent yield on a six-month bill with a 7 percent discount rate is found as follows:

$$BEY = 100 \times \left[\frac{(100 - 96.461) \times 365}{96.461 \times 182} \right]$$

$$= 7.36\%$$

For a bill with a maturity of six months or more, the BEY calculation must reflect the approximate return that would have been obtained if interest had been paid at the end of six months (since interest payments on securities with interest coupons are made every six months). The formula is complex but similar in principle to deriving the yield on coupon securities in the case where the coupon is set at zero.

Treasury notes and bonds. Unlike bills, notes and bonds pay separate interest every six months. They carry a fixed interest payment, the coupon rate, and, hence, are also called coupon securities. The coupon rate is established at auction.⁴ Bidding on coupon issues is based on yields, not prices. After an issue has been awarded at auction, the Treasury establishes a fixed coupon, rounded down to the nearest eighth of one percent, based on the weighted average of the accepted competitive yields.

The price charged to competitive bidders is set at or rounded down to slightly below par. At the time of issue, prices are expressed as a percentage of par, par equaling 100.

In the secondary market, fractional prices are expressed in 32nds. Securities that trade below par are said to be at a discount, while those trading above par are said to be at a premium. For example, the price of a coupon security trading below par might be expressed as 99 12/32, often shown as 99.12. This figure represents a price of \$993.75 for a \$1,000 bond. A bond trading above par might be quoted at 102 5/32, or 102.5, implying a price of \$1,021.56 for a \$1,000 bond.

The coupon rate established on any note or bond represents the simple annual interest rate the Treasury pays to the investor on the face value. Since the Treasury pays interest semiannually, the interest payment each six months is represented by the formula:

$$i = \frac{\text{Coupon Rate} \times \text{Face Value}}{2}$$

The rate of return on notes and bonds held to maturity when both the present value of the future interest payments and the redemption value of the security are taken into account is called the yield to maturity. The present value may be viewed as the amount one is willing to pay now for the stream of coupon payments plus the face value received at maturity. The higher (or lower) the yield, the less (or more) one is willing to pay to receive any specified payment in the future. Thus, price varies inversely with yield.

The longer the maturity of the security, the greater the number of payments. Also, the further away a payment is in time, the more its present value changes in response to any change in yield. Thus, for any given yield change the size of the resulting price change—or volatility—varies directly with maturity.

Finally, price changes depend on the coupon. The lower the coupon, the larger the share that the present value of the final payment represents in the calculation of present value or price. Since that payment is furthest in the future—and so is most sensitive to a yield change—the more the price of the entire security will change to reflect a given change in yield. Thus, price volatility varies inversely with the coupon rate. Some investors use a measure known as duration in figuring yield. While the computation of this measure is too complex to describe succinctly, duration essentially recognizes both the relative importance of coupons and the final maturity of a bond or note. Therefore, the price volatility of debt securities varies directly with both their duration and the volatility of interest rates.

In calculating yield to maturity one assumes coupon payments are reinvested every six months at the same yield, specifically the yield to maturity. Although using a current interest rate as a proxy for future rates is somewhat arbitrary, alternative methods involve estimating expected rates in the future, an extremely complex and equally unrealistic process.

After-tax yield calculations need to take into account any capital gain or loss arising from the difference between a security's purchase price and its face value at redemption. For example, if an investor purchases

notes and bonds at slightly below par, say, at 99.120 (or \$993.75 for a \$1,000 bond) and redeems it at face value (or \$1,000), the investor receives a capital gain of \$6.25.

Most outstanding 30-year bonds have 25-year call provisions, which allow the Treasury to redeem the bonds at par after 25 years. Technically, the Treasury might exercise this option if interest rates 25 years after issue are below the coupon on the bond. Valuation of

callable bonds can be complex, but they typically behave as if they have a 25-year maturity when interest rates are significantly below their coupons and a 30-year maturity when the opposite holds.

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NOTES

¹Treasury borrowing constitutes only one part—albeit the largest—of total government-related borrowing. Federally sponsored agencies set up by Congress to make credit available to specific sectors of the economy also borrow. Agencies financing in the open market include the Federal National Mortgage Association (FNMA), the Farm Credit Banks, the Federal Home Loan Banks, and the Government National Mortgage Association (GNMA). There are differences between Treasury and agency borrowing. First, whereas the Treasury borrows to finance the federal deficit, agencies act more as financial intermediaries. Second, while some agency debt is guaranteed as to principal and interest by the U.S. government or has the full faith backing of the U.S. government, other agency debt does not have this backing.

²Another difference pertains to tenders by the Fed. Fed tenders typically are noncompetitive. On three- and six-month T-bills the amount tendered by the Fed is subtracted from the total. In contrast, the amount tendered by the Fed on one-year T-bills, notes, and bonds is not subtracted from the

total since the Fed issues securities in addition to the amount offered to the public.

³The bill price formula illustrates that price varies inversely with interest rate. It also reflects the fact that, for any given rate change, the size of price movements varies directly with the maturity of the bill. That is, the farther away in time a customer receives the face amount, the less he is willing to pay now for the bill.

⁴Under the public debt statutes there is a 4 1/4 percent interest-rate limit on bonds. When interest rates were low, the Treasury had no problem issuing bonds under this constraint. As interest rates rose, though, this limit forced the Treasury to concentrate debt issuance in short- to intermediate-term issues. Therefore, in the early 1970s Congress granted a partial exemption from this ceiling for a specified dollar amount (face) of bonds and has since raised these amounts several times. Congress also responded to the problem by extending the maturity of notes (which are not subject to the rate ceiling) from a maximum of five years to seven and later to ten years.

How Government Securities Dealers Operate

Government securities dealers perform three interrelated activities. First, they make markets for customers and provide information, analysis, and advice to encourage transactions and customer loyalty. Second, to meet customer needs, they generally maintain an inventory of securities. The composition of this inventory is structured to allow dealers to sell securities at a higher price than they bought them. Third, they manage their positions, speculating on market trends with a view to profiting from swings in interest rates.

When a dealer makes a bid or an offer to a customer, the dealer is buying or selling securities for its position. That is, the dealer is acting as principal and not as agent. When a dealer finances his holdings of securities, he is also acting as a principal. Thus, dealers are distinct from brokers. The latter earn a profit by acting as go-betweens, matching parties with complementary needs and charging a commission for their services.

Securities dealers absorb and distribute a large share of the U.S. government debt when

it is sold at auction. They also buy and sell existing securities in the secondary market. The price at which a dealer is willing to buy a security is called a "bid"; the price at which he is willing to sell is an "offer." A dealer firm tries to earn the spread between the bid and offer prices on customer transactions.

Dealers also position securities to reflect their assessment of likely changes in interest rates. If a dealer expects interest rates to fall and hence prices of debt securities to rise, he will typically "take a long position" in these issues. If he expects rates to rise, he will "go short," selling securities he does not own in the expectation of buying the securities back later at a lower price. Long and short positions generally are highly leveraged, or supported with borrowed funds, at times to over 99 percent. Thus, position management is a major source of variation in profit and capital in either direction.

As explained earlier, in a repo the dealer agrees to sell a security at a specified price for a specified period after which he agrees to repurchase the security, usually at the agreed-upon price. In return for the security, the dealer receives funds to finance its positions in government securities. Since the dealer has use of the

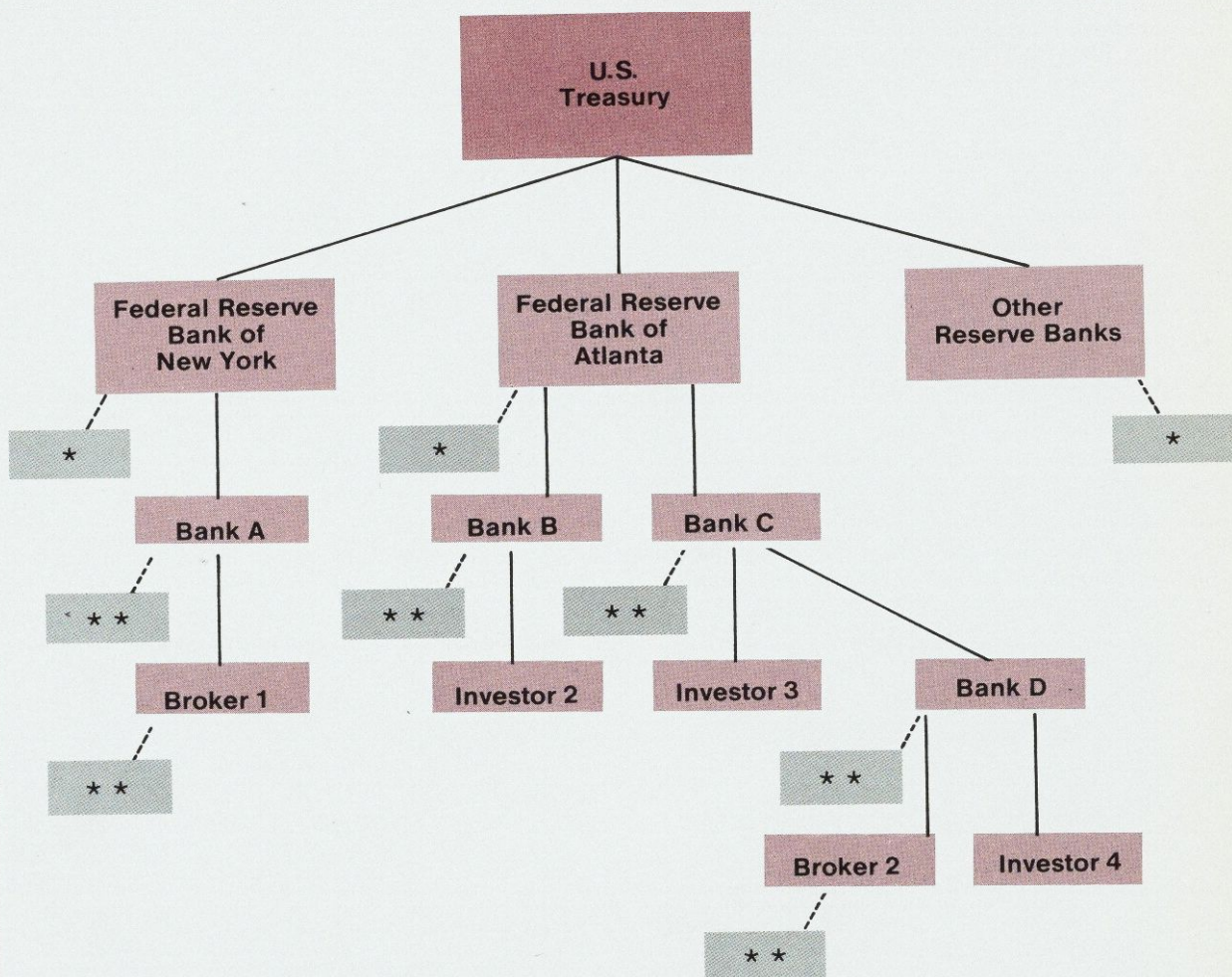
The Book-Entry System for Treasury Securities¹

A. E. Martin III

An important aspect of the government securities market is understanding how a book-entry system for recording ownership of and interests in securities operates. In contrast to "definitive" securities (those represented by a physical certificate), an interest in book-entry securities is reflected by an entry, often computerized, in the accounts of a book-entry custodian indicating the party for whom it holds the securities. The following discussion provides a brief overview of the book-entry system for U.S. Treasury securities. U.S. Treasury bills are issued exclusively in book-entry form; Treasury notes and bonds, although available in

definitive form as well, are held mainly in book-entry. Moreover, the Treasury Department has announced its plans to offer new issues of Treasury notes and bonds exclusively in book-entry form beginning some time in 1986.

The book-entry system for Treasury securities is governed by Treasury regulations, which facilitate the establishment of a "tiered" custodial system whereby the ownership of securities is represented by entries on the books of a series of custodians. This system extends from the Treasury itself through the Federal Reserve Banks, depository institutions, and brokers



*Other depository institutions.

**Other custodians (depository institutions, brokers/dealers, etc.) or ultimate investors.

or dealers to the ultimate owner or party in interest.² The Treasury's records reflect the total amount of an issue of securities outstanding and the portion held by each Federal Reserve Bank. In turn, each Reserve Bank's entries establish how much of the issue is held by the depository institutions in its district that maintain book-entry accounts with it.³

A depository institution's records further divide the amount it holds at its Reserve Bank, reflecting how much it holds for itself, for other depository institutions (including those that do not maintain accounts at the Federal Reserve), for brokers and dealers, and for the ultimate investors. Thus, the custodial chain may include only the Treasury, a Reserve Bank, and a depository institution, or additional custodians such as other depository institutions and broker/dealers. Payments of principal at maturity as well as interest payments on Treasury notes and bonds are made through the crediting of funds by the Treasury down through the custodial tiers.

Under Treasury regulations and the operating circulars of the Reserve Banks, only depository institutions may have book-entry accounts at a Reserve Bank.⁴ Other parties must have their holdings reflected on the books of a depository institution or other "depository" that in turn holds through a depository institution.⁵ In certain limited instances, such as the pledge of securities by a depository institution to secure the deposits of state or local government funds, a third party's interest in book-entry securities may be noted at the Reserve Bank level. However, securities acquired under a repurchase agreement are not held to secure deposits and are not eligible for such treatment.

Transfers and pledges of book-entry securities are effected by making appropriate entries, according to the instructions of the parties involved in the transaction, on the records of the custodian(s) involved. Under Treasury regulations, making such an entry renders the custodian a "bailee," or legal custodian, with respect to the party for whom it holds.⁶ Referring to the chart, a transfer from Broker 1 to Investor 2 would involve not only the ultimate making of an entry on Bank B's books, reflecting the transfer to Investor 2, and on Broker 1's books, decreasing its own holdings, but also entries on the books of Banks A and B, both Federal Reserve Banks, and the Treasury. A transfer

from Investor 2 to Investor 3 would entail entries on the books of Banks B and C and the Atlanta Reserve Bank but not the Treasury. At the other extreme, a transfer from Broker 2 to Investor 4 would involve only an entry on the books of Bank D, reallocating a portion of the amount it held through its Reserve Bank between Broker 2 and Investor 4. No revision of entries on the books of the Reserve Bank or the Treasury would be involved.

Under Treasury regulations, a transfer or pledge of book-entry securities is accomplished by means that would be effective under applicable law a transfer or perfect a pledge of definitive securities in bearer form. No filing or recording with a public recording office or officer is required. A transferee, or pledgee, may obtain from its custodian acknowledgment that securities are held for it. A Reserve Bank, however, deals exclusively with the depository institutions for which it holds book-entry accounts and does not accept notices or instructions from remote parties holding through depository institutions regarding their interests in securities.

Procedurally, transactions are effected by instructions transmitted by and through the parties and custodians involved. If a transaction involves entries on the books of a Reserve Bank or several Reserve Banks (and the Treasury), then the Fedwire (the Federal Reserve's wire transfer system) is used to transmit instructions electronically.⁷ For transactions that do not reach the Reserve Bank level in the custodial chain, no specific mode of communication is required for the transfer. This distinction has implications for repurchase transactions of small amounts or short duration.

Don Ringsmuth's article in this issue discusses several types of delivery and custodial arrangements that can be used in a repo transaction. The foregoing summary of the mechanics of the book-entry system for Treasury securities is designed to provide only a brief structural overview of the system. There are additional issues and factors that require expertise or the advice of experienced counsel to engage in repo transactions.

The author is an attorney in the Legal Department of the Federal Reserve Bank of Atlanta.

NOTES

¹This box discusses only the book-entry system for Treasury securities, although similar systems exist for other types of securities that are also used in repo transactions, including some securities issued by federal agencies and handled by the Federal Reserve.

²Subpart O of 31 C.F.R. Part 306 - The General Regulations Governing United States Securities ("Treasury regulations") governs the book-entry system for Treasury securities. Virtually identical rules with respect to Treasury bills held in book-entry through the Federal Reserve are contained in Subpart D of 31 C.F.R. Part 350. Subpart C of these Treasury bill regulations also establishes a system whereby Treasury bills may be held in book-entry accounts maintained by the Treasury itself. Transactions in bills so held, however, require that the bills be transferred into the tiered system described in this article.

³Prior to the Monetary Control Act of 1980, only member banks of the Federal Reserve System could maintain book-entry accounts with the Federal Reserve. Now any depository institution may do so.

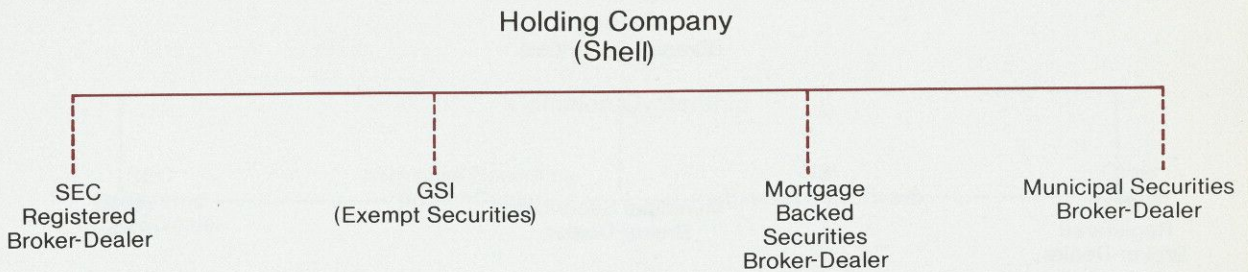
⁴Section 306.117 of the Treasury regulations; each of the Federal Reserve Banks has issued an operating circular, letter, or bulletin containing additional provisions governing the maintenance of book-entry securities accounts at the Federal Reserve. See, e.g., Operating Circular No. 21 of the Federal Reserve Bank of Atlanta.

⁵Under the Treasury's regulations (section 306.118(b)), a "depository" is defined as a bank, banking institution, financial firm, or similar party, which regularly accepts in the course of its business Treasury securities as a custodial service for customers and maintains accounts in the names of such customers reflecting ownership of or interest in such securities. In this box, the term "custodian" is used rather than "depository" to avoid confusion with the term "depository institution," which is one type of depository.

⁶Section 306.118(b) of the Treasury regulations.

⁷Each of the Federal Reserve Banks also has issued an operating letter or circular regarding the wire transfer of book-entry securities, such as Operating Circular No. 20 of the Federal Reserve Bank of Atlanta.

Chart 1. Common Holding Company Structure



customer's money while the repurchase agreement is outstanding, the dealer agrees to pay interest to the customer.

Dealers often use reverse repos, whereby they provide money and take in customer securities, to obtain the securities they have sold short—those they have sold without owning and need to deliver. When one party is executing a repo, the counterparty must be executing a reverse repo.

Some dealers also arrange repos and reverse repos at the same time, operating what is called a "matched book," to earn income from the spreads between what they receive from one type of transaction and pay for the other. Such dealers are acting as a principal and are intermediating, or raising funds from one customer and providing funds to another.

Matched books also may be used to speculate on the direction of short-term interest rates. If a dealer expects short-term rates to rise, he will arrange repos with a longer maturity than the reverse repos in his matched book. That is, he will raise funds for a longer period than he provides them, expecting that rates on the rollover of the reverse repo will rise relative to the rate set on the repo.

Types of Dealer Organization

The way that a government securities operation fits into a firm's overall organizational structure determines whether the operation is subject to the oversight and capital rules of the SEC. Four forms of organization are widely used by government securities dealers. The simplest is a single firm where the government securities dealer is a department in the overall

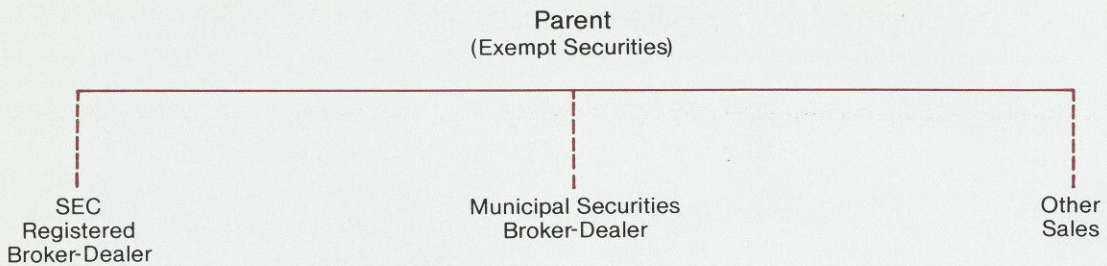
securities firm or bank. In two cases the dealer operation is a separate subsidiary in a holding company; in the other, the dealer is a commonly owned affiliate. Securities firms of all sizes use the holding company structure. In many instances, the holding company is a shell with activity transacted through its subsidiaries (see Chart 1).

Government securities may be traded in the same entity which also trades nonexempt securities. In this case, the whole entity, including its government securities operations, is subject to SEC rules. However, many organizations using a holding company structure conduct regulated activities through their principal subsidiary, a broker-dealer registered with the Securities and Exchange Commission (SEC), while government and other exempt security activity is transacted through another subsidiary known as a Government Securities, Incorporated (GSI). The GSI is not constrained by the SEC's capital or custodial rules.

The separation of exempt and nonexempt securities activities increases the firm's overall flexibility. For example, less capital must be devoted to the GSI than would be the case if the business were SEC regulated. Similarly, an organization may use other subsidiaries to separate management authority or legal liability for other activities, such as mortgage-backed or municipal bond trading.

Using another organizational structure, many smaller specialty firms concentrate their government and other exempt securities trading in the parent company while setting up a small SEC-registered broker-dealer subsidiary to trade in regulated markets (see Chart 2). A fourth form of organization involves affiliation of multiple firms through common ownership (see Chart 3).

Chart 2. Common Specialty Firm Structure



Customers should be careful to review financial statements for the specific subsidiary with which they are dealing. In some cases financial statements for holding companies with multiple subsidiaries are prepared for the consolidated firm only. In these consolidated holding company financial statements, the footnotes concerning "excess capital" under the SEC's rules refer only to the SEC-regulated affiliates. Furthermore, common ownership or affiliation may or may not be reported in financial statements or disclosed by the firm. If there are substantial transactions with affiliates, customers should ask for financial statements on any such affiliated entities.

Regulatory Framework

Whether a particular dealer firm is subject to official oversight depends on the markets in which the firm participates and on its individual characteristics and organization. Most diversified securities houses, for example, deal in corporate issues and municipal securities as well as U.S. government securities. Since the Securities and Exchange Commission regulates corporate issues, these firms are subject to SEC regulation. The SEC in turn delegates some of its supervisory responsibilities to the various stock exchanges, the National Association of Securities Dealers, and the Municipal Securities Rule-Making Board. Some small government securities dealers that participate in the financial futures exchanges are regulated by the Commodities Futures Trading Commission (CFTC). Because of their corporate affiliation, dealer departments of banks are subject to examination by federal and state bank regulatory authorities such as the Fed, the Office of the

Comptroller of the Currency (OCC), and the Federal Deposit Insurance Corporation (FDIC). Primary dealers also are subject to oversight by the Fed. The New York Fed scrutinizes the primary dealers with which it transacts as part of its business relationship with them and its concern for the health of the markets. The Fed, however, has no statutory authority to regulate these firms.

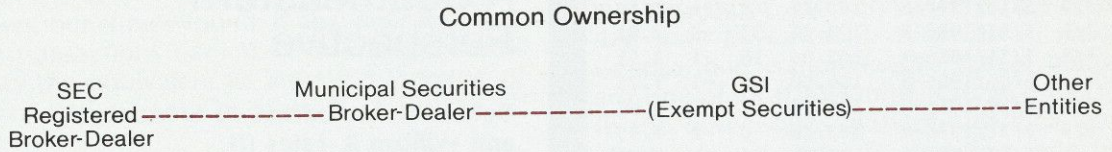
Some government securities dealers are free from any form of federal supervision or regulation. Dealers in this group trade only exempt securities—U.S. government and agency securities, certificates of deposit, bankers' acceptances, and commercial paper—and are not subject to examination by the SEC, the Fed, or any federal banking regulator. Furthermore, there is no federal regulation of GSI subsidiaries or affiliates of seemingly "regulated" firms.

Advantages and Disadvantages of Unrestricted Entry

The government securities market, in many respects, exemplifies the free markets described in classical economics. No formal barriers restrict entry. Dealers must meet no licensing requirements, for example. Anyone can become a government securities dealer, and the diversity among secondary dealers demonstrates that many different kinds of businesses enter the market. Once a firm is in the market, no uniform capital requirements or standards for custodial control or sales practices apply. Furthermore, there are no margin requirements; dealers can and often do finance over 99 percent of the purchase cost of most Treasury securities.

The resultant structure of the securities market has produced competition, efficiency, and in-

Chart 3. Common Holding Company Structure



novation. The profusion of competitors helps narrow the spread between the prices at which a dealer buys securities from a customer and the prices at which a dealer sells securities to a customer. This clearly is advantageous to customers. Customers also benefit by being able to compare the prices offered by several dealers over the telephone or through dedicated telecommunications services that report such information continually. The availability of information enables customers to transact at the best price. The market's intense competitiveness also reduces the Treasury's cost of issuing debt. Finally, free entry has enabled all kinds and sizes of customers to obtain service from the myriad firms in the market.

However, the lack of uniform supervision has permitted abuses to go undetected longer than they probably would have under a more regulated regime. The wide scope of these problems became apparent earlier this year when defaults by several government securities dealers resulted in costly losses for a number of local governments and thrift institutions. Given the problems that have appeared in the repo market, many people, including members of Congress, have questioned whether the government securities market should remain under its current incomplete and diverse regulatory framework. Several bills have been introduced in Congress to address this issue.

The Federal Reserve favors some form of minimum regulation involving registration, capital and operating standards, and inspection. To help protect investors in the interim or in the absence of full-scale regulation, the Federal Reserve has developed a voluntary capital adequacy guideline for government securities dealers not already subject to some regulation.³ The guideline, along with the Fed's efforts to educate investors regarding proper procedures to use with repurchase agreements, is designed to help guard against abuses while minimizing inefficiencies and additional costs and preserving the strength and dynamism of the market.

Conclusion

The government securities market enjoys a favorable record characterized by efficiency, competitiveness, and innovation. While the recent spate of losses involving investors in repurchase agreements is disturbing, failures and defaults have been rare exceptions. The liquidity and other positive characteristics provided by the market have contributed to its growth and attractiveness to a broad array of investors and made the market a vital part of our nation's financial markets.

NOTES

¹This article also draws from work done by Edward Geng, senior vice president of the Federal Reserve Bank of New York.

²The FOMC consists of the seven members of the Board of Governors, including the chairman, the president of the Federal Reserve Bank of

New York, and presidents of the other 11 District banks, serving on a rotating basis.

³This is discussed in this issue by Gary Haberman and Catherine Piche in "Controlling Credit Risk Associated with Repos: Know Your Counterparty."

9	3/4	11/15/1985-N	100.12	16	-1	6.92
11	3/4	11/15/1985-N	100.25	29	-1	6.75
10	1/2	11/30/1985-N	100.19	23	-1	7.19
10	7/8	12/31/1985-N	100.31	3	-2	7.21
14	1/8	12/31/1985-N	102.08	12	-1	6.34
10	5/8	1/31/1986-N	101.03	7	-2	7.43
9	7/8	2/15/1986-N	100.28	0	-2	7.50
13	1/2	2/15/1986-N	102.19	23	-1	7.11
10	7/8	2/28/1986-N	101.15	19	-1	7.47
11	1/2	3/31/1986-N	101.31	3	-2	7.67
14		3/31/1986-N	103.13	17	-2	7.55
11	3/4	4/30/1986-N	102.12	16	-3	7.76
7	7/8	5/15/1986-N	99.31	3	-2	7.73
9	3/8	5/15/1986-N	100.29	1	-1	7.82
13	3/4	5/15/1986-N	103.26	30	-3	7.82
12	5/8	5/31/1986-N	103.06	10	-1	7.91
13		6/30/1986-N	104.00	4	-1	7.71
14	7/8	6/30/1986-N	106.03	7	-3	6.94
12	5/8	7/31/1986-N	103.28	0	-2	7.95
8		8/15/1986-N	100.01	5	+1	7.83
11	3/8	8/15/1986-N	102.29	1	0	7.98
12	3/8	8/31/1986-N	103.27	31	-1	8.11
11	7/8	9/30/1986-N	103.20	24	-1	8.14
12	1/4	9/30/1986-N	104.00	4	0	8.14
11	5/8	10/31/1986-N	103.18	22	-1	8.21
6	1/8	11/15/1986	97.30	30	+1	7.07
11		11/15/1986-N	102.27	31	-2	8.34
13	7/8	11/15/1986-N	106.02	6	-3	8.33
16	1/8	11/15/1986-N	109.05	9	-1	7.84
10	3/8	11/30/1986-N	102.07	11	-1	8.34
9	7/8	12/31/1986-N	101.22	26	-1	8.40
10		12/31/1986-N	101.28	0	-2	8.37
9	3/4	1/31/1987-N	101.16	20	-1	8.50
9		2/15/1987-N	100.19	23	0	8.46
10	7/8	2/15/1987-N	103.00	4	-2	8.53
12	3/4	2/15/1987-N	105.17	21	-1	8.50
10		2/28/1987-N	101.28	0	-2	8.54
10	1/4	3/31/1987-N	102.09	13	+1	8.58
10	3/4	3/31/1987-N	103.00	4	+1	8.58
9	3/4	4/30/1987-N	101.16	20	-1	8.67
12		5/15/1987-N	105.00	4	-1	8.68
12	1/2	5/15/1987-N	105.24	28	0	8.70
14		5/15/1987-N	108.02	6	0	8.70
9	1/8	5/31/1987-N	100.16	20	+1	8.73
8	1/2	6/30/1987-N	99.14	18	+1	8.77
10	1/2	6/30/1987-N	102.25	29	+1	8.74
8	7/8	7/31/1987-N	99.30	0	+1	8.88
13	3/4	8/15/1987-N	108.11	15	0	8.91
8	7/8	8/31/1987-N	99.28	30	+1	8.91
11	1/8	9/30/1987-N	104.01	5	+2	8.88
7	5/8	11/15/1987-N	97.28	4	+2	8.58
11		11/15/1987-N	103.30	2	+2	8.92
12	5/8	11/15/1987-N	107.00	4	+1	8.98
11	1/4	12/31/1987-N	104.17	21	+1	8.98
12	3/8	1/15/1988-N	106.26	30	+2	9.05
10	1/8	2/15/1988-N	102.03	7	+2	9.09
10	3/8	2/15/1988-N	102.20	24	+1	9.09
12		3/31/1988-N	106.07	11	+2	9.17
13	1/4	4/15/1988-N	109.01	5	+1	9.22
8	1/4	5/15/1988-N	98.06	14	+2	8.91
9	7/8	5/15/1988-N	101.12	16	+2	9.23
10		5/15/1988-N	101.21	25	+1	9.24
13	5/8	6/30/1988-N	110.09	13	0	9.34
14		7/15/1988-N	111.11	19	+1	9.29
9	1/2	8/15/1988-N	100.16	20	+1	9.25
10	1/2	8/15/1988-N	102.30	2	+3	9.29
11	3/8	9/30/1988-N	105.06	10	+3	9.34
15	3/8	10/15/1988-N	115.13	21	+2	9.45
8	3/4	11/15/1988-N	98.21	29	+5	9.15
11	3/4	11/15/1988-N	106.04	8	+2	9.44
10	5/8	12/31/1988-N	103.06	10	+2	9.44
14	5/8	1/15/1989-N	113.31	3	+2	9.62
11	3/8	2/15/1989-N	105.06	10	+1	9.53
11	1/4	3/31/1989-N	105.00	4	-1	9.52
14	3/8	4/15/1989-N	113.24	0	+1	9.69
9	1/4	5/15/1989-N	99.26	2	+2	9.23
14	3/4	5/15/1989-N	106.08	12	0	9.66
14	1/2	6/30/1989-N	100.06	8	+4	9.55
14	1/2	7/15/1989-N	114.21	29	0	9.77

State and Local Governments' Use of Repos: A Southeastern Perspective

Bobbie H. McCrackin, A. E. Martin III, and William B. Estes III

Repurchase agreements are enjoying growing popularity among state and local governmental entities as a cash management tool. An Atlanta Fed survey helps explain why.

Repurchase agreements have become increasingly popular among state and local governments seeking a return on idle cash available for short periods of time. Why have repos gained favor as a cash management tool among public investment authorities? To answer this question, we will describe generally the use of repurchase agreements by state and local governments in the Southeast and present a more detailed overview of statutes and investment practices and procedures in each of the six southeastern states: Alabama, Florida, Georgia, Louisiana, Mississippi, and Tennessee.¹

To determine how widespread such use of repos is in the Sixth Federal Reserve District and how these transactions are handled, we conducted a survey of all six state governments and a sample of local governments in the District. Our research indicates that repos are used widely by every state in this region, and three of the six states we surveyed have established pooled cash management funds in which local governments may participate. In addition, many local governments, especially larger cities, counties, and school districts but also a fair number of smaller public authorities, invest regularly in repos. Our review of state statutes shows that in some cases authority for repos is based on laws expressly allowing for this type of transaction by state and local governments; in

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others it is derived from the authority granted to public authorities to invest in government securities.² Most transactions by local governments are made with local banks, while state governments are more likely to deal with money center banks or major investment houses and dealers, our survey found. It also indicated that repo transactions earn state and local governments the equivalent of around 1 percent of their annual expense budgets.

Why State and Local Governments Use Repos

Public authorities nationwide have managed funds more actively since the 1970s in response to rising interest rates and a declining public tolerance for higher taxes. In some states, taxpayers have even petitioned successfully for tax reductions. More recent reductions in federal support of many state and local projects have encouraged this trend toward more aggressive cash management. In fact, educational efforts by professional associations of government finance officers as well as local public administration extension services often stress the importance of employing idle cash to generate income.

Repos are adaptable to the uneven seasonal cash flow experienced by many municipalities, counties, school districts, and states. Some major revenue sources such as property taxes are collected infrequently during an entire fiscal year. Others, such as sales taxes, are received during a concentrated period of each month, but the amounts are often unpredictable. In contrast, disbursements may be spread out over the entire year or are predictable due to contractual arrangements. Sometimes state and local governments have funds in hand for a particular capital project while officials are still working out contracts. Even though the interim period is short, judicious investment can produce significant earnings on idle cash. The ability to tailor the maturity of repos and to vary amounts invested from day to day makes them especially suitable for entities experiencing unpredictable cash flows. Moreover, these investments can be safe if proper procedures are followed. Other factors may also account for the growing popularity of repos among public investment authorities, but these illustrate the major reasons.

Use of Repos in the Southeast

There are disparities among and even within southeastern statutes regarding repurchase agreements. Statutes in Alabama, Florida, Georgia, Mississippi, and Tennessee expressly authorize state governments to invest in repos. In Georgia, one comprehensive statute authorizes any unit of local government to invest in repos. In the other states authority for local governments to use repos is specified only in the statutes pertaining to certain types of governments, such as school districts in the case of Florida, counties in Mississippi, and municipalities and counties in Tennessee.

In Louisiana both the state and local governments lack express authority to engage in repos. Statutes governing state and local governments' authority discuss only general investment in securities. They are often interpreted as authorizing a government entity to invest in repos, on the premise that a repo involves the outright purchase and subsequent outright sale of securities.

In addition to authority to invest either in government securities or specifically in repos, three of the six states—Florida, Georgia, and Tennessee—maintain certain cash management funds in which local governments may participate. These funds also invest in repos.

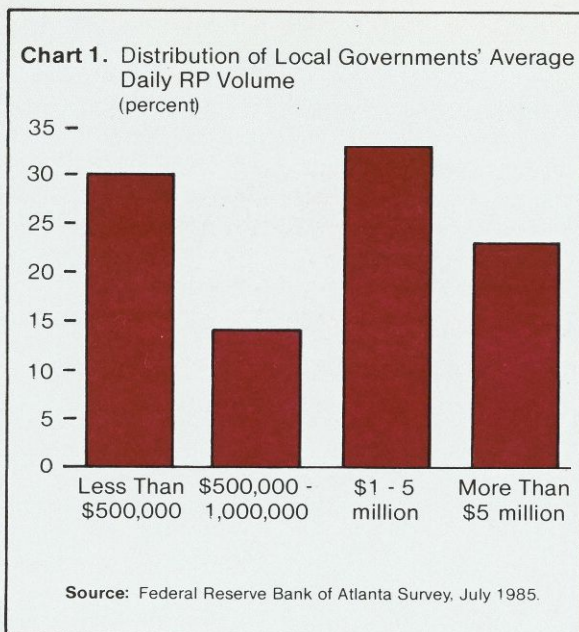
Despite the legal uncertainties surrounding the use of repos by many public authorities, the Atlanta Fed's informal poll suggests they are widely used by larger cities, counties, and school districts. This poll encompassed all six state governments and a sample of local governments, many of which were known to be actively engaged in the use of repos. Thus, while the following information regarding state practices is comprehensive, the conclusions drawn with respect to local government practices do not represent typical activities of such bodies in the Southeast or in any state. Rather, the level of local repo activity described is probably above average since the respondents represent local governments either known or deemed likely to be active repo investors. Moreover, conclusions regarding local practices should be regarded as merely indicative rather than as definitive, as in the case of the six state governments, because they are based upon a sample. (For more information on the sample and methodology, see Appendix.)

Aside from the six state governments, cities are the most actively involved in repos, judging from our survey. Generally, counties seem to be the least active. Local governments that use repos tend to be in relatively populous areas, although almost one-fourth of the investors surveyed represent cities with fewer than 50,000 people. Counties and school boards engaging in repos often are from larger districts.

The amounts invested by southeastern state and local governments that engage in repos vary widely. State governments in this region average more than \$200 million a day, with peaks as high as \$400 million in Florida. More than half the local governments queried report an average daily volume in excess of \$1 million, and almost one-fourth handle an average of more than \$5 million (see Chart 1). It is not surprising that most governments that invest in repos do so on a large scale. Since transaction costs on repos are not proportional to the size of the repo, they take a larger share of net earnings out of small volume repos. Nonetheless, almost one-third of those we surveyed typically do repos in amounts of less than \$500,000. These tend to be from cities rather than schools and counties. Almost half the cities polled have an average daily repo volume of less than \$500,000, whereas only one-fifth of counties and one-fourth of school boards have such small balances.

Repos constitute a substantial share (over 10 percent) of short-term investments among local governments that use them. In addition to repos, the most popular cash management tools employed by such entities in this region are collateralized deposits and Treasury bills. Some also use other Treasury and agency issues; relatively few use commercial paper or demand deposits. Only around one-fourth of all respondents who invest in repos and who are from states with a central investment pool open to local participation take advantage of this as a short-term investment alternative. However, participation in state-run cash management pools is even lower among local governments that do not invest directly in repos; only one in eight does so. This disparity suggests use of repos depends in part on a local government's basic interest in cash management.

To gain an idea of how significant repo earnings are in the Southeast, it would have made little sense for us to compute a mean or

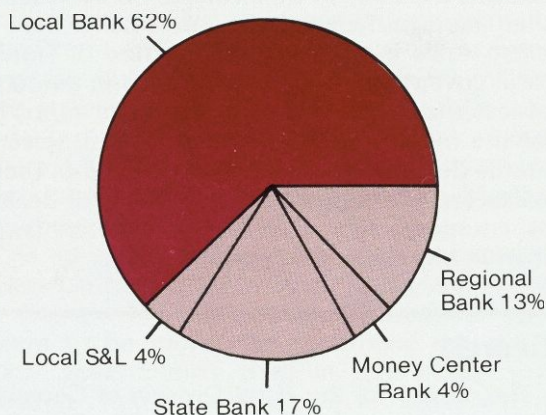


median, in view of the great diversity in size of governments polled. Therefore, we calculated repo earnings as a percentage of expense budgets. We found that repos contribute a small but significant share to the net earnings of state and local governments using them—the equivalent of around 1 percent of state and local government budgets. Of course, this calculation merely suggests some notion of the significance of repos; a similar amount probably could be earned from other investments in the absence of repos.

The overwhelming majority of local governments surveyed deal with local banks as a counterparty (see Chart 2), whereas half the state governments deal with larger national dealers. Only a few respondents occasionally use brokers to find a dealer. By far the largest share—almost 60 percent—of repos by local governments are overnight, but continuing-contract repos are more popular in a few states. School districts are more likely to do term repos, especially for two to seven days.

According to our poll, the typical staff of local government finance departments engaged in repos is only one to two professionals, on average. School boards surveyed had the smallest staffs, but even state staffs devoted to repos are often modest. Moreover, especially at the local level, staff members often spend at least

Chart 2. Distribution of Counterparties in Repo Transactions Used by a Sample of Local Governments in the Southeast



Source: Federal Reserve Bank of Atlanta Survey, July 1985.

half their time fulfilling responsibilities such as administrative, personnel, and accounting duties unrelated to investments. Despite their small staffs and other responsibilities, few local governments engage an investment consultant. Local government finance officers tend to rely primarily on local banks and their own judgment.

Among those polled who do not invest in repos, the largest are counties. Local governments in Mississippi also avoid this market. These respondents typically cited their lack of knowledge about this investment vehicle as the main reason for not using it. However, another factor may be that their surplus funds are relatively small. A few local governments, especially in Florida, avoid repos as a policy because of recent losses by public authorities investing in them. Instead, they are most likely to use collateralized deposits as their primary cash management tool. Others rely mainly on short-term bills or demand deposits, but none use commercial paper, and, as mentioned previously, only a small fraction take advantage of state cash management pools. Those that ignore repos are much more likely to come from political jurisdictions with fewer than 50,000 people. Their median budgets are much smaller, approximately \$11 million compared with \$55 million for local governments that do use repos.

Alabama

Alabama's treasurer has had authority to engage in repos since 1977. State law authorizes the treasurer to invest in U.S. government and federal agency securities guaranteed by the United States to the extent the funds available for investment exceed the amount that qualified state depositories are willing to take on deposit. (Depositories may be unwilling to accept all available state funds because public monies must be backed by securities from the depository's portfolio for amounts in excess of the \$100,000 insurance provided by the FDIC.³) This statutory provision also authorizes investment in repos as long as the contract has a shorter maturity than the securities used as collateral. A separate provision authorizes investment in U.S. Treasury obligations or in repurchase agreements for investable funds expected to be available for less than 30 days.⁴ Broader investment authority, including U.S. obligations, is provided for the State Employee Retirement System and the Teachers Retirement System but without specific mention of repurchase agreements.⁵

At the local level, municipal or county surplus funds may be invested in U.S. obligations and Alabama state and local obligations, but investment in such securities under repurchase agreements is not mentioned.⁶ A separate statutory provision authorizes the investment of surplus county funds in U.S. obligations that are "redeemable upon application."⁷

All state agencies participate in a pooled cash management facility administered by the treasurer's office, but the state does not offer a pooled fund for local governments. Although state legislation imposes no geographic limitations upon investments, the treasurer's office deals exclusively with Alabama banks as a matter of policy. The daily volume of repurchase agreements conducted by the state of Alabama is around \$150 million, invested primarily on an overnight basis.

As in most southeastern states, Alabama's larger local governments are relatively more active users of repos than smaller entities. The daily volume of repos done by local governments in Alabama averages at least \$1 million. As in most of the Southeast, local banks are the predominant counterparty in repo transactions

by Alabama local governments, and the majority of repos are overnight.

Florida

The Florida Board of Administration, comprised of the governor, the comptroller, and the treasurer, is authorized to use a wide range of instruments, including U.S. and guaranteed agency obligations, to invest certain state trust and other funds.⁸ State law specifically authorizes investment in approved securities under repurchase and reverse repo agreements.⁹ Other state funds are invested by the state treasurer, with Board of Administration approval.¹⁰ The treasurer's investment authority is limited to making deposits in qualified depositories except for funds available for investment for less than 90 days. These may be invested in a somewhat narrower range of securities, including U.S. government and certain federal agency obligations and repurchase agreements against either.¹¹

The Board of Administration also handles investments for the Local Government Surplus Funds Trust Fund, which is available as an optional pooled investment vehicle for local governmental units and special districts.¹² Under similar statutes, counties, municipalities, and special districts are authorized to invest funds in the trust fund, in U.S. obligations or guaranteed agency obligations, or in time deposits in depository banks.¹³ No specific provision is made for investment under repurchase agreements, but, as noted above, the Board of Administration is authorized to engage in repo investments, and this authority would apply to investments on behalf of the trust fund. State law does, however, expressly authorize school boards to invest in repurchase agreements.¹⁴ Under this provision, school boards' investments in repos using Treasury or GNMA securities must be "collateralized" in an amount in excess of principal, interest, and a safety margin for protection against price fluctuations during the term of the repo.

The state does an average daily volume of \$400 million in repos, mostly overnight, transacting with larger dealers, headquartered in the nation's money centers. In addition to investing its own surplus funds, the state runs a pooled cash management fund for localities.

Local governments from smaller Florida jurisdictions are actively engaged in repos to a greater extent than in most other southeastern states, and units with smaller populations and budgets are likely to be involved. Concomitantly, their average daily volumes are smaller than in most states in the region. One-third of Florida local governments polled do repos in amounts of less than \$500,000 with overnight repos by far the most popular. While most local governments deal with local banks, one-third of those contacted use regional banks or national dealers as counterparties. That share is much larger than in any other southeastern state.

Georgia

The director of the Fiscal Division of Georgia's Department of Administrative Services is authorized, with the permission of the State Depository Board, to invest state funds in obligations of the United States and its subsidiary corporations and instrumentalities.¹⁵ Additionally, the Georgia State Financing and Investment Commission is authorized to invest sinking fund and common reserve fund monies with respect to state indebtedness in direct and general obligations of the United States or obligations unconditionally guaranteed by the United States, maturing no longer than 12 months from the date of purchase.¹⁶ While neither of these investment authorities expressly provides for investment under repurchase agreements, a separate statute authorizes any unit of state government with authority to invest in U.S. guaranteed obligations to do so under repos.¹⁷ This provision requires such investments to provide for reversal of the transaction at a specified date and price, including a premium over the initial purchasing or selling price equivalent to a stated rate of interest. The seller is permitted to hold on his books in a safekeeping account securities sold to the state under a repo, provided the collateral interests of the purchasing state entity are clearly indicated.

At the local level one comprehensive statute authorizes the governing body of any local government to invest its funds in a variety of ways.¹⁸ Investment may be in municipal obligations, obligations issued or guaranteed by the United States and its agencies, in repurchase agreements, or in certain other vehicles. A local

government investment pool administered by the state, provided as an option, may use the same vehicles authorized for local government units.¹⁹

All state government divisions participate in the state's pooled management program for short-term investments. Due to its volume, typically in the range of \$150 - \$400 million, the state generally invests only through large Atlanta banks and national dealers. A smaller share (30-40 percent) of Georgia's contracts are done on an overnight basis than in other southeastern states.

As in most southeastern states, repos are used relatively more by larger local governments in Georgia. However, continuing contract repos seem to be more popular among the state's local governments than in any other Sixth District state. Georgia's local governments typically do a larger volume of repos—in excess of \$1 million and in some cases greater than \$5 million—than local governments in other southeastern states. Local banks are the most popular repo counterparties with Georgia local governments.

Louisiana

Louisiana's state treasurer and heads of state agencies are authorized to invest available state funds in time deposits with qualified depositories. If such funds are anticipated to be available for investment for less than 30 days, however, investment in direct obligations of the United States with remaining maturities of not more than 29 days are permitted.²⁰ No pooled investment vehicle is available for state agencies in general or for local governmental units, although state law authorizes the appointment of a Unified Investment Board for such a purpose.²¹ The board would have broad investment authority with no specific limitations as to type of investment vehicle.²² Repurchase agreements are not mentioned with regard to investments by the treasurer or the board. Municipalities, parishes, school boards, and all other political subdivisions are authorized to invest funds in excess of immediate cash requirements in U. S. obligations; repurchase investments are not expressly authorized.²³

The state has designated as its depository a Louisiana bank that operates under instructions

to sweep all uninvested funds daily to a second institution which acts as trustee for the state's short-term investments. These funds are invested daily in the repo market with larger dealers on an overnight basis. The volume of repos averages \$125 million per day. Some pooling of investment has begun for deferred compensation accounts for teachers, but this is currently the only state-level investment pool. Only local governments with larger populations and budgets appear to use repos in Louisiana. A number of those local governments have average daily volumes of less than \$500,000, but an equal number invest in excess of \$5 million a day in repos. All of those contacted deal with local or in-state banks as counterparties in repo transactions. About half are transacted on an overnight basis.

Mississippi

The State Depository Commission is directed to invest Mississippi's surplus general and special funds.²⁴ Funds exceeding the amount required to be allocated as interest bearing deposits to qualified depositories or which cannot otherwise be placed with such depositories may be invested in obligations issued or guaranteed by the United States under repurchase agreements with terms of less than 14 days.²⁵

The statutory provisions covering investment of surplus municipal government funds grant authority to invest in direct U.S. obligations but do not expressly authorize investment under repos.²⁶ Mississippi law with respect to county investments, however, was amended in 1985 to grant express authority for repos, subject to a requirement that the counterparty be a qualified state or county depository and that the investment be for fewer than 14 days.²⁷

The state invests from \$56 million to \$120 million each day in overnight repos. Local banks are the only legally permissible counterparty. The state does not offer a pooled cash management fund to local governments. Repos are relatively less popular among both large and small local governments in Mississippi than in other southeastern states. Because of our difficulty in finding respondents who regularly invest in repos, we drew no generalizations about local practices and procedures.

Tennessee

Tennessee amended its statutory provisions extensively in 1985 regarding the investment of funds at the state and local government level.²⁸ The state treasurer is responsible for investing state treasury funds under guidelines established by the State Funding Board.²⁹ Among other instruments, investments may be made in Treasury securities or obligations guaranteed by the United States or its agencies and in repurchase agreements using either. The state treasurer also administers a pooled investment fund for funds held by state officers and a Local Government Investment Pool (LGIP)³⁰ with the same investment authority as for state treasury funds. Both the municipal and county investment authority statutes authorize the optional use of the LGIP.

At the local level, municipalities are authorized to invest idle funds in Treasury securities or obligations guaranteed by the United States or its agencies, in certificates of deposit, in repos using U.S. or agency obligations, and in money market funds whose portfolios consist of such investments.³¹ Repo investments must be for a shorter time than the maturity of the underlying securities, and the market value of underlying securities must be greater than the funds invested, although the precise percentage of overcollateralization is not specified. Also, repurchase and money market fund investments may be made only if the state director of local finance approves such investments and if they are made in accordance with procedures established by the State Funding Board.

Counties are authorized to invest idle funds in a manner similar to municipalities insofar as U.S. and agency obligations and repos are concerned.³² However, the 1985 restrictions on repo investment by municipalities do not appear to apply to counties' use of repos, which are restricted only to being for a shorter period than the maturity and in an amount less than the market value of the underlying securities. Only about one-third of Tennessee's school districts possess autonomous investment authority, while the remainder come under the jurisdiction of their county treasurer in regard to financial decisions and activities.

The average volume of repos transacted by the state government is \$150 - \$200 million.

The majority of Tennessee's repos are handled on a continuing contract basis with major investment houses. The state boasts a collateral arrangement unique among southeastern states. Through the State Trust of Tennessee, an entity with a bank charter established by the General Assembly, the state maintains an account with the Federal Reserve Bank and therefore has direct access to the Federal Reserve's wire transfer system. Via this account the State Trust, part of the State Treasury Department, takes possession of collateral without an intervening third party.

To a greater extent than in most southeastern states, local governments with smaller budgets and populations are quite active in repos in Tennessee. Not surprisingly, their average daily volume of repos is also smaller, less than \$500,000 in many cases, than in other states. State and local financial institutions serve as the counterparties of all Tennessee local governments polled. Overnight repos are the most popular among those surveyed, but their overall share relative to continuing contract and term repos is smaller than in other southeastern states.

Conclusion

Repurchase agreements have become a popular short-term investment for state and local governments in the Southeast as elsewhere. All six states in the Sixth Federal Reserve District actively engage in repos as a cash management technique, and three states maintain an active cash management pool for local governments. Local governments using repos tend to be large, but a fair number of smaller jurisdictions have also discovered repos and are making regular use of them. Typically, local governments transact overnight or continuing contract repos in amounts of \$1 million or more with a local bank. The repo activity of most state and local governments polled averages about 1 percent of their operating budgets.

Our examination of state and local governments suggests that many local governments could take steps that would better safeguard their short-term investments. First, the small professional staffs assigned to investment and staff members' other responsibilities limit the financial analysis they can conduct of various risks associated with repos. Second, some local

governments do not appear to have collateral arrangements that limit their risks to the extent possible. Indeed, the small average volume done by a number of local governments may preclude their profitable use of repos under alternative arrangements that may be safer. Fortunately, local governments in half the states

in this region have the option of participating in their respective states' pooled cash management fund, and states, on the whole, appear to be following the kinds of prudent managerial practices that make repos a safe means of earning extra investment income.

Survey Procedure

The number of public authorities that might use repos is large, since more than 800 incorporated cities and towns with 2,500 or more residents dot the six states of the Southeast.³³ These six states also encompass over 500 counties and almost 800 boards of education. Not all these public authorities may use repos, however, because each state can place limitations on investment authority for some public entities. In addition, diverse special entities such as Tennessee's utility districts and Florida's special districts possess investment authority. These factors make estimating the number of local governments eligible to transact repos difficult.

To gain insight into the prevalence and nature of repo dealings, we contacted the leaders of professional associations of county, city, and school board treasurers throughout the Southeast, as well as pertinent state officials (such as auditors or comptrollers) who might have oversight responsibility. The information obtained in these telephone interviews and subsequent meetings with such officials enabled us to gain some idea of which types of local governments were active users of repos. We also recorded the responses from invitations to an Atlanta Fed seminar on repos. Announcements of the Federal Reserve's educational program, including the workshop and informational

literature, were sent to local government finance officers in four of the six Sixth District states. The reply cards augmented what we learned about repo use from our contacts with professional associations and state officials.

Our final estimate of the number of local governments was roughly 2,000 entities, but we concluded the number with clear jurisdiction and active involvement in repos was far fewer. We then called almost 80 finance officers, including those from all southeastern states and a sample of local governments in the Southeast, focusing somewhat more on larger states such as Florida and Georgia and on those, such as Tennessee, whose responses to our seminar indicated widespread use of repos. Similarly, counties and larger cities were surveyed more heavily than smaller cities and school districts because the latter types of local governments seemed less likely to have clear authority to engage in repos.

The survey group is biased purposely toward larger governments and those known to be doing repos. The conclusions drawn apply primarily to repo users and are indicative of practices among that group, subject to the general caveats associated with conclusions based on a survey.

NOTES

¹The summaries address general investment authority at the state, county, and municipal levels. In some states, specific investment powers may be given to special districts or agencies that will not be covered. Unless otherwise noted, statutes authorizing investment under repurchase agreements do not specify the terms, conditions, and procedures under which such investments are to be made.

²This article's synopsis of the government investment authority focuses on both types of statutes. This dual focus does not imply that the Atlanta Fed expresses an opinion as to how particular state statutes may be construed. Rather, the focus references the authority being cited by the various local governments for their repo activity. See Don Ringsmuth, "Custodial Arrangements and Other Contractual Considerations," this issue.

³Section 41-14-30, Code of Alabama. Statutory provisions regarding the deposit of funds in qualified financial institutions are not addressed in this article because this issue focuses on repurchase agreements.

⁴Section 41-14-32, Code of Alabama.

⁵Sections 36-27-25 and 16-25-20, Code of Alabama.

⁶Section 11-81-21, Code of Alabama.

⁷Section 11-8-11, Code of Alabama.

⁸Sections 215.44 and 215.47, Florida Statutes Annotated.

⁹Subsection 215.47(6), F.S.A.

¹⁰Section 215.535, F.S.A.

¹¹Section 18.10, F.S.A.

¹²Section 215.405, et seq., F.S.A.

¹³Sections 125.31, 219.075, 166.261, and 218.345, F.S.A.

¹⁴Section 237.211(3), F.S.A.

¹⁵Section 50-17-63, Official Code of Georgia.

¹⁶Section 50-17-63, O.C.G.A.

¹⁷Section 50-17-2, O.C.G.A.

¹⁸"Local government" is defined to include counties, municipalities, school districts, special districts or other political subdivisions of the state, including agencies and departments thereof, Section 36-83-3, O.C.G.A. See also Section 36-83-2 et seq.

¹⁹Section 36-83-4, O.C.G.A.

²⁰Section 49:327, Louisiana Revised Statutes.

²¹Section 51:2001, et seq., L.R.S., authorizes the appointment of the Louisiana Unified Investment Board to invest the State's Permanent Fund and certain other state funds and to provide a discretionary pooled fund option for local governments. The state funds to be invested, however, were to be created by a constitutional amendment, which was not enacted. As a result, the board has not been appointed.

²²Section 51:2006, L.R.S.

²³Section 33:2955, L.R.S.29.

²⁴Section 15-105 33, Mississippi Code.

²⁵Subsection 27-105-33, Miss. Code.

²⁶Section 19-9-29, Miss. Code for counties; section 21-33-323 for municipalities; section 37-59-43 for school districts.

²⁷House Bill No. 1226, Regular Session 1985.

²⁸These amendments, contained in Chapters 118, 298, and 299, 1985 Tennessee Public Acts, have yet to be officially codified in Tennessee Code Annotated. The citations below are to the Code sections in which it appears these amendments will be codified.

²⁹Section 9-4-129, T.C.A.

³⁰Sections 9-4-130 and 9-4-135 et seq., T.C.A.

³¹Section 6-56-106, T.C.A.

³²Section 5-8-301, T.C.A.

³³U.S. Department of Commerce, Bureau of the Census, *County and City Data Book*, 1983, Tables B, C.

11 3/4	11/15/1985-N	100.25	29	-1	6.75
10 1/2	11/30/1985-N	100.19	23	-1	7.19
10 7/8	12/31/1985-N	100.31	3	-2	7.21
14 1/8	12/31/1985-N	102.08	12	-1	6.34
10 5/8	1/31/1986-N	101.03	7	-2	7.43
9 7/8	2/15/1986-N	100.28	0	-2	7.50
13 1/2	2/15/1986-N	102.19	23	-1	7.11
10 7/8	2/28/1986-N	101.15	19	-1	7.47
11 1/2	3/31/1986-N	101.31	3	-2	7.67
14	3/31/1986-N	103.13	17	-2	7.55
11 3/4	4/30/1986-N	102.12	16	-3	7.76
7 7/8	5/15/1986-N	99.31	3	-2	7.73
9 3/8	5/15/1986-N	100.29	1	-1	7.82
13 3/4	5/15/1986-N	103.26	30	-3	7.82
12 5/8	5/31/1986-N	103.06	10	-1	7.91
13	6/30/1986-N	104.00	4	-1	7.71
14 7/8	6/30/1986-N	106.03	7	-3	6.94
12 5/8	7/31/1986-N	103.28	0	-2	7.95
8	8/15/1986-N	100.01	5	+1	7.83
11 3/8	8/15/1986-N	102.29	1	0	7.98
12 3/8	8/31/1986-N	103.27	31	-1	8.11
11 7/8	9/30/1986-N	103.20	24	-1	8.14
12 1/4	9/30/1986-N	104.00	4	0	8.14
11 5/8	10/31/1986-N	103.18	22	-1	8.21
6 1/8	11/15/1986	97.30	30	+1	7.07
11	11/15/1986-N	102.27	31	-2	8.34
13 7/8	11/15/1986-N	106.02	6	-3	8.33
16 1/8	11/15/1986-N	109.05	9	-1	7.84
10 3/8	11/30/1986-N	102.07	11	-1	8.34
9 7/8	12/31/1986-N	101.22	26	-1	8.40
10	12/31/1986-N	101.28	0	-2	8.37
9 3/4	1/31/1987-N	101.16	20	-1	8.50
9	2/15/1987-N	100.19	23	0	8.46
10 7/8	2/15/1987-N	103.00	4	-2	8.53
12 3/4	2/15/1987-N	105.17	21	-1	8.50
10	2/28/1987-N	101.28	0	-2	8.54
10 1/4	3/31/1987-N	102.09	13	+1	8.58
10 3/4	3/31/1987-N	103.00	4	+1	8.58
9 3/4	4/30/1987-N	101.16	20	-1	8.67
12	5/15/1987-N	105.00	4	-1	8.68
12 1/2	5/15/1987-N	105.24	28	0	8.70
14	5/15/1987-N	108.02	6	0	8.70
9 1/8	5/31/1987-N	100.16	20	+1	8.73
8 1/2	6/30/1987-N	99.14	18	+1	8.77
10 1/2	6/30/1987-N	102.25	29	+1	8.74
8 7/8	7/31/1987-N	99.30	0	+1	8.88
12 3/8	8/15/1987-N	105.29	1	+1	8.93
13 3/4	8/15/1987-N	108.11	15	0	8.91
8 7/8	8/31/1987-N	99.28	30	+1	8.91
11 1/8	9/30/1987-N	104.01	5	+2	8.88
7 5/8	11/15/1987-N	97.28	4	+2	8.58
11	11/15/1987-N	103.30	2	+2	8.92
12 5/8	11/15/1987-N	107.00	4	+1	8.98
11 1/4	12/31/1987-N	104.17	21	+1	8.98
12 3/8	1/15/1988-N	106.26	30	+2	9.05
10 1/8	2/15/1988-N	102.03	7	+2	9.09
10 3/8	2/15/1988-N	102.20	24	+1	9.09
12	3/31/1988-N	106.07	11	+2	9.17
13 1/4	4/15/1988-N	109.01	5	+1	9.22
8 1/4	5/15/1988-N	98.06	14	+2	8.91
9 7/8	5/15/1988-N	101.12	16	+2	9.23
10	5/15/1988-N	101.21	25	+1	9.24
13 5/8	6/30/1988-N	110.09	13	0	9.34
14	7/15/1988-N	111.11	19	+1	9.29
9 1/2	8/15/1988-N	100.16	20	+1	9.25
10 1/2	8/15/1988-N	102.30	2	+3	9.29
11 3/8	9/30/1988-N	105.06	10	+3	9.34
15 3/8	10/15/1988-N	115.13	21	+2	9.45
8 3/4	11/15/1988-N	98.21	29	+5	9.15
11 3/4	11/15/1988-N	106.04	8	+2	9.44
10 5/8	12/31/1988-N	103.06	10	+2	9.44
14 5/8	1/15/1989-N	113.31	3	+2	9.62
11 3/8	2/15/1989-N	105.06	10	+1	9.53
11 1/4	3/31/1989-N	105.00	4	-1	9.52
14 3/8	4/15/1989-N	113.24	0	+1	9.69
9 1/4	5/15/1989-N	99.26	2	+2	9.23
11 3/4	5/15/1989-N	106.08	12	0	9.66
11 1/2	6/30/1989-N	100.06	8	+4	9.55
14 1/2	7/15/1989-N	114.21	29	0	9.77

Controlling Credit Risk Associated With Repos: Know Your Counterparty

Gary Haberman and
Catherine Piché

Recent losses in the securities market have underscored the need for customers to familiarize themselves with both the structure and financial stability of the dealers with whom they transact repos.

Both repos and reverse repos have risks associated with them. Simply because government securities are used in repurchase transactions does not mean that a repo is as safe an investment as the securities themselves. Each party involved in such a transaction must ensure that it has control of the securities or the money during the time the agreement is outstanding. Participants also must concern themselves with the market risk arising from changes in prices of the securities used, particularly for longer term repos. Finally, there is a risk that the party on the other side of the agreement will be unable to complete the transaction when the agreement matures. This article discusses the last type of risk—credit risk.

One key to safe and efficient use of the repo market is to evaluate the creditworthiness of the parties with whom a customer transacts. No one should do business with a dealer in whom he does not have complete confidence. However, determining which dealers are worthy of confidence requires work.

Basic Steps to Knowing Your Counterparty

The recent failures of several government securities firms offer a potent reminder of the necessity of knowing with which part of an organization a customer is transacting. Some

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customers thought they were dealing with one counterparty only to find they had been dealing with an affiliate. Often this affiliate was insolvent, its earlier losses having been masked by complex transactions and relationships with other affiliates. Investors did not examine carefully confirmations of transactions to identify their counterparty; others failed to receive written confirmations. Some investors had not obtained an up-to-date and audited financial statement of the particular party with which they were dealing.

A customer should determine the entity with which he is transacting and should review the financial statements of that subsidiary or affiliate to be sure it is well capitalized. If capital appears to be inadequate, the customer should consider requiring from the strongest affiliate a written guarantee of the subsidiary's obligations. (A parent company guarantee may not be sufficient if the parent is merely a shell holding only equity interests in its subsidiaries.)

Another obvious but common trait in recent failures is that customers were too trusting. Under pressure to obtain the best deal, many did not question why they were getting a return 50 or 100 basis points higher than that offered by other dealers. Higher returns typically are associated with higher risks. Customers would have done well to heed the expression, "There's no such thing as a free lunch."

Rather than relying on reputation or size, customers should meet with prospective counterparties and raise some questions. What is their scope of business? How profitable have they been in recent years? What types of transactions do they handle? Do they take large speculative positions? Who are the other parties with whom they trade? What is their financial strength and capacity? Evaluating managerial background and experience is essential.

Investors should maintain readily accessible files on their counterparties. These should include the following:

1. names of counterparties with which transactions may be done;
2. authorized personnel at counterparties;
3. up-to-date, audited financial statements;
4. contracts covering terms of the repurchase agreements, custodial arrangements, customer's rights, and responsibilities of other parties; and
5. procedures for valuing securities and assessing exposure to each counterparty.

Of course, this list is not exhaustive. Other information and rules pertaining to in-house procedures should be well publicized to pertinent staff including:

1. permissible securities, by issuer and maturity;
2. allowable cash management tools, such as repos, deposits, commercial paper, and bankers' acceptances;
3. limits on the amount of business permitted in total and by type of transaction; and
4. authorized in-house personnel and dollar limits for such personnel.

Some customers may try to avoid doing their homework by insisting on dealing only with firms on the Federal Reserve's reporting dealer list, but this approach poses several problems. First, inclusion on the list is not a stamp of credit approval from the Fed. The Federal Reserve selects its counterparties by criteria that may not be relevant to many customers' needs. The Fed's transactions in government securities are frequent and sizable, often massive. Furthermore, most dealers not on the primary dealer list, some of which are unregulated, conduct their business in a prudent manner, effectively meeting the needs of their customers. They should not be penalized because they are not on the Fed's list.

Capital Adequacy Guideline

In addition to evaluating the general financial status and creditworthiness of a dealer, customers also can evaluate their capital strength through the capital adequacy guideline of the Federal Reserve or the Securities and Exchange Commission. Evidence that a counterparty has sufficient capital or a guarantee from an affiliate that can demonstrate its financial strength is especially important in this market where a dealer needs little of its own capital to operate. Some government securities dealers have supported trading operations wholly with customer funds. The Fed's voluntary capital adequacy guideline can be used to evaluate the capital position of unsupervised dealers who choose to comply.

Comparing Capital to Risk. A dealer's financial strength stems from the level of its liquid capital relative to the risk it undertakes. Although U.S. government securities are virtually free of default risk, dealers assume trading and credit

risks as part of their routine operations. Trading risk arises from price changes in the market; credit risk involves counterparties' ability to meet their obligations. Dealers suffer occasional losses since risk-taking is essential to a firm's prosperity; risk is opportunity in this market. Trading and credit losses are absorbed first by a firm's available liquid capital. If a firm's total capital is exhausted, the remaining losses are borne by its unsecured creditors, including its customers. This was demonstrated when ESM Government Securities failed, passing its losses on to an Ohio thrift that subsequently failed, as well as to others.

An investor can determine a firm's liquid capital from its balance sheet. Liquid capital measures a firm's capacity to "unwind," or to liquidate its position quickly while meeting its obligations to customers. Liquid capital is the sum of a firm's stockholders' equity and subordinated debt less illiquid assets. The latter are those that cannot be sold quickly or otherwise converted into cash, such as investments in affiliates or fixed assets.

Since risk arises from changes in interest rates and differences in the maturities of securities, outsiders cannot evaluate the level of risk undertaken by a dealer from an audited financial statement. Nor can they ascertain from the statements the extent to which hedging has reduced risk.

Recognized capital adequacy guidelines have been developed that systematically measure the risk in a dealer's portfolio and compare it to the firm's liquid capital. All SEC-or CFTC-registered dealers are required to adhere to the Uniform Net Capital Rule for Brokers and Dealers, SEC Rule 15c3-1. Under this rule a dealer's liquid capital, reduced by its measured risk, must continuously exceed the dealer's obligations to its customers. A dealer firm subject to this rule must disclose its excess capital in its audited financial statements. Furthermore, the dealer's certified public accountant is required to submit an annual letter to the SEC reporting whether the CPA found any material inadequacies in the dealer's internal systems and controls. Bank dealers, of course, are subject to bank supervisory capital adequacy standards. These include capital-to-asset requirements, examinations of banks and their affiliates, and prudential regulations designed to limit

risk. The capital-to-risk ratios of nonbank primary dealers are monitored daily by the New York Fed. Until recently, however, unsupervised dealers have not been constrained by capital standards. A few have abused this freedom, causing serious losses to their customers.

To help fill this void, the Federal Reserve has developed a voluntary capital standard for unsupervised U.S. government securities dealers. To comply with this standard, a dealer must operate such that its liquid capital always exceeds its measured risk by 20 percent. That is, the dealer is supposed to adhere to a minimum 1.2-to-1 capital-to-risk ratio. If losses push the ratio toward the minimum, a dealer should quickly reduce its market risk or raise additional capital. Unsupervised dealers can calculate their capital and risk using either the SEC's or the Fed's system of measurement. Further details on calculations in the Fed's capital adequacy guideline are presented in the appendix to this article.

Compliance with the Standard. Compliance with this standard is voluntary for unregulated dealers at this time and can be enforced only by market participants who insist upon dealing exclusively with firms that comply. Customers and counterparties can determine if their unsupervised dealer adheres to the standard by requesting three forms of certification: (1) a letter from the dealer certifying that the firm will adhere continuously to the capital adequacy standard, (2) audited financial statements that disclose the amount of liquid capital, confirming that the dealer was in compliance with the standard as of the audit date, and (3) a letter from the dealer's CPA stating he found no material weaknesses in the dealer's internal controls incident to adherence to the standard. Because this certification process is new, the two audit certifications will not be available until the dealer's next audit date.

The Federal Reserve is encouraging all market participants to require these forms of certification. Primary dealers are expected to request them from unsupervised dealers with which they trade. Bank and thrift examiners will look for certification when they examine institutions that are customers or clearing agents of unsupervised dealers. Yet enforcement also will depend heavily on investors requiring certification from their dealers.

Conclusion

Government securities dealers conduct highly leveraged financial operations. By undertaking controlled risk they can profit while providing services to many customers. Because of the risk inherent in government securities operations, customers must know the organizational structure

of their counterparties and evaluate the credit-worthiness, character, and financial capacity of those with whom they deal when doing repos or when trading in Treasury or federal agency securities. An organization that is unable or unwilling to devote the necessary management resources to evaluating its counterparties properly and to structuring its transactions accordingly should not be in this market.

Calculating the Fed's Capital Adequacy Standard

The actual procedures for calculating the Federal Reserve's capital adequacy standard are complex; thus, this simplified presentation is not an operational guide. Readers wishing more information on the computation of capital-to-risk ratios should consult "Capital Adequacy Guideline for U.S. Government Securities Dealers."¹

The guideline is based on the premise that a government securities dealer should keep the size of its market and credit risk within the amount of capital available to absorb losses. The Federal Reserve recommends that liquid capital always exceed measured risk by 20 percent. That is, the ratio of a dealer's liquid capital to its risk always should exceed 120 percent (or 1.2:1).² Dealers should promptly adjust their positions or raise capital if realized and unrealized losses occur and the capital-to-risk ratio begins to approach this minimum standard. Moreover, this standard should be applied in the context of a dealer's overall financial strength. Dealers without strong, supportive affiliates or other forms of capital to back-stop their liquid capital should operate more conservatively than the minimum ratio suggests.

Liquid Capital. Net liquid capital consists of gross capital less illiquid assets. The dealer's net worth plus liabilities subordinated to the claims of general creditors (gross capital) is reduced by the amount of assets that cannot be sold quickly or are doubtful of collection. These include fixed assets such as real estate and lease holdings, investments in or unsecured receivables due from unconsolidated affiliates, nonmarketable investments, goodwill, memberships, and prepaid expenses. In the hypothetical firm whose capital-to-risk ratio is summarized in Table 1, gross capital of \$24.2 million is adjusted by \$6.2 million in non-liquid assets to arrive at a liquid capital estimate of \$18 million.

Risk Haircuts. The Fed guideline measures the level of risk in a dealer's portfolio by estimating the potential losses that could occur as a result of credit losses and price volatility.³ The first type of risk involves the possibility of loss due to a counterparty's failure to meet its obligations. Credit risk is rooted in the total dollar value of a dealer's exposure to his customers, the

concentration of dealer claims on a single counterparty, and the price volatility of privately issued money market instruments (such as bankers' acceptances and certificates of deposit) that is caused by the changing credit of the issuer.

Market risk is the potential loss a dealer may incur on his securities positions, including commitments to purchase or sell securities at a later date, as a result of price changes. Market risk derives from (1) net long or short positions in securities, (2) imperfections in hedges within maturity categories, (3) risk hedging across maturity categories, and (4) risk hedging using different types of instruments.

All positions and exposures are evaluated on a trade rather than settlement date basis and always at market value. Total risk is estimated by summing the potential losses estimated for each risk category. These estimates are called "haircuts." A haircut is a dollar approximation of potential losses, calculated as a specified percentage of the dollar size of a position in particular securities or options. The capital-to-risk ratio is determined by dividing liquid capital by total haircuts. In the case of the dealer in Table 1, the ratio turns out to be 3.5 to 1.

Credit Risk Haircut Principles

Recent problems in the government securities market highlight the need to recognize the credit risk inherent in financing transactions and forward commitments made with customers.

Customer Exposure. The Fed guideline calls for a 5 percent customer exposure haircut factor to be applied to aggregate net credit exposures to all counterparties other than a dealer's principal clearing banks or brokers. Exposure is the amount of funds or securities at risk if a counterparty defaults on its obligations to the dealer. For purposes of this calculation, aggregate net credit exposure is the sum of the firm's exposure to individual customers less each customer's exposure to the dealer. Customers include all counterparties such as investors, other dealers, and secured lenders. In calculating net exposure to a counterparty, margins given on repurchase agreements would offset margins

**Table 1. Net Capital Requirement
Summary Computation
(\$ thousands)**

1. Total ownership equity	\$20,000
2. Add:	
a. Liabilities subordinated to claims of general creditors	4,000
b. Other deductions or allowable credits	200
3. Total capital and allowable subordinated liabilities	\$24,200
4. Subtract:	
a. Total non-allowable (illiquid) assets	5,000
b. Other deductions or charges	1,200
5. Liquid capital before haircuts on securities positions	\$18,000
6. Haircuts on security and financing positions including contractual commitments:	
a. Government offset portion haircuts	480
b. Futures and options offset haircuts	570
c. Hedging disallowance	80
d. Residual net position haircuts	3,885
e. Other securities (use SEC factors)	0
7. Haircuts on credit exposure:	
a. 5 percent net exposure to customers	85
b. 25 percent concentration haircut	0
c. 0.15 percent haircut on other money market instruments with over 45 days maturity	45
8. Total haircuts (lines 6 + 7)	\$5,145
9. Capital-to-risk ratio (line 5 divided by line 8)	3.5:1

taken on reverse repos with the same party. These might also include unsecured or undercollateralized loans of funds, the margin by which collateral given exceeds the amount of funds borrowed, and the dealer's unrealized gains on forward or as yet unsettled trades. Financings to maturity should be included in the evaluation of credit exposure. Customers' net exposure should also incorporate mark-to-market losses, net of unrealized gains, in each customer's forward commitments. Care must be taken to determine whether a dealer has the contractual right to offset exposures in one set of transactions with margin held or profits on others.

For example, assume that a dealer enters into a repurchase agreement whereby he receives \$10 million in cash in exchange for securities with a market value totaling \$10.2 million. His margin on this transaction is 2 percent, or \$200,000, which is his exposure to this counterparty. The charge to capital would be 5 percent of \$200,000. That amounts to \$10,000, or 0.1 percent of the repurchase agreement's face value.

Credit Concentrations. A dealer should avoid placing an undue portion of assets with a single counterparty or related family of counterparties. No special charge against capital is made for customers to whom the firm's exposure is less than 15 percent of liquid capital. For larger exposures, however, a 25 percent concentration factor is applied to the exposure in excess of this amount. For example, suppose a dealer has \$10 million in net capital and repos with a single customer totalling \$75 million, with a 2 percent margin of \$1.5 million. This would require a 5 percent customer exposure credit haircut of \$75,000 ($\$1.5 \text{ million} \times 0.05$) but not a concentration haircut, since \$1.5 million is equal to 15 percent of his liquid capital. An additional \$10 million of repos to the same customer, using the same margin, would prompt an extra \$50,000 charge against capital for credit concentrations since $\$10 \text{ million} \times 0.02 \text{ margin} = \$200,000$ credit exposure $\times 0.25$ concentration haircut = \$50,000. Of course, the basic credit haircut would also increase by \$10,000 as a result of the additional \$10 million of repos ($\$200,000$ credit exposure $\times 0.05$ credit haircut). The total haircut would now be \$135,000 ($\$75,000 + \$50,000 + \$10,000$).

Other Money Market Instruments. Bankers' acceptances, certificates of deposit, and high-quality commercial paper as well as forward contracts on these instruments entail an issuer credit risk. As a result, their price volatility is greater than for U.S. government issues. A separate 0.15 percent credit volatility haircut factor is applied to the gross long position of private money market instruments maturing in more than 45 days.

Market Risk Haircut Principles

For purposes of applying market risk (price volatility) haircuts, positions in securities are segmented into 12 maturity categories (see Table 2). The first eight categories have been chosen to bracket the standard maturities of Treasury debt offerings. Treasury and agency securities and other money market instruments, as well as futures, forwards, and options on these securities, are treated using these categories. The four remaining categories accommodate longer-term zero-coupon securities, fixed and adjustable-rate mortgage-backed securities, and related forward contracts.

Net Position Haircut. The principal haircut reflecting the price volatility of securities is called the net position haircut factor. The guideline applies this haircut factor to net long or net short positions of securities within the same maturity category. The resulting dollar amount is the estimated possible loss on a dealer's position from an adverse price movement based on past price performance. For example, a dealer firm with a net long position of \$10 million in six-month Treasury bills at a 7.5 percent discount selling at a price of 96.21 percent of par would calculate its potential loss at \$24,053, (net position haircut factor of .25 percent for this particular maturity \times \$10 million par multiplied by its \$96.21 market price). This covers roughly a 1/2 percent—or 50 basis points—

Table 2. Net Position and Offset Factors

Maturity Categories ¹		Haircut Factors	
Coupons	Zero Coupons	Net Position Factor	Offset Factors
A 0 to 44 days		None	None
B 45 to 134 days		0.13	None
C 4.5 to 9 months		0.25	0.05
D 9 to 18 months		0.50	0.10
E 1.5 to 3.5 years	1.5 to 3 years	1.20	0.30
F 3.5 to 7.5 years	3 to 5 years	2.00	0.50
G 7.5 to 15 years	5 to 7 years	3.10	0.50
H 15 to 30 years	7 to 10 years	3.75	0.60
I	10 to 20 years	6.75	1.30
J	Over 20 years	11.50	1.30
MB Fixed rate mortgage-backed		2.75	0.50
AR Adjustable mortgage-backed		1.25	0.20

¹The offset haircut factors listed apply to U.S. Treasury, U.S. agency, zero coupon, mortgage-backed, and other money market securities, such as bankers' acceptances, negotiable certificates of deposit, and high quality commercial paper. These do not apply to futures, forwards, and options; a uniform net 10 percent factor is applied to these.

Table 3. Hedging Disallowance Factors¹

Category of Maturities ²	Percent Disallowed									
		C	D	E	F	G	H	I	J	MB
45 to 134 days	B	40	-	-	-	-	-	-	-	-
4.5 to 9 months		C	30	-	-	-	-	-	-	-
9 to 18 months			D	30	30	40	-	-	-	-
1.5 to 3.5 years (1.5 to 3 years)				E	20	30	40	-	-	-
3.5 to 7.5 years (3 to 5 years)					F	20	20	40	-	30
7.5 to 15 years (5 to 7 years)						G	20	30	40	20
15 to 30 years (7 to 10 years)							H	30	40	30
(10 to 20 years)								I	30	-
(Over 20 years)									J	-
Fixed rate mortgage-backed securities										MB

¹Each number represents the percentage that is to be applied to the smaller of the two net position haircuts in a pair of risk-offsetting positions. The product is carried forward to the final haircut summation. Column and row headings refer to maturity and security categories in Table 2.

²The second maturities range listed on a line (in parentheses) refers to zero coupon issues of government securities only.

adverse change in interest rates on these bills. In order to recognize the potential risk reduction when a dealer has both long and short positions in similar securities, the guideline treats haircuts on long positions as positive, haircuts on short positions as negative, and sums the haircuts algebraically.

The factors are based on observed weekly volatility in the Treasury's constant maturity yield series for a benchmark security in each category. Although a dealer should reevaluate and adjust his position daily, the firm should have sufficient capital to sustain such variations for a few days to determine whether a

market shift is going to be maintained or reversed. These haircut factors will be reviewed semiannually by the Federal Reserve Bank of New York and revised should significant changes in market volatility develop.

Offset Haircuts. Offset haircut factors treat two risk components pertaining to hedging within a maturity category. First, no hedge is perfect because prices of specific debt securities depend on a variety of characteristics in addition to maturity. Hedges are imperfect even if the positions are weighted by duration or by price equivalents of equal changes in interest rates. Second, the guideline nets offsetting positions within a maturity category at market value without regard to the potential for yield variation within that category.

The offset haircuts listed in Table 2 are applied to all countervailing positions in securities other than options and futures. Procedurally, these factors are applied to the smaller of the gross long or gross short position within a maturity category. For example, assume a dealer has a long position of \$10 million in three-year notes which is partly offset by a short position of \$8 million in two-year notes. Both positions fall in the 1.5 to 3.5 year maturity category and are netted in this calculation. The *offset haircut* would equal \$24,000 (0.30 percent offset haircut factor, as shown in Table 2, \times \$8 million). Offset haircuts are not given signs. The *net position haircut* would be a positive \$24,000 on the \$2 million net long position within the 1.5 to 3.5 year maturity category [1.20 percent net position factor \times (\$10 million long - \$8 million short)]. The total haircut would thus be \$48,000 (\$24,000 + \$24,000).

There is also a uniform 10 percent offset haircut factor that applies to futures and options. This 10 percent factor is applied when haircuts from long and short futures or options positions are netted against themselves and when haircuts on futures and options are netted against haircuts on immediate positions in the same maturity category. Suppose a dealer has a long position in bond futures and has hedged this with purchases of "put" options, which enable the dealer to sell bonds at a particular price prior to some date in the future. In the absence of the hedge, there would be a positive haircut for the bonds and a negative one for the put options. The guideline allows these haircuts to offset each other, although in some cases these could be completely offsetting even though the hedge is imperfect and the position contains some risk. To approximate the imperfection of the hedge, 10 percent of the balance between the two haircuts is retained.

Hedging Allowances. Hedging between maturity categories can reduce but certainly not eliminate dealer position risk. As maturity differences widen, however, the net risk of a long position in one category balanced by a short position in another increases because of the greater differences in the variability of yields. Still, an examination of yields at different maturities and the spreads between U.S. government, money market, and mortgage-backed securities indicates that there are sufficient yield relationships to allow at least partial hedging when long and short positions are distributed over many of the 12 maturity categories.

As a result, the haircut on a net long position in one maturity category is not permitted to offset on a one-for-one basis the haircut for a net short position in another maturity category. Instead, part of the hedge is disallowed. If the hedging "disallowance" factor is set at 20 percent, for example, only an 80 percent offset is permitted. The disallowance factor is applied to the smaller net position haircut in each hedged pair between maturity categories. As net position haircuts reflect the price volatility in each category, netting haircuts between categories on a dollar-for-dollar basis provides appropriate weighting of the hedge. For example, if a \$5 million short position in 20-year bonds is hedged by a \$6.05 million long position in 10-year bonds, the net position haircut on each is about \$187,500 (negative \$5 million \times 3.75 percent compared to positive \$6.05 million \times 3.10 percent). The hedging disallowance factor for this weighted hedge is 20 percent (Table 3). Thus, a \$37,500 disallowance haircut is retained (20 percent of \$187,500), and the net position haircuts offset each other. Hedges are not recognized between risk categories indicated by a blank line or not shown as in the case of variable rate mortgage-backed securities.

The hedging disallowance factors were established by examining the correlation between yields at the different maturities and adding an extra 10 percent disallowance to reflect imperfections inherent in any hedge. For simplicity, there are only three "hedging disallowance" haircut factors. In the best cases, 80 percent of the hedge is allowed; 20 percent is disallowed. Similarly, other hedged pairs warrant 30 or 40 percent hedging disallowances. The statistical analysis underlying the disallowance factors for hedges across maturities will be updated and the factors changed if yield curve volatility changes significantly.

NOTES

¹Federal Reserve Bank of New York, May 20, 1985. Copies are available from the public information office of any Federal Reserve Bank.

²The Federal Reserve's capital adequacy calculation is similar to the financial responsibility rule used by the SEC; however, the general approach has been tailored to U.S. government securities dealers that operate predominantly in a wholesale, institutional market. The calculation also treats differently some elements of credit risk, hedging

practices, and new market developments. The Fed's definition of liquid capital makes only minor modifications to the SEC's Rule 15c3-1 ("Net Capital before haircuts").

³This approach is an outgrowth of the method used in the SEC's rule, whereby "haircuts" are applied to a dealer's holding of securities to reflect probable exposure to losses.

11 3/4	11/15/1985-N	100.25	29	-1	6.75
10 1/2	11/30/1985-N	100.19	23	-1	7.19
10 7/8	12/31/1985-N	100.31	3	-2	7.21
14 1/8	12/31/1985-N	102.08	12	-1	6.34
10 5/8	1/31/1986-N	101.03	7	-2	7.43
9 7/8	2/15/1986-N	100.28	0	-2	7.50
13 1/2	2/15/1986-N	102.19	23	-1	7.11
10 7/8	2/28/1986-N	101.15	19	-1	7.47
11 1/2	3/31/1986-N	101.31	3	-2	7.67
14	3/31/1986-N	103.13	17	-2	7.55
11 3/4	4/30/1986-N	102.12	16	-3	7.76
7 7/8	5/15/1986-N	99.31	3	-2	7.73
9 3/8	5/15/1986-N	100.29	1	-1	7.82
13 3/4	5/15/1986-N	103.26	30	-3	7.82
12 5/8	5/31/1986-N	103.06	10	-1	7.91
13	6/30/1986-N	104.00	4	-1	7.71
14 7/8	6/30/1986-N	106.03	7	-3	6.94
12 5/8	7/31/1986-N	103.28	0	-2	7.95
8	8/15/1986-N	100.01	5	+1	7.83
11 3/8	8/15/1986-N	102.29	1	0	7.98
12 3/8	8/31/1986-N	103.27	31	-1	8.11
11 7/8	9/30/1986-N	103.20	24	-1	8.14
12 1/4	9/30/1986-N	104.00	4	0	8.14
11 5/8	10/31/1986-N	103.18	22	-1	8.21
6 1/8	11/15/1986	97.30	30	+1	7.07
11	11/15/1986-N	102.27	31	-2	8.34
13 7/8	11/15/1986-N	106.02	6	-3	8.33
16 1/8	11/15/1986-N	109.05	9	-1	7.84
10 3/8	11/30/1986-N	102.07	11	-1	8.34
9 7/8	12/31/1986-N	101.22	26	-1	8.40
10	12/31/1986-N	101.28	0	-2	8.37
9 3/4	1/31/1987-N	101.16	20	-1	8.50
9	2/15/1987-N	100.19	23	0	8.46
10 7/8	2/15/1987-N	103.00	4	-2	8.53
12 3/4	2/15/1987-N	105.17	21	-1	8.50
10	2/28/1987-N	101.28	0	-2	8.54
10 1/4	3/31/1987-N	102.09	13	+1	8.58
10 3/4	3/31/1987-N	103.00	4	+1	8.58
9 3/4	4/30/1987-N	101.16	20	-1	8.67
12	5/15/1987-N	105.00	4	-1	8.68
12 1/2	5/15/1987-N	105.24	28	0	8.70
14	5/15/1987-N	108.02	6	0	8.70
9 1/8	5/31/1987-N	100.16	20	+1	8.73
8 1/2	6/30/1987-N	99.14	18	+1	8.77
10 1/2	6/30/1987-N	102.25	29	+1	8.74
8 7/8	7/31/1987-N	99.30	0	+1	8.88
12 3/8	8/15/1987-N	105.29	1	+1	8.93
13 3/4	8/15/1987-N	108.11	15	0	8.91
8 7/8	8/31/1987-N	99.28	30	+1	8.91
11 1/8	9/30/1987-N	104.01	5	+2	8.88
7 5/8	11/15/1987-N	97.28	4	+2	8.58
11	11/15/1987-N	103.30	2	+2	8.92
12 5/8	11/15/1987-N	107.00	4	+1	8.98
11 1/4	12/31/1987-N	104.17	21	+1	8.98
12 3/8	1/15/1988-N	106.26	30	+2	9.05
10 1/8	2/15/1988-N	102.03	7	+2	9.09
10 3/8	2/15/1988-N	102.20	24	+1	9.09
12	3/31/1988-N	106.07	11	+2	9.17
13 1/4	4/15/1988-N	109.01	5	+1	9.22
8 1/4	5/15/1988-N	98.06	14	+2	8.91
9 7/8	5/15/1988-N	101.12	16	+2	9.23
10	5/15/1988-N	101.21	25	+1	9.24
13 5/8	6/30/1988-N	110.09	13	0	9.34
14	7/15/1988-N	111.11	19	+1	9.29
9 1/2	8/15/1988-N	100.16	20	+1	9.25
10 1/2	8/15/1988-N	102.30	2	+3	9.29
11 3/8	9/30/1988-N	105.06	10	+3	9.34
15 3/8	10/15/1988-N	115.13	21	+2	9.45
8 3/4	11/15/1988-N	98.21	29	+5	9.15
11 3/4	11/15/1988-N	106.04	8	+2	9.44
10 5/8	12/31/1988-N	103.06	10	+2	9.44
14 5/8	1/15/1989-N	113.31	3	+2	9.62
11 3/8	2/15/1989-N	105.06	10	+1	9.53
11 1/4	3/31/1989-N	105.00	4	-1	9.52
14 3/8	4/15/1989-N	113.24	0	+1	9.69
9 1/4	5/15/1989-N	99.26	2	+2	9.23
11 3/4	5/15/1989-N	106.08	12	0	9.66
9 3/8	6/30/1989-N	100.06	8	+4	9.55
14 1/2	7/15/1989-N	114.21	29	0	9.77
11 1/2	7/15/1989-N	112.30	2	-2	9.80

Identifying and Controlling Market Risk

Sheila L. Tschinkel

Fluctuations in the market prices of securities underlying repurchase agreements can pose problems for repo customers, but cautious investors can minimize market risks by heeding certain procedures.

Repurchase agreements involve risks even though the government securities used to collateralize them are risk-free. One important risk derives from fluctuations in the market value of the securities, particularly when agreements are outstanding for several days. What is market risk, and what steps can investors and those using repos to raise funds take to identify and control this risk?

Market risk is closely related to credit risk. Suppose a dealer is unable to meet obligations at the maturity of a repurchase agreement. An investor who has taken proper steps to gain control of securities is likely to retain that control. However, the important question is whether the value of the securities is sufficient to cover the cash provided by the investor and the interest he earned. Investors thus must protect themselves against the risk of fluctuations in market prices by initially requiring a margin above the value of the cash provided. They also need to monitor these values during the term of the repo to make sure that they are still protected. Their agreement should specify when margin calls can be made, the time that a counterparty has to meet them, and how they can be met—whether with cash or securities.¹

Customers who have done reverse repos, exchanging securities in their portfolios for cash, will still have the cash if a dealer cannot return their securities. However, they will suffer a loss of margin given if the securities have increased in value during the life of the agreement or if interest accruals on them exceed the amount they owe the dealer for funds they provided. Therefore, when doing a reverse, they should

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Calculating Accrued Interest

When a Treasury note or bond is traded in a repurchase agreement, for example, the buyer pays the agreed-upon price plus accrued interest. The coupon rate is determined when the security is first sold by the Treasury at auction. Coupons on Treasury notes and bonds are paid semiannually. The first date is determined at the time of the original issue. Interest is paid on the basis of a 365-day year.

If a Treasury note has an initial coupon date of May 15, the next coupon will be the same day of the month, six months hence—November 15. This pattern follows throughout the life of the security. At each coupon date the amount paid is roughly half the coupon rate (since the rate is an annual one) times the face value. Interest accrues on a daily basis throughout the interim period between coupon dates. Therefore, to calculate accrued interest precisely, we must determine how many days have passed since the last coupon date and what proportion of the particular coupon period these represent. This number changes with each period since the number of days during this period is not precisely equal to a half year (182.5 days). Sometimes the coupon period may be 181 days, sometimes 184. The formula is:

$$A_i = c/2 \times d_t/d_c$$

where A_i represents accrued interest per dollar of face value; c , the coupon rate; d_t , the number of days since the issue or last coupon date; and d_c the number of days in the coupon period.

One way to calculate the number of days in this formula is to consult a financial calendar. Each date on such calendars is accompanied by a number indicating how many days have passed since the last coupon date. By looking at the next coupon date we can find out how many days are in the coupon period. Let us assume that a customer has a 10-year Treasury note with a coupon rate of 11 1/4 and that he has determined 35 days have

elapsed during a coupon period of 181 days. The accrued interest per dollar of face value is then

$$(.1125/2) \times (35/181) = .010877.$$

If the face value of the note is \$1 million, then the accrued interest is $.010877 \times \$1$ million or \$10,877.

Of course, using a financial calendar is cumbersome for parties making frequent calculations. More complex formulas for determining the number of days between specific dates can be obtained from securities industry publications and incorporated into in-house computer programs.

Sometimes the initial coupon period is irregular. If it is short, the accrued interest is proportionately less than the normal coupon amount. More frequently the first period is long. That is, a short initial period is combined with the first full period. In this situation the Treasury, in effect, postpones payment until the end of the first full coupon period and combines in a single payment the amounts due. The calculation is more complex in this case.

To calculate accrued interest on T-bills, we can use the following formula to determine an amortized factor which can be applied to the number of days elapsed:

$$(100 - P)/D_m$$

where P is price and D_m , days to maturity. Thus, if a bill was traded at 96 and has 178 days to maturity, the accrued interest per diem is \$.0225 per dollar of face value.

The calculation of interest accrual applies to federal agency issues, although in practice these are more complicated because such issues are calculated on the assumption that every month has 30 days and thus a year is 360 days. Each month does not in fact have 30 days, but varies from 28 to 31, so additional calculations must be made. These are available in Stigum, Marcia, *Money Market Calculations: Yields, Break-Evens, and Arbitrage*, Homewood, Illinois: Dow Jones-Irwin, 1981, pp. 8, 99-104, 105-106.

strive to minimize the margin given. Their agreements should also be specific with regard to margin calls and payments. Moreover, since they have typically provided margin, they need to know at the outset if the potential loss of margin is tolerable.

In addition, certain financial institutions may suffer a balance sheet loss larger than that of the margin given if the market price of the securities under repo is below the book value of the securities. For example, assume that a thrift institution with assets of \$200 million and capital of \$5 million holds conventional mortgages in its portfolio that were issued in the mid- to late 1970s. To make these assets more useful, the thrift puts them into a Federal Home Loan Mortgage Corporation Participation Certificate

(PC), which it can sell or pledge. The mortgages have a book value of \$20 million, but their market value is now only \$15 million. The institution then uses this certificate to raise money through a reverse repo, giving a margin of 5 percent (\$750,000) and receiving \$14.25 million. If the dealer defaults, the thrift suffers a direct loss of \$750,000, but its book loss would be \$5.75 million, more than its capital and possibly enough to force its insolvency. This example illustrates how the failure of Bevil, Bresler, and Schulman created severe problems for several thrift institutions.

Both repo investors and those who use reverse repos to raise funds should observe several ground rules to minimize market risk. They need to monitor the market value of securities, the

Treasury Bonds,* Notes,* and Bills++ Composite 3:30 p.m. Quotations for U.S. Government Securities

May 31, 1985

June 6, 1985

	ISSUE	BID	ASK	CHG	YLD
10	6/30/1985-N	100.05	9	0	5.82
14	6/30/1985-N	100.14	18	-1	5.79
10 5/8	7/31/1985-N	100.15	19	0	6.58
8 1/4	8/15/1985-N	100.04	8	0	6.81
9 5/8	8/15/1985-N	100.13	17	0	6.72
13 1/8	8/15/1985-N	101.02	6	-1	6.80
10 5/8	8/31/1985-N	100.20	24	0	7.23
10 7/8	9/30/1985-N	101.01	5	0	7.07
15 7/8	9/30/1985-N	102.19	23	-1	7.05
10 1/2	10/31/1985-N	101.03	7	0	7.33

**

14	11/15/2006-11	126.28	4	+27	10.74
10 3/8	11/15/2007-12	97.12	20	+26	10.64
12	8/15/2008-13	110.20	24	+27	10.73
13 1/4	5/15/2009-14	121.10	18	+28	10.73
12 1/2	8/15/2009-14	114.30	2	+30	10.74
11 3/4	11/15/2009-14	109.09	13	+28	10.66
11 1/4	2/15/2015	106.00	4	+26	10.57

**

6/06/1985	5.56	5.46	-.06	5.54
6/13/1985	7.02	6.96	+.09	7.07
6/20/1985WI	7.32	7.28	+.08	7.41
6/27/1985	6.24	6.20	+.08	6.31
7/05/1985	6.94	6.88	+.02	7.02
7/11/1985	7.10	7.06	+.04	7.21
7/18/1985	7.10	7.06	+.06	7.22
7/25/1985	7.03	6.99	+.02	7.16
8/01/1985	7.09	7.05	-.03	7.23
8/08/1985	7.16	7.12	-.02	7.31

**

	ISSUE	BID	ASK	CHG	YLD
10	6/30/1985-N	100.04	8	0	5.23
14	6/30/1985-N	100.12	16	0	4.64
10 5/8	7/31/1985-N	100.15	19	0	6.14
8 1/4	8/15/1985-N	100.06	10	0	6.35
9 5/8	8/15/1985-N	100.13	17	0	6.48
13 1/8	8/15/1985-N	101.02	6	0	6.28
10 5/8	8/31/1985-N	100.21	25	0	6.86
10 7/8	9/30/1985-N	101.01	5	0	6.87
15 7/8	9/30/1985-N	102.18	22	0	6.71
10 1/2	10/31/1985-N	101.05	9	0	7.03

**

14	11/15/2006-11	129.25	1	-9	10.46
10 3/8	11/15/2007-12	100.00	8	-8	10.35
12	8/15/2008-13	113.12	16	-13	10.44
13 1/4	5/15/2009-14	124.13	21	-15	10.43
12 1/2	8/15/2009-14	118.04	8	-10	10.42
11 3/4	11/15/2009-14	111.30	2	-10	10.38
11 1/4	2/15/2015	108.28	0	-12	10.28

**

6/13/1985	7.42	7.38	+.03	7.49
6/20/1985	7.37	7.31	+.07	7.43
6/27/1985	6.38	6.34	+.13	6.45
7/05/1985	6.83	6.79	-.02	6.92
7/11/1985	6.93	6.89	+.01	7.03
7/18/1985	6.94	6.90	+.01	7.05
7/25/1985	6.88	6.82	-.03	6.97
8/01/1985	6.89	6.85	+.04	7.01
8/08/1985	6.94	6.90	0	7.08
8/15/1985	6.94	6.90	+.01	7.09

**

* Notes and Bonds: N-Note. The figures to the right of the decimal and the changes are in 32nds of a point. Spreads between bid and asked reflect one full point where both figures are the same. Yields are based on asked prices. For bonds callable before maturity, yields are computed to the earliest call date on issues quoted above par and to the maturity date on issues quoted below par.

++Bills are quoted in terms of a rate of discount. Yields are based on asked rates and are on a coupon-Equivalent basis.

**Not all maturities are shown.

volatility of those securities over time, and interest accruals. They also need to have procedures for margin calls and payments specified in their master agreements.

Taking Margin

When investors provide funds to a dealer, the repurchase agreement should value the securities at their current market price, plus, in the case of notes or bonds, any accrued interest on the issue's coupon. A security's market price often differs from its par or face value. The price agreed on in the repo often lies in the middle of the market between "bids"—prices at which dealers buy securities from a customer—and "offers"—prices at which they sell securities to customers.

Customers providing cash in a repo transaction usually require a margin of overcollateralization. This custom is called "taking margin." It protects investors against the risk that the value of the securities will decline during the term of the repo. Market prices of government securities change whenever interest rates change, and prices of long-term securities change more relative to those on short-term securities for any given move in interest rates. For example, if interest rates rise by 10 basis points (0.10 percent), the value of a 30-year bond falls roughly 1 percent of its face amount, or \$10,000 per \$1 million. In contrast, the value of a three-month bill changes by \$250 per \$1 million, or one-fortieth of the change in value on the long-term bond. Thus, the maturity of the underlying securities is a crucial criterion in agreeing upon margin.

Larger margins are also appropriate for some infrequently traded government issues or certain agency issues. The spread between bid and offer prices is generally wider for less actively traded issues, and this adds to the cost of selling or buying them. The rates on repurchase agreements against some securities are higher than for others due to larger administrative costs associated with them. For example, the cash flow on mortgage-backed securities may be less predictable due to unscheduled principal repayments which occur in addition to scheduled ones. The work associated with monitoring values and transferring funds is greater for mortgage-backed securities than for Treasuries.

Marking to Market

Customers must take steps to deal with the risk that large interest rate and securities price changes can erode their protection. After establishing margin, parties to repos should set up procedures for monitoring the value of the securities and for making adjustments that continue to provide sufficient value to protect them. This process is called "marking to market" and should be done each day or whenever intraday price changes are large. If the market value of the securities being held as collateral slips below the preestablished margin, the customer should make a "margin call" on the dealer. (The dealer is not typically expected to call the customer if this is the case.) The adjustment can be made by securing additional securities or by the dealer's returning funds.

Repo customers who are raising funds by using securities in their portfolios generally will be asked to provide margin or obtain somewhat less money than the market value of the securities. Such customers should feel comfortable with the margin provided. They also need to determine whether the securities' value has risen to the point where they would want to obtain additional funds even if it means paying more interest on them.

Interest rates can fluctuate substantially during a repo's life. The risk that a sustained price move erodes the value of collateral is larger the longer the maturity of the securities used and often the longer the term of the repo. This does not mean investors should rely on favorable price trends, if they develop, since day-to-day volatility can also be significant. For example, in one two-week period earlier this year, long-term bonds rose by 4 percent of face value. Yet, in a single day during that period, prices fell by over 2 percent of face value.

Market prices of government securities are published each day in the financial sections of major newspapers. The prices published are composites of bids and offers reported to the New York Fed by a sample of dealers. Table 1 shows some of the quotes from two dates in Spring 1985. Assume a thrift had used long bonds due in August, 2009-14, to raise funds through a reverse repo. On May 31, the current market value of these issues was 115 or \$115 for every \$100 of par value. (Let's assume the market value for customers is around the midpoint

between the bid and asked price listed on the quote sheet in Table 1.) If the thrift had put up \$10 million in these issues, the market value would have been \$11.500 million. However, the thrift would have to give margin of perhaps 3.75 percent so it would have received only 96.25 percent of the current market value, or \$11,068,750. By June 6, these bonds were trading at 118.6, or \$118 and 6/32 dollars for every \$100 of par. In other words, their market value was \$11,818,750, equivalent to a margin of almost 7 percent above the cash the thrift had received. The securities would be worth still more because interest accrues on a daily basis. The investment officer at such a thrift would want to make a margin call on his dealer, requesting more cash or requiring the return of some of his securities.

Accrued Interest

Contracts should also take into account interest payments on the underlying securities. The amount of cash a security raises when sold is equal to its market price plus accrued interest on its coupon, if any. Customers must understand who receives interest payments from the issuer and who is entitled to payments under the agreement. These two may differ. In the case of book-entry Treasury securities, which underlie many repurchase transactions, the depository institution that is the custodian of those securities at the time of interest payment will receive the payment. In the case of mortgage-backed securities, such as Freddie Macs, payments of principal and interest will go to the holder of record up to 45 days prior to the payment date. That is, the party identified on the record date still will receive the interest and principal payments and the payment itself 45 days later. Customers must know how the mechanism of interest payments operates to take that into account in structuring agreements. (For more information on calculating accrued interest, see Box.)

Failure to take account of these cash flows resulted in before-tax losses exceeding \$300 million when Drysdale Government Securities failed in 1982. Interest accrual was a factor in Drysdale's collapse because the market practice then was to ignore the value of accrued interest on the underlying securities to a repurchase transaction. This meant a party that obtained a security under a repo put up cash only for the principal. That party then could sell the security and realize the value of both the principal and

accrued interest. Drysdale obtained an enormous amount of "undervalued" securities under repo agreements and raised working capital by selling the securities and obtaining their market value plus accrued interest. This system functioned so long as Drysdale could repay the accrued interest when it came due. Drysdale accumulated substantial losses and financed them with the cash it was raising until it was unable to make accrued interest payments. In May 1982, the house of cards collapsed. Although repo pricing has generally been changed to incorporate accrued interest, all parties in a repo transaction undergirded by securities with accruing interest should be aware of this issue and take steps to protect their interests.

In addition to agreeing on margin and tracking market value, participants in repos need to monitor interest accruing on the agreement itself and how it compares to the accruals on the security. Interest accrues daily on a note or bond coupon. The value of Treasury bills rises each day, assuming no change in interest rates, to reflect interest accruals. Thus, the accrual of interest causes the amount of cash that could be obtained through the sale of a security to increase each day. An investor needs to compare the change in this total value with the cumulative amount owed by the dealer through accrual of interest on the funds he obtained from the investor. This is even more important for those using their securities to raise funds through reverse repos. Since repos are of short maturity, their interest rates often are below those earned on most Treasury securities. Thus, the total owed by a customer doing a reverse repo can rise at a slower pace than interest is accruing on the securities he gave to the dealer.

Conclusion

To summarize, if investors monitor the total value of collateral held and interest accruals, take steps to maintain an appropriate margin on the securities, and follow other prudent practices noted elsewhere in this issue, they should be well protected if a dealer defaults. Those using reverse repos to raise funds also need to be concerned with margin and interest accruals so their exposure or potential loss is constrained to a tolerable level in the case of dealer default.

NOTE

¹Don Ringsmuth discusses such legal considerations in greater detail in "Controlling Custodial Risk and Other Contractual Considerations," this issue.

11 3/4	11/15/1985-N	100.25	29	-1	6.75
10 1/2	11/30/1985-N	100.19	23	-1	7.19
10 7/8	12/31/1985-N	100.31	3	-2	7.21
14 1/8	12/31/1985-N	102.08	12	-1	6.34
10 5/8	1/31/1986-N	101.03	7	-2	7.43
9 7/8	2/15/1986-N	100.28	0	-2	7.50
13 1/2	2/15/1986-N	102.19	23	-1	7.11
10 7/8	2/28/1986-N	101.15	19	-1	7.47
11 1/2	3/31/1986-N	101.31	3	-2	7.67
14	3/31/1986-N	103.13	17	-2	7.55
11 3/4	4/30/1986-N	102.12	16	-3	7.76
7 7/8	5/15/1986-N	99.31	3	-2	7.73
9 3/8	5/15/1986-N	100.29	1	-1	7.82
13 3/4	5/15/1986-N	103.26	30	-3	7.82
12 5/8	5/31/1986-N	103.06	10	-1	7.91
13	6/30/1986-N	104.00	4	-1	7.71
14 7/8	6/30/1986-N	106.03	7	-3	6.94
12 5/8	7/31/1986-N	103.28	0	-2	7.95
8	8/15/1986-N	100.01	5	+1	7.83
11 3/8	8/15/1986-N	102.29	1	0	7.98
12 3/8	8/31/1986-N	103.27	31	-1	8.11
11 7/8	9/30/1986-N	103.20	24	-1	8.14
12 1/4	9/30/1986-N	104.00	4	0	8.14
11 5/8	10/31/1986-N	103.18	22	-1	8.21
6 1/8	11/15/1986	97.30	30	+1	7.07
11	11/15/1986-N	102.27	31	-2	8.34
13 7/8	11/15/1986-N	106.02	6	-3	8.33
16 1/8	11/15/1986-N	109.05	9	-1	7.84
10 3/8	11/30/1986-N	102.07	11	-1	8.34
9 7/8	12/31/1986-N	101.22	26	-1	8.40
10	12/31/1986-N	101.28	0	-2	8.37
9 3/4	1/31/1987-N	101.16	20	-1	8.50
9	2/15/1987-N	100.19	23	0	8.46
10 7/8	2/15/1987-N	103.00	4	-2	8.53
12 3/4	2/15/1987-N	105.17	21	-1	8.50
10	2/28/1987-N	101.28	0	-2	8.54
10 1/4	3/31/1987-N	102.09	13	+1	8.58
10 3/4	3/31/1987-N	103.00	4	+1	8.58
9 3/4	4/30/1987-N	101.16	20	-1	8.67
12	5/15/1987-N	105.00	4	-1	8.68
12 1/2	5/15/1987-N	105.24	28	0	8.70
14	5/15/1987-N	108.02	6	0	8.70
9 1/8	5/31/1987-N	100.16	20	+1	8.73
8 1/2	6/30/1987-N	99.14	18	+1	8.77
10 1/2	6/30/1987-N	102.25	29	+1	8.74
8 7/8	7/31/1987-N	99.30	0	+1	8.88
12 3/8	8/15/1987-N	105.29	1	+1	8.93
13 3/4	8/15/1987-N	108.11	15	0	8.91
8 7/8	8/31/1987-N	99.28	30	+1	8.91
11 1/8	9/30/1987-N	104.01	5	+2	8.88
7 5/8	11/15/1987-N	97.28	4	+2	8.58
11	11/15/1987-N	103.30	2	+2	8.92
12 5/8	11/15/1987-N	107.00	4	+1	8.98
11 1/4	12/31/1987-N	104.17	21	+1	8.98
12 3/8	1/15/1988-N	106.26	30	+2	9.05
10 1/8	2/15/1988-N	102.03	7	+2	9.09
10 3/8	2/15/1988-N	102.20	24	+1	9.09
12	3/31/1988-N	106.07	11	+2	9.17
13 1/4	4/15/1988-N	109.01	5	+1	9.22
8 1/4	5/15/1988-N	98.06	14	+2	8.91
9 7/8	5/15/1988-N	101.12	16	+2	9.23
10	5/15/1988-N	101.21	25	+1	9.24
13 5/8	6/30/1988-N	110.09	13	0	9.34
14	7/15/1988-N	111.11	19	+1	9.29
9 1/2	8/15/1988-N	100.16	20	+1	9.25
10 1/2	8/15/1988-N	102.30	2	+3	9.29
11 3/8	9/30/1988-N	105.06	10	+3	9.34
15 3/8	10/15/1988-N	115.13	21	+2	9.45
8 3/4	11/15/1988-N	98.21	29	+5	9.15
11 3/4	11/15/1988-N	106.04	8	+2	9.44
10 5/8	12/31/1988-N	103.06	10	+2	9.44
14 5/8	1/15/1989-N	113.31	3	+2	9.62
11 3/8	2/15/1989-N	105.06	10	+1	9.53
11 1/4	3/31/1989-N	105.00	4	-1	9.52
14 3/8	4/15/1989-N	113.24	0	+1	9.69
9 1/4	5/15/1989-N	99.26	2	+2	9.23
11 3/4	5/15/1989-N	106.08	12	0	9.66
10 5/8	6/30/1989-N	100.06	8	+4	9.55
14 1/2	7/15/1989-N	114.21	29	0	9.77
11 1/2	7/15/1989-N	112.30	2	-2	9.80

Custodial Arrangements And Other Contractual Considerations

Don Ringsmuth

Properly drafted contracts can provide repo customers with control mechanisms to shield against various risks. A Fed legal expert reviews numerous custodial arrangements and explains the safety and cost features of each.

Repurchase agreements can serve as a safe method of earning income on idle cash or of raising funds on a short-term basis, provided that proper and prudent procedures are followed by all parties. Some of these procedures rest with the parties' internal management controls. Others should be contained in contracts governing the responsibilities of the repo participants. This article will review the principal contractual considerations that should be taken into account when drafting a repo agreement and will then focus on the problem of custodial arrangements and controlling the underlying repo securities.

Legal Status of Repos

Many participants in the repo market view their transactions as sales and purchases of securities—in lawyers' terms, "executory contracts"—rather than as collateralized loans. From this perspective, the transaction is an unconditional sale of the security, subject only to the right to buy it (or a similar security) back. The Federal Reserve has engaged in repurchase agreements for years under its authority to buy and sell government and agency securities in the open market. Since the Fed's legal authority to lend or borrow does not extend to these open market transactions, repos done by the Fed are structured and viewed as purchase and sale transactions. Similarly, many states and their political subdivisions have statutory or even constitutional prohibitions against lending public funds. Other market participants are prohibited from pledging assets, although they are free to sell them.

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On the other hand, some market participants look upon repos, from a legal standpoint, as secured borrowings and lendings. For example, in the Bevill, Bresler & Schulman (BBS) bankruptcy proceeding now underway in New Jersey, a number of thrift institutions are arguing that they delivered repo securities to BBS as loan collateral. These thrifts assert that the collateral is not part of the BBS general pool of assets and that they are entitled to reclaim it from the BBS trustee.

The courts have not clarified the status of repos. In some instances repos have been held to be secured loans and, in others, purchase and sale transactions. At times repos have been treated as a unique transaction with characteristics of both sales and loans. The picture is further complicated by the variety of terms used in repo contracts. Some are written in the language of secured lending and contain provisions common to secured loans. For instance, some observers consider the right of substitution of securities during the term of a repo or prohibitions on further transfers by the holder of repo securities to be substantial evidence of a secured loan. A brief summary of court cases appears in the appendix to this article.

Whether repos involve borrowings and loans or sales and purchases, customers can minimize risks through carefully written contracts and prudent custodial arrangements. Nevertheless, anyone engaging in repos must understand that legal ambiguities surround these transactions, particularly since statutory or even constitutional rules may apply to some public-sector customers depending on how the repo transaction is characterized.¹

General Contractual Arrangements

Although government securities themselves are free of default risk, repo transactions entail some risks. One type is credit risk, which involves the possibility that a dealer will fail to meet his financial obligation to repurchase securities from a customer. Another is custodial risk, arising from the possibility that whoever holds the securities will be unable to carry out the investor's wishes when it is time to reverse the transaction.

Careful managerial practices can minimize risks, of course.² Customers also can employ contractual arrangements to protect themselves

against other hazards, including custodial and credit risk.

Minimizing Credit Risk

First, a master contract between a customer and a dealer is the most prevalent and probably the best practice. (The bibliography at the end of this article is a guide to finding more information on such contracts.) Each transaction under the master contract should be confirmed separately in writing. The terms used and the duration of the agreement must be defined and confirmation procedures and wording should be carefully set out. The means of delivery and manner of payment need to be described. The dealer should warrant that his actions are authorized and that he will provide customers with periodic financial statements promptly. Also, unregulated dealers should agree to provide the certifications specified under the Fed's voluntary capital adequacy guideline.³

To minimize risk associated with changes in the market value of securities, repurchase contracts—especially “term repos” lasting longer than overnight—should include provisions for margin adjustments.⁴ These assure that the value of the securities the customer has received is adjusted to reflect changes in their market price. The contract should specify whether this adjustment is to be accomplished by the transfer of additional securities from the dealer to the customer or by the return of funds to the customer. Any failure by the dealer to perform any act called for by the contract should be defined as an act of default, allowing the customer to close out his position.

Minimizing Custodial Risk

Custodial risk recently has proven difficult for some parties to identify and control. Failure to recognize custodial risk led to massive losses in the failures of Lion Capital Group in New York, ESM in Florida, and BBS in New Jersey. Each case involved allegedly intentional acts to mislead investors. In some instances, dealers purportedly pledged customer securities as collateral for loans from the dealers' clearing banks although customers believed the securities were to be held in safekeeping for them at those banks. In others, authorities contend that nonexistent securities were sold under

repo, or the same security was "sold" to or on repo to several customers.

Even in the absence of intentional wrongful acts by dealers, repo customers can incur losses if their counterparty goes bankrupt and the customers have not taken adequate steps to protect against custodial risk. For example, the Mount Pleasant Bank and Trust Company of Iowa failed in 1982 with \$350,000 worth of retail repos outstanding. Customers had paid for these but left the securities backing the repos in the bank's custody. The FDIC ruled that Mount Pleasant had failed to identify the securities adequately as customer property and denied priority status for the customer claims.

More recently, in the bankruptcy proceedings involving the Lion Capital Group, the trustee sued to recover funds from former repo customers. Lion, acting as custodian for repo securities it sold to customers, performed its obligation under the repo and returned funds to repo customers shortly before the failure. The trustee alleged that Lion had not taken steps necessary to qualify the securities as legitimate property of the repo customers. Therefore, the trustee argued that the payments constituted a preference under bankruptcy law and that these customers, largely school districts, must give the money back and stand in line with other general creditors. As this article goes to press, it appears likely that the parties will reach a settlement, leaving the legal issue raised by the trustee's claim unresolved.

Although fraud probably cannot be prevented completely, customers can minimize unscrupulous dealers' opportunities to commit fraudulent acts. These cases provide four lessons for customers who wish to establish custodial arrangements that can reduce their exposure to fraud or carelessness.

First, customers should know the location of the securities underlying a repo. In a number of instances customers received confirmations from dealers stating that certain securities were being held in their account at a specified bank when, in fact, the securities were pledged to someone else or did not exist.

Second, confirmations must be read. The language needs to be meaningful and acceptable to the customer. For instance, the description of a security sold in a confirmation from a

firm that recently ceased doing business read: "Versus Trust Receipt Repo Maturity on May 13, 1985." Clearly, such language identifies no security and leaves the customer vulnerable to unscrupulous dealers. Moreover, a confirmation could change the terms of a customer's written master agreement. If customers do not understand the language in a confirmation, they should insist on clarification.

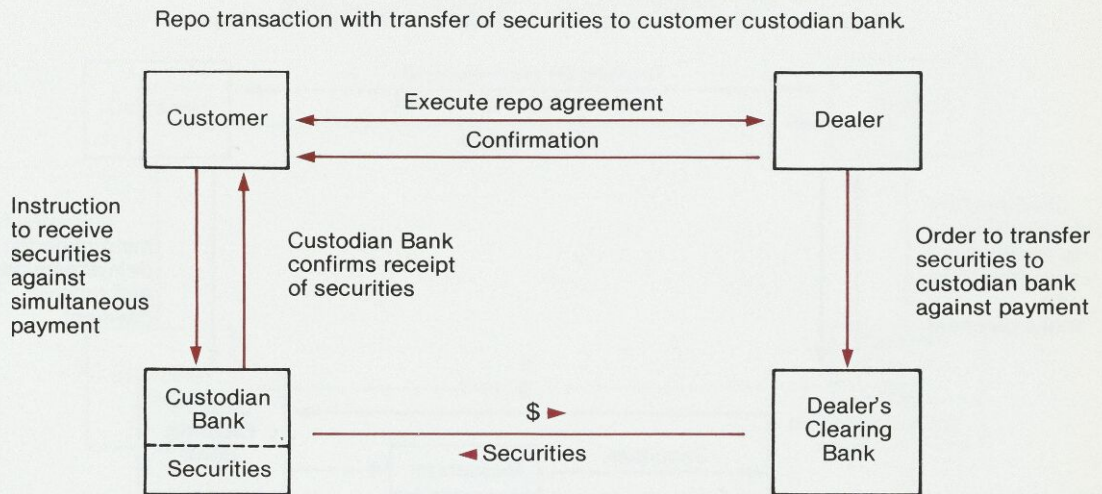
Third, securities should not be left with anyone a customer does not trust. Unfortunately, some dealers have been tempted to use a security already held for a repo customer to raise funds in another transaction.

Fourth, customers should consult experienced legal counsel. The Uniform Commercial Code, particularly Articles 8 and 9, establishes the legal framework for protecting one's interests relative to custodial risk. These provisions are complex, and contrary to the suggestive title, the Uniform Commercial Code, or U.C.C. as it is known, is not uniform throughout the states.

Under the U.C.C., some action must be taken to convey an interest in the securities, whether the repo is viewed as a purchase or as a secured lending. If the securities exist in a physical form, this can be an actual delivery to the customer or his custodian. However, most U.S. government securities exist only as computerized book-entry messages, and so physical delivery is becoming less common.⁵

Any book-entry securities issued through a Reserve Bank can be transferred on the Bank's books directly to depository institutions. An interest in the book-entry securities can be delivered to nondepository investors through a depository institution or other custodian that takes appropriate action under the U.C.C. to indicate it is holding securities on the customer's behalf. Such action may be a written acknowledgement or confirmation and an entry on the custodian's books recording the customer's interest. A transfer or delivery to the customer whereby the dealer retains control of the securities also is recognized under the U.C.C. However, this is subject to a number of serious caveats, particularly related to the potential for losses from carelessness and fraud. Regardless of the form of delivery, customers should take into account when funds are paid relative to the receipt of securities. Ideally, the exchange should be simultaneous.

Chart 1. Delivery vs Payment (Wireable Securities)



Types of Custodial Arrangements

Several types of custodial arrangements are available to customers, each with its own advantages and disadvantages. Three common arrangements are the "delivery repo," the "three-party repo," and the "letter repo." In a delivery repo, as the name implies, the investor or his custodian takes delivery or control over the securities. In a three-party repo, there is no transfer from the original custodian to another, but the custodian acknowledges to the customer that it holds the securities for the customer rather than the dealer. Finally, a letter repo is a representation from the dealer firm that it holds the securities for the customer's account.

The delivery repo is generally viewed as a secure custodial arrangement (see Chart 1). A depository institution doing repos in book-entry Treasury or agency securities can have the securities wired directly to its account at a Reserve Bank against simultaneous payment. For a nondepository customer, the securities can be wired against simultaneous payment to the custodian depository institution with which

the customer has established relations. While delivery repos for book-entry securities eliminate the risk posed by having a customer's counterparty/dealer act as custodian, delivery costs may substantially erode the return on the repo unless the transaction is relatively large.

Delivery repos for physical securities involve risks and costs associated with their physical movement by messenger (Chart 2). They usually have to be recounted and verified after delivery, complicating the simultaneity of the transfer.

Under a typical three-party repo, a dealer's clearing bank has custody of securities and continues to hold them over the term of the repo, usually overnight (see Chart 3). The three-party contract involving the customer, the dealer, and the bank provides that the bank transfer securities internally to the customer's account against payment to the dealer. The bank agrees to police the repo by determining the value of the securities transferred. It also sets the margin and determines that the securities are otherwise acceptable under the contract. The three-party arrangement requires that the customer open accounts with the dealer's clear-

Chart 2. Delivery vs Payment (Non-Wireable Securities, GNMA, Non-Government Securities)

Repo transaction with transfer of physical securities by messenger

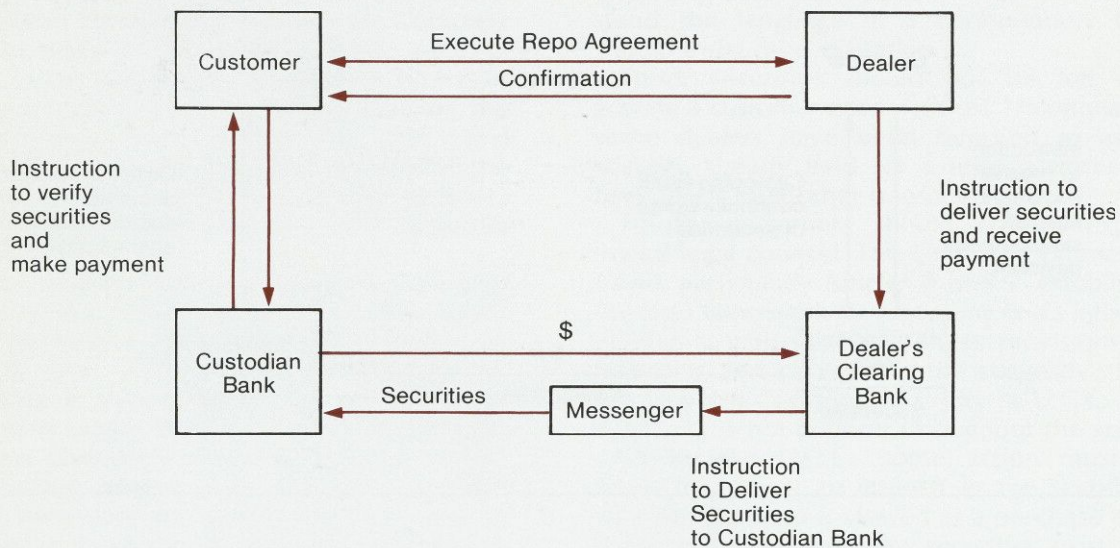


Chart 3. Three-Party Repo

Repo transaction with transfer of securities by dealer's clearing bank from dealer's account to customer's account

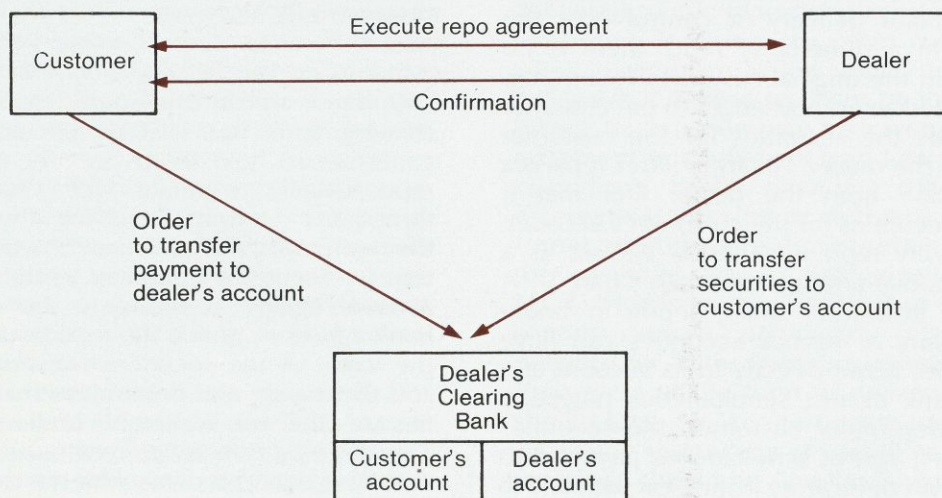
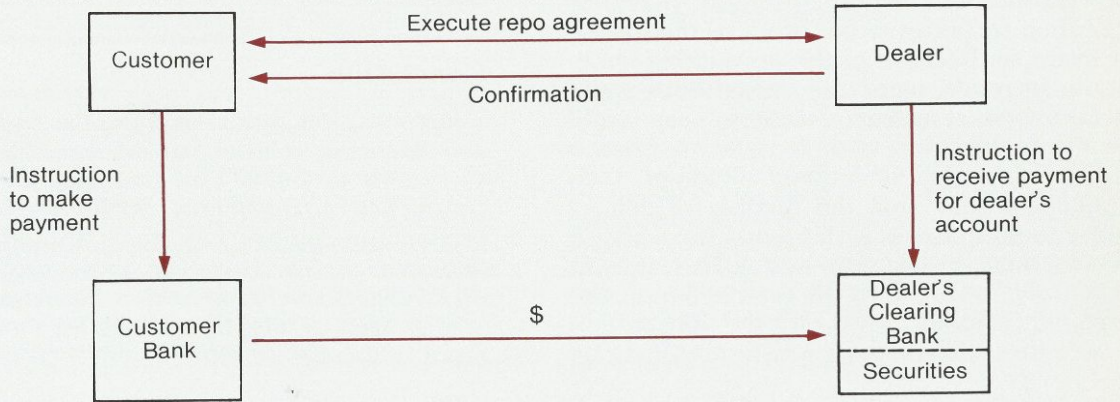


Chart 4. Letter Repo

Repo transaction without transfer of securities to customer's bank. Securities remain at dealer's clearing bank.



ing bank under a fairly detailed and complex contractual arrangement.

The virtue of the three-party repo is that the fees usually are lower than delivery repos because there are no external transfers of book-entry or physical securities. The custodian bank can assure that securities do not move on either end of the repo transaction until funds are credited. The three-party contract should spell this out. Three-party repo arrangements are likely to become more prevalent because of these advantages. One impediment to their wider use is that the dealer and customer must agree to use the same bank, which might interfere with established banking relations.

Letter repos, which have been involved in recent dealer failures, typically involve a simple advice or confirmation from a dealer that he holds securities on the customer's behalf (see Chart 4). The security may be held directly by the dealer or at his custodian bank. If a custodian bank is involved, it may hold all the dealer's customer securities in a single account. However, even if the accounts are segregated in individual customer's names, the custodian will accept directions only from the dealer. Letter repos have been nicknamed "trust-me

repos" for this reason and have become popular because the absence of transfers or deliveries to other parties reduces costs substantially, allowing dealers to offer better rates.

Are letter repos appropriate for customers of a dealer under any circumstance? From a legal standpoint, if the dealer makes all appropriate segregations, book entries, and confirmations, an interest in the securities probably will be conveyed to the customer. The customer should consult with counsel experienced in the U.C.C. and verify this for his particular situation. However, letter repos do not allow customers to protect themselves from subsequent wrongful transfers of the purchased securities. Such transfers can cut off customers' interest in those securities. Under a letter repo, someone who holds or controls a customer's securities can sell them if he wants to do so.

Customers planning to do a letter repo should assure themselves that their dealer's financial integrity and the procedures followed are unassailable and that legal counsel has approved. Customers also should ask counsel whether any statutes or regulations limit their authority to engage in these kinds of transactions.

Special Considerations

Two topics of particular concern to customers who accept securities from dealers should be dealt with in a reverse repo agreement: resale and substitution. Some customers may not want their securities to be resold by the dealer, for example, because of the accounting implications of resale, particularly when book value exceeds market value.⁶ Customers can avoid this risk by including in their agreement prohibitions against substitutions, although such prohibitions may limit the number of dealers willing to do business with them. Conversely, if reverse repo customers need to be able to reclaim securities during the term of a repo, the agreement should provide for the substitution of securities. Constraining substitution may be

a problem if customers have not restricted their counterparty's right to resell in the first instance. Parties engaging in reverse repos also should consider other issues, such as the potential for margin losses and accrued interest calculation. These are discussed elsewhere in this issue.

Conclusion

In conclusion, repos are a flexible investment and financing vehicle that involve little risk if structured properly. The custodial and other contractual arrangements outlined constitute prudent procedures customers should follow to minimize risk. However, these procedures do involve costs that, in terms of bank and legal fees as well as internal man hours, may make repos unsuitable for some potential customers.

APPENDIX

Summary of Case Law

The most uncertain legal issue regarding repurchase agreements is their characterization as either purchases and sales or secured loans, since the case law is in conflict.⁷ Decisions have relied heavily on specifics, such as terms of the agreements, the parties' intent, and structure of the transaction. This characterization is important in the following contexts.

Bankruptcy or Insolvency⁸

A securities holder's rights to assume ownership and control by retaining or selling securities after a repo default are unclear. The buyer will have the full rights of an owner if the agreement is characterized as a purchase and sale, while he will have the rights of a secured creditor with only a security interest in the securities if characterized as a secured loan. *Gilmore v. State Board of Administration of Florida*⁹ holds that "although there were some minor characteristics of a secured loan, (the repurchase transaction) at issue was in reality an actual purchase and sale of securities subject to the (seller's) agreement to repurchase..." The appellate court upheld this ruling, notwithstanding the buyer's use of loan terminology for its internal records. However, the court found no intention "to create a permanent sale with a buy-back option," but it also found the agreement was not intended to "effectuate a security interest."¹⁰ Thus, this bankruptcy court viewed the repo as a limited duration investment, leaving future decisions regarding repos to be made according to the circumstances. *Lombard-Wall Incorporated v. Columbus Bank & Trust Company, et al.*,¹¹ directly addressed the issue in deciding that the

securities holder under a repurchase agreement was subject to the Bankruptcy Code's automatic stay and could not dispose of the securities without the court's approval. (See Memorandum of Law in Support of Federal Reserve's Motion to Intervene as *Amicus Curiae* and Brief as *Amicus Curiae*, in *Lombard-Wall*).

Recent amendments to the Bankruptcy Code clarified the buyer's rights when a bankrupt seller becomes unable to repurchase by granting the buyer the right to liquidate. See P.L. No. 98-353 Sections 101(38), 101(39), 362(b)(7), 559 (July 10, 1984), which held that an automatic stay was inapplicable to repo agreements. However, while these amendments protect the repo buyer's rights in a bankruptcy, the central issue has been sidestepped. Of importance is whether a repo is characterized as a sale-repurchase or a secured loan when the transaction involves institutions not subject to the Bankruptcy Code, when a contract to repurchase is breached by a party who is not bankrupt or insolvent, or when a failed dealer was a custodian safekeeping securities for others.

Tax Decisions

For income tax purposes, courts generally have accepted an accounting characterization of repos as secured loans rather than as sale and repurchase agreements, taxing the interest income received by a buyer even when the securities involved are tax-free state, county, or municipal obligations. In determining that the taxpayer was a secured lender and not, in substance, an owner of the securities, the courts have considered, *inter alia* that the buyer bore no risk of market fluctuation,¹² that the buyer was paid interest

only for the advance of its funds,¹³ and that the seller exercised complete dominion over the securities.¹⁴

Repos, however, also have been characterized as sale and purchase transactions for tax purposes when here is no obligation to resell,¹⁵ or when the buyer bears the risk of loss due to market fluctuations.¹⁶ Therefore, in the tax context as well as in the bankruptcy context, the decisions are fact specific.

Securities Acts

The characterization of a repo as an "offer or sale" (15 U.S.C.A. Section 77 q(a) (1981)) or "purchase or sale" (15 U.S.C.A. Section 78j(b) (1981)) of securities within the respective meanings of the Securities Act of 1933 and the Securities and Exchange Act of 1934 is also unclear. That leaves open the question of whether the transactions satisfy the securities acts' jurisdictional prerequisites. The Tenth Circuit assumed that a repo is a purchase or sale under anti-fraud provisions of the securities acts; arguably the court thus characterized the transaction as a purchase and sale rather

than as a collateralized loan.^{17, 18, 19, 20} But see *Lombard-Wall Incorporated v. Union Planters National Bank of Memphis* (available on Lexis, Genfed File) (S.D.N.Y. 1985) ("Since the transaction in issue was, in substance, a loan secured by securities, we question whether the Securities Act is applicable" n. 6); The Fifth Circuit admitted that the characterization in the securities area is typically one of fact, not of law.^{21, 22, 23}

Other Contexts

In determining whether repos were unenforceable as beyond certain institutions' authority, a line of cases has characterized repos as sales and repurchases rather than loans.^{24, 25, 26} Yet in resolving competing claims to the proceeds from a sale of securities, the court characterized a repo as "essentially a short-term collateralized loan although it is in the form of a sale."²⁷ Additionally, the New York Court of Appeals characterized a reverse repo as, in essence, a loan transaction in which "...the securities themselves serve as collateral for the loan."²⁸

NOTES

¹See Bobbie H. McCrackin, A.E. Martin III, and William B. Estes III, "State and Local Governments' Use of Repos: A Southeastern Perspective," this issue.

²See Sheila L. Tschinkel, "Identifying and Controlling Market Risk," this issue.

³See Gary Haberman and Catherine Piche, "Controlling Market Risk Associated With Repos: Know Your Counterparty," this issue.

⁴See Tschinkel's, "Market Risk," this issue.

⁵See Richard Syron and Sheila L. Tschinkel, "The Government Securities Market: Playing Field For Repos," this issue.

⁶Accounting rules on this issue are rather subtle, and customers in this situation should seek professional advice.

⁷This general summary of some of the important legal issues involved in repurchase agreements is not a definitive statement of the law.

⁸For a comprehensive review of the repo insolvency issue, see William J. Perlstein, "When Government Securities Dealers Fail: An Overview of the Repo Insolvency Issue," in *Bank Compliance*. New York: American Bankers Association, 1985.

⁹*Gilmore v. State Board of Administration of Florida*, No. 78-1794 (Fla. Cir. Ct. July 24, 1979) *aff'd* 382 So. 2d 861 (Fla. Dist. Ct. App. 1980).

¹⁰*Financial Corporation v. Occidental Petroleum Corporation*, 1B.R. 522 (W.D. MO. 1979), *aff'd* 634 F. 2d 404 (8th Cir. 1980).

¹¹*Lombard-Wall Incorporated v. Columbus Bank & Trust Company, et al.*, No. 82 B 11556, Bankr. Ct., S.D.N.Y., bench decision, September 16, 1982.

¹²*Union Planters National Bank of Memphis v. United States*, 426 F.2d 115, 118 (6th Cir. 1970), *cert. denied* 400 U.S. 827 (1970).

¹³*First American National Bank of Nashville v. United States*, 467 F.2d 1098, 1101 (6th Cir. 1972).

¹⁴*American National Bank of Austin v. United States*, 421 F. 2d 442, 452 (5th Cir. 1970), *cert. denied* 400 U.S. 819 (1970).

¹⁵*Citizens National Bank of Waco v. United States*, 551 F. 2d 832 (Ct. Cl. 1977).

¹⁶*American National Bank of Austin v. United States*, 573 F. 2d 1201, 1207 (Ct. Cl. 1978).

¹⁷*Hadsell v. Hoover*, 484 F. 2d 123, 127 (10th Cir. 1973).

¹⁸*Securities and Exchange Commission v. Drysdale Securities Corporation*, Fed. Sec. L. Rep. (CCH) paragraph 91, 985 (S.D.N.Y.: 1985).

¹⁹*Cosmopolitan Credit & Investment Corporation v. Blyth Eastman Dillon & Company*, 507 F. Supp. 954 (S.D. Fla. 1981).

²⁰*Securities and Exchange Commission v. Miller*, 495 F. Supp. 465 (S.D.N.Y. 1980).

²¹*Coronado Credit Union, Inc. v. Bevil, Bresler & Schulman, Inc.*, Fed. Sec. L. Rep. (CCH) paragraphs 99, 715, and 99, 877 n. 5 (D.N.M. 1983).

²²*United States v. Erikson*, 601 F. Supp. 296, 300 (7th Cir. 1979), *cert. denied* 444 U.S. 979 (1979).

²³*First National Bank of Las Vegas v. Estate of Russell*, 657 F. 2d 668 (5th Circuit 1981).

²⁴*Awotin v. Atlas Exchange Bank*, 295 U.S. 209 (1935).

²⁵*Litwin v. Allen*, 25 N.Y.S. 2d 667 (1940).

²⁶*Rothschild v. Manufacturers Trust Company*, 279 N.Y. 355 (1939).

²⁷*Westchester County Savings & Loan Association v. Legel, Braswell Government Securities Corporation*, 648 F. 2d 321, 324 N. 5 (5th Cir. 1981).

²⁸*Ehrlich-Bober & Company v. University of Houston*, 49 N.Y. 2d 574, 577, 404 N.E. 2d 729, 427 N.Y.S. 2d 604 (1980).

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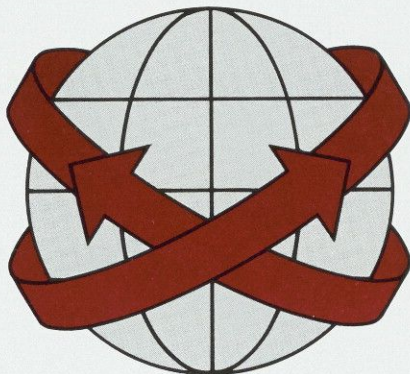
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	JUL 1985	JUN 1985	JUL 1984	ANN. % CHG.		JUL 1985	JUN 1985	JUL 1984	ANN. % CHG.
UNITED STATES									
Commercial Bank Deposits	1,517,482	1,506,892	1,380,284	+10	Savings & Loans**				
Demand	331,856	326,818	314,187	+ 6	Total Deposits	735,387	731,769	674,306	+ 9
NOW	103,183	102,500	88,711	+16	NOW	24,233	24,283	19,742	+23
Savings	419,644	412,659	358,996	+17	Savings	172,105	170,623	170,782	+ 1
Time	707,172	709,551	659,078	+ 7	Time	541,414	539,876	485,834	+11
Credit Union Deposits	64,267	63,305	52,997	+21	JUN		MAY	JUN	
Share Drafts	7,272	7,246	5,526	+32	Mortgages Outstanding	623,275	617,574	563,375	+11
Savings & Time	56,985	56,358	47,264	+21	Mortgage Commitments	39,956	40,705	47,754	-16
SOUTHEAST									
Commercial Bank Deposits	150,017	149,617	157,580	- 5	Savings & Loans				
Demand	52,432	52,561	36,336	+44	Total Deposits	95,136	95,230	N.A.	
NOW	18,868	18,778	11,402	+65	NOW	3,673	4,564	N.A.	
Savings	53,353	51,361	40,807	+31	Savings	21,143	21,030	N.A.	
Time	71,691	71,565	73,111	- 2	Time	72,600	70,986	N.A.	
Credit Union Deposits	5,926	5,533	6,209	- 5	JUN		MAY	JUN	
Share Drafts	674	670	504	+34	Mortgages Outstanding	79,181	78,571	70,986	+12
Savings & Time	6,475	6,394	5,498	+18	Mortgage Commitments	4,872	4,791	5,424	-11
ALABAMA									
Commercial Bank Deposits	18,336	18,237	16,455	+11	Savings & Loans**				
Demand	3,878	4,007	3,712	+ 4	Total Deposits	5,784	6,335	5,436	+ 6
NOW	1,312	1,296	1,021	+29	NOW	219	216	158	+39
Savings	3,685	3,640	3,322	+11	Savings	1,062	1,043	877	+22
Time	9,942	9,839	8,851	+12	Time	5,132	5,116	4,441	+16
Credit Union Deposits	1,124	1,097	974	+15	JUN		MAY	JUN	
Share Drafts	121	120	97	+25	Mortgages Outstanding	4,484	4,411	4,165	+ 8
Savings & Time	937	930	843	+11	Mortgage Commitments	333	349	222	+ 5
FLORIDA									
Commercial Bank Deposits	63,287	63,023	55,623	+14	Savings & Loans**				
Demand	13,618	13,827	12,792	+ 6	Total Deposits	61,062	60,891	57,273	+ 7
NOW	5,642	5,658	4,717	+20	NOW	2,460	3,365	2,155	+14
Savings	21,678	21,543	19,201	+13	Savings	14,318	14,281	14,687	- 3
Time	23,999	23,832	20,161	+19	Time	44,285	44,156	40,425	+10
Credit Union Deposits	3,302	3,247	2,728	+21	JUN		MAY	JUN	
Share Drafts	341	339	272	+25	Mortgages Outstanding	47,453	46,959	41,759	+14
Savings & Time	2,822	2,780	2,300	+23	Mortgage Commitments	3,276	3,206	3,386	- 3
GEORGIA									
Commercial Bank Deposits	27,743	27,426	24,109	+15	Savings & Loans				
Demand	7,895	7,878	7,363	+ 7	Total Deposits	8,387	8,282	8,020	+ 5
NOW	1,792	1,770	1,506	+19	NOW	384	375	266	+44
Savings	7,223	7,110	5,498	+31	Savings	1,874	1,853	1,787	+ 5
Time	12,399	12,315	10,993	+13	Time	6,272	6,225	6,075	+ 3
Credit Union Deposits	1,504	1,477	1,303	+15	JUN		MAY	JUN	
Share Drafts	109	110	82	+33	Mortgages Outstanding	9,419	9,426	8,798	+ 7
Savings & Time	1,405	1,383	1,213	+16	Mortgage Commitments	416	410	489	-15
LOUISIANA									
Commercial Bank Deposits	28,179	28,231	25,881	+ 9	Savings & Loans**				
Demand	5,520	5,582	5,689	- 3	Total Deposits	10,966	10,832	9,540	+15
NOW	1,682	1,687	1,502	+12	NOW	313	313	236	+33
Savings	7,884	6,240	5,533	+42	Savings	2,306	2,286	2,275	+ 1
Time	15,132	15,248	13,688	+11	Time	8,499	8,376	7,150	+19
Credit Union Deposits	189	188	211	-10	JUN		MAY	JUN	
Share Drafts	17	17	23	-27	Mortgages Outstanding	9,457	9,368	8,766	+ 8
Savings & Time	184	182	207	-12	Mortgage Commitments	354	337	724	-51
MISSISSIPPI									
Commercial Bank Deposits	13,063	13,062	12,147	+ 8	Savings & Loans				
Demand	2,469	2,491	2,352	+ 5	Total Deposits	1,906	1,879	N.A.	
NOW	914	919	829	+10	NOW	56	55	N.A.	
Savings	2,531	2,503	2,402	+ 5	Savings	310	307	N.A.	
Time	7,457	7,472	6,880	+ 8	Time	1,595	1,569	N.A.	
Credit Union Deposits	N.A.	N.A.	N.A.		JUN		MAY	JUN	
Share Drafts	N.A.	N.A.	N.A.		Mortgages Outstanding	2,156	2,149	2,059	+ 7
Savings & Time	N.A.	N.A.	N.A.		Mortgage Commitments	285	263	223	+28
TENNESSEE									
Commercial Bank Deposits	25,360	25,294	23,365	+ 9	Savings & Loans**				
Demand	4,594	4,546	4,428	+ 4	Total Deposits	7,031	7,011	6,938	+ 1
NOW	2,095	2,108	1,827	+15	NOW	241	240	191	+26
Savings	5,176	5,120	4,851	+ 7	Savings	1,273	1,260	1,293	- 2
Time	13,657	13,697	12,538	+ 9	Time	6,817	5,544	5,495	+24
Credit Union Deposits	1,202	1,191	993	+21	JUN		MAY	JUN	
Share Drafts	86	84	67	+28	Mortgages Outstanding	6,212	6,258	5,439	+14
Savings & Time	1,127	1,119	935	+21	Mortgage Commitments	208	226	380	-46

Notes: All deposit data are extracted from the Federal Reserve Report of Transaction Accounts, other Deposits and Vault Cash (FR2900), and are reported for the average of the week ending the 1st Monday of the month. This data, reported by institutions with over \$15 million in deposits and \$2.2 million of reserve requirements as of June 1984, represents 95% of deposits in the six state area. The annual rate of change is based on most recent data over December 31, 1980 base, annualized. The major differences between this report and the "call report" are size, the treatment of interbank deposits, and the treatment of float. The data generated from the Report of Transaction Accounts is for banks over \$15 million in deposits as of December 31, 1979. The total deposit data generated from the Report of Transaction Accounts eliminates interbank deposits by reporting the net of deposits "due to" and "due from" other depository institutions. The Report of Transaction Accounts subtracts cash in process of collection from demand deposits, while the call report does not. Savings and loan mortgage data are from the Federal Home Loan Bank Board Selected Balance Sheet Data. The Southeast data represent the total of the six states. Subcategories were chosen on a selective basis and do not add to total.

* = fewer than four institutions reporting.

1984 Year and S&L deposits subject to revisions due to reporting changes and are therefore not completely comparable with current data.



CONSTRUCTION

	JUN 1985	MAY 1985	JUN 1984	ANN. % CHG.		JUN 1985	MAY 1985	JUN 1984	ANN. % CHG.
UNITED STATES									
Nonresidential Building Permits - \$ Mil.					Residential Building Permits				
Total Nonresidential	64,639	64,751	57,260	+ 13	Value - \$ Mil.	75,280	75,155	74,849	+ 1
Industrial Bldgs.	8,566	8,635	7,468	+ 15	Residential Permits - Thous.				
Offices	16,485	16,307	13,777	+ 20	Single-family units	897.0	899.6	942.2	- 5
Stores	10,027	10,128	8,536	+ 17	Multifamily units	727.7	739.6	772.3	- 6
Hospitals	2,025	1,994	1,874	+ 8	Total Building Permits				
Schools	1,127	1,191	829	+ 36	Value - \$ Mil.	139,919	139,906	132,109	+ 6
SOUTHEAST									
Nonresidential Building Permits - \$ Mil.					Residential Building Permits				
Total Nonresidential	10,065	9,991	8,899	+ 13	Value - \$ Mil.	13,635	13,600	14,159	- 4
Industrial Bldgs.	1,040	1,010	887	+ 17	Residential Permits - Thous.				
Offices	2,438	2,372	2,040	+ 20	Single-family units	187.3	186.2	193.6	- 3
Stores	2,018	2,040	1,662	+ 21	Multifamily units	159.1	164.5	184.6	- 14
Hospitals	372	357	479	- 22	Total Building Permits				
Schools	115	111	117	- 2	Value - \$ Mil.	23,700	23,590	23,057	+ 3
ALABAMA									
Nonresidential Building Permits - \$ Mil.					Residential Building Permits				
Total Nonresidential	646	664	725	- 11	Value - \$ Mil.	477	476	479	- 0
Industrial Bldgs.	68	90	180	- 63	Residential Permits - Thous.				
Offices	122	121	81	+ 51	Single-family units	9.1	9.0	8.3	+ 10
Stores	139	135	110	+ 26	Multifamily units	6.4	6.8	9.1	- 30
Hospitals	51	51	13	+292	Total Building Permits				
Schools	9	9	8	+ 13	Value - \$ Mil.	1,123	1,140	1,203	- 7
FLORIDA									
Nonresidential Building Permits - \$ Mil.					Residential Building Permits				
Total Nonresidential	5,111	5,021	4,290	+ 19	Value - \$ Mil.	7,746	7,741	8,230	- 6
Industrial Bldgs.	559	542	413	+ 35	Residential Permits - Thous.				
Offices	1,102	1,066	907	+ 21	Single-family units	99.9	99.0	105.8	- 6
Stores	1,156	1,154	957	+ 21	Multifamily units	96.2	98.5	101.0	- 5
Hospitals	183	163	223	- 18	Total Building Permits				
Schools	40	42	43	- 7	Value - \$ Mil.	12,857	12,762	12,520	+ 3
GEORGIA									
Nonresidential Building Permits - \$ Mil.					Residential Building Permits				
Total Nonresidential	1,821	1,845	1,632	+ 12	Value - \$ Mil.	2,843	2,861	2,732	+ 4
Industrial Bldgs.	272	241	176	+ 55	Residential Permits - Thous.				
Offices	493	521	554	- 11	Single-family units	44.3	44.1	43.5	+ 2
Stores	290	310	221	+ 31	Multifamily units	23.1	24.2	27.6	- 16
Hospitals	29	32	61	- 52	Total Building Permits				
Schools	16	15	17	- 6	Value - \$ Mil.	4,664	4,705	4,364	+ 7
LOUISIANA									
Nonresidential Building Permits - \$ Mil.					Residential Building Permits				
Total Nonresidential	1,310	1,278	1,165	+ 12	Value - \$ Mil.	848	879	1,177	- 28
Industrial Bldgs.390	46	46	30	+ 53	Residential Permits - Thous.				
Offices	390	342	329	+ 19	Single-family units	12.4	12.7	16.5	- 25
Stores	239	245	175	+ 37	Multifamily units	8.9	9.6	17.7	- 50
Hospitals	64	69	149	- 57	Total Building Permits				
Schools	37	35	41	- 10	Value - \$ Mil.	2,158	2,157	2,342	- 8
MISSISSIPPI									
Nonresidential Building Permits - \$ Mil.					Residential Building Permits				
Total Nonresidential	242	250	243	- 0	Value - \$ Mil.	352	368	373	- 6
Industrial Bldgs.	14	13	14	0	Residential Permits - Thous.				
Offices	45	42	27	+ 67	Single-family units	6.2	6.4	5.6	+ 11
Stores	48	47	53	- 9	Multifamily units	3.5	3.7	6.0	- 42
Hospitals	6	8	14	- 57	Total Building Permits				
Schools	5	5	1	+400	Value - \$ Mil.	594	618	617	- 4
TENNESSEE									
Nonresidential Building Permits - \$ Mil.					Residential Building Permits				
Total Nonresidential	936	933	844	+ 11	Value - \$ Mil.	1,369	1,275	1,168	+ 17
Industrial Bldgs.	81	78	74	+ 9	Residential Permits - Thous.				
Offices	286	280	142	+101	Single-family units	15.4	15.0	13.9	+ 11
Stores	146	149	146	0	Multifamily units	21.0	21.7	23.2	- 9
Hospitals	39	34	19	+105	Total Building Permits				
Schools	8	5	7	+ 14	Value - \$ Mil.	2,304	2,208	2,011	+ 15

NOTES: Data supplied by the U. S. Bureau of the Census, Housing Units Authorized By Building Permits and Public Contracts, C-40. Nonresidential data excludes the cost of construction for publicly owned buildings. The southeast data represent the total of the six states. The annual percent change calculation is based on the most recent month over prior year. Publication of F. W. Dodge construction contracts has been discontinued.



GENERAL

		LATEST DATA	CURR. PERIOD	PREV. PERIOD	YEAR AGO	ANN. % CHG.		JUL 1985	JUN 1985	JUL 1984	ANN. % CHG.
UNITED STATES											
Personal Income (\$bil. - SAAR)	1Q	3,129.1		3,082.9	2,906.5	+ 8	Agriculture				
Taxable Sales - \$bil.		N.A.		N.A.	N.A.		Prices Rec'd by Farmers				
Plane Pass. Arr. (000's)							Index (1977=100)	127	128	145	-12
Petroleum Prod. (thous.)	JUN	8,975.1		9,031.8	8,688.6	+ 3	Broiler Placements (thous.)	86,858	90,145	83,960	+ 3
Consumer Price Index							Calf Prices (\$ per cwt.)	60.70	62.60	58.50	+ 4
1967=100	JUL	322.8		322.3	311.7	+ 4	Broiler Prices (\$ per lb.)	30.60	31.10	35.50	-14
Kilowatt Hours - mils.	MAY	177.6		177.3	175.6	+ 1	Soybean Prices (\$ per bu.)	5.52	5.62	6.95	-21
							Broiler Feed Cost (\$ per ton)	196	198	233	-16
SOUTHEAST											
Personal Income (\$bil. - SAAR)	1Q	381.7		375.9	351.5	+ 9	Agriculture				
Taxable Sales - \$bil.		N.A.		N.A.	N.A.		Prices Rec'd by Farmers				
Plane Pass. Arr. (000's)	MAY	5,037.1		5,248.3	4,455.9	+13	Index (1977=100)	121	123	139	-13
Petroleum Prod. (thous.)	JUN	1,509.0		1,517.0	1,482.0	+ 2	Broiler Placements (thous.)	33,358	35,026	31,861	+ 5
Consumer Price Index							Calf Prices (\$ per cwt.)	58.94	58.53	54.78	+ 8
1967=100		N.A.		N.A.	N.A.		Broiler Prices (\$ per lb.)	29.89	30.02	34.32	-13
Kilowatt Hours - mils.	MAY	28.5		27.0	28.2	+ 1	Soybean Prices (\$ per bu.)	5.67	5.72	6.77	-16
							Broiler Feed Cost (\$ per ton)	190	192	237	-20
ALABAMA											
Personal Income (\$bil. - SAAR)	1Q	41.1		40.7	38.6	+ 6	Agriculture				
Taxable Sales - \$bil.		N.A.		N.A.	N.A.		Farm Cash Receipts - \$ mil.				
Plane Pass. Arr. (000's)	MAY	147.8		124.9	120.3	+23	(Dates: JUL, JUL)	N.A.	-	1,066	
Petroleum Prod. (thous.)	JUN	57.0		58.0	51.0	+12	Broiler Placements (thous.)	11,244	11,883	10,723	+ 5
Consumer Price Index							Calf Prices (\$ per cwt.)	58.20	56.80	53.40	+ 9
1967=100		N.A.		N.A.	N.A.		Broiler Prices (\$ per lb.)	29.00	29.50	32.50	-11
Kilowatt Hours - mils.	MAY	3.7		3.6	3.7	0	Soybean Prices (\$ per bu.)	5.63	5.73	6.60	-15
							Broiler Feed Cost (\$ per ton)	191	192	240	-20
FLORIDA											
Personal Income (\$bil. - SAAR)	1Q	145.4		142.9	131.7	+ 6	Agriculture				
Taxable Sales - \$bil.	JUN	88.4		87.6	79.1	+12	Farm Cash Receipts - \$ mil.				
Plane Pass. Arr. (000's)	MAY	2,258.7		2,598.2	2,296.5	- 2	(Dates: JUL, JUL)	N.A.	-	3,104	
Petroleum Prod. (thous.)	JUN	35.0		36.0	42.0	-17	Broiler Placements (thous.)	2,065	2,159	1,918	+ 8
Consumer Price Index							Calf Prices (\$ per cwt.)	64.50	63.00	59.30	+ 9
1967=100	JUL	171.4		171.0	167.0	+ 3	Broiler Prices (\$ per lb.)	30.00	30.00	34.00	-12
Kilowatt Hours - mils.	MAY	8.1		7.6	8.0	+ 1	Soybean Prices (\$ per bu.)	5.63	5.73	6.60	-15
							Broiler Feed Cost (\$ per ton)	230	235	255	-10
GEORGIA											
Personal Income (\$bil. - SAAR)	1Q	70.6		69.4	64.2	+10	Agriculture				
Taxable Sales - \$bil.		N.A.		N.A.	N.A.		Farm Cash Receipts - \$ mil.				
Plane Pass. Arr. (000's)	MAY	2,104.8		2,019.1	1,801.0	+17	(Dates: JUL, JUL)	N.A.	-	1,595	
Petroleum Prod. (thous.)		N.A.		N.A.	N.A.		Broiler Placements (thous.)	13,634	14,341	12,860	+ 6
Consumer Price Index							Calf Prices (\$ per cwt.)	55.10	56.80	52.00	+ 6
1967=100	JUN	328.0		324.6	314.0	+ 4	Broiler Prices (\$ per lb.)	29.50	29.50	34.60	-15
Kilowatt Hours - mils.	MAY	4.8		4.3	4.5	+ 7	Soybean Prices (\$ per bu.)	5.70	5.78	6.86	-17
							Broiler Feed Cost (\$ per ton)	195	200	255	-24
LOUISIANA											
Personal Income (\$bil. - SAAR)	1Q	49.6		49.1	46.9	+ 6	Agriculture				
Taxable Sales - \$bil.		N.A.		N.A.	N.A.		Farm Cash Receipts - \$ mil.				
Plane Pass. Arr. (000's)	MAY	290.7		293.4	330.0	-12	(Dates: JUL, JUL)	N.A.	-	566	
Petroleum Prod. (thous.)	JUN	1,331.0		1,335.0	1,299.0	+ 2	Broiler Placements (thous.)	N.A.	N.A.	N.A.	
Consumer Price Index							Calf Prices (\$ per cwt.)	61.00	62.40	56.50	+ 8
1967=100		N.A.		N.A.	N.A.		Broiler Prices (\$ per lb.)	31.0	30.5	35.5	-13
Kilowatt Hours - mils.	MAY	4.7		4.3	4.7	0	Soybean Prices (\$ per bu.)	5.63	5.42	6.90	-18
							Broiler Feed Cost (\$ per ton)	250	245	270	- 7
MISSISSIPPI											
Personal Income (\$bil. - SAAR)	1Q	23.9		23.4	22.6	+ 6	Agriculture				
Taxable Sales - \$bil.		N.A.		N.A.	N.A.		Farm Cash Receipts - \$ mil.				
Plane Pass. Arr. (000's)	MAY	38.5		34.9	35.2	+ 9	(Dates: JUL, JUL)	N.A.	-	872	
Petroleum Prod. (thous.)	JUN	86.0		88.0	90.0	- 4	Broiler Placements (thous.)	6,414	6,643	6,376	+ 1
Consumer Price Index							Calf Prices (\$ per cwt.)	61.00	58.50	54.70	+12
1967=100		N.A.		N.A.	N.A.		Broiler Prices (\$ per lb.)	32.00	32.00	36.50	-12
Kilowatt Hours - mils.	MAY	2.0		1.8	1.9	+ 5	Soybean Prices (\$ per bu.)	5.70	5.85	6.73	-15
							Broiler Feed Cost (\$ per ton)	154	154	188	-18
TENNESSEE											
Personal Income (\$bil. - SAAR)	1Q	51.1		50.4	47.4	+ 8	Agriculture				
Taxable Sales - \$bil.		N.A.		N.A.	N.A.		Farm Cash Receipts - \$ mil.				
Plane Pass. Arr. (000's)	MAY	196.6		177.8	169.9	+16	(Dates: JUL, JUL)	N.A.	-	873	
Petroleum Prod. (thous.)		N.A.		N.A.	N.A.		Broiler Placements (thous.)	N.A.	N.A.	N.A.	
Consumer Price Index							Calf Prices (\$ per cwt.)	53.90	56.70	52.70	+ 2
1967=100		N.A.		N.A.	N.A.		Broiler Prices (\$ per lb.)	28.50	28.50	34.50	-17
Kilowatt Hours - mils.	MAY	5.2		5.4	5.4	- 4	Soybean Prices (\$ per bu.)	5.68	5.85	6.79	-16
							Broiler Feed Cost (\$ per ton)	173	173	205	-16

NOTES: Personal Income data supplied by U. S. Department of Commerce. Taxable Sales are reported as a 12-month cumulative total. Plane Passenger Arrivals are collected from 26 airports. Petroleum Production data supplied by U. S. Bureau of Mines. Consumer Price Index data supplied by Bureau of Labor Statistics. Agriculture data supplied by U. S. Department of Agriculture. Farm Cash Receipts data are reported as cumulative for the calendar year through the month shown. Broiler placements are an average weekly rate. The Southeast data represent the total of the six states. N. A. = not available. The annual percent change calculation is based on most recent data over prior year.

R = revised.



EMPLOYMENT

	JUN 1985	MAY 1985	JUN 1984	ANN. % CHG.		JUN 1985	MAY 1985	JUN 1984	ANN. % CHG.
MISSISSIPPI									
Civilian Labor Force - thous.	116,572	114,890	115,393	+ 1	Nonfarm Employment - thous.	98,376	97,752	95,182	+ 3
Total Employed - thous.	107,819	106,880	106,812	+ 1	Manufacturing	19,524	19,409	19,585	- 0
Total Unemployed - thous.	8,753	8,011	8,582	+ 2	Construction	4,849	4,674	4,526	+ 7
Unemployment Rate - % SA	7.3	7.3	7.2		Trade	23,355	23,095	22,207	+ 5
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	16,258	16,510	16,048	+ 1
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	22,066	21,895	20,881	+ 6
Mfg. Avg. Wkly. Hours	40.6	40.3	40.8	- 0	Fin., Ins. & Real. Est.	5,971	5,886	5,738	+ 4
Mfg. Avg. Wkly. Earn. - \$	386	382	373	+ 3	Trans. Com. & Pub. Util.	5,366	5,307	5,209	+ 3
MISSOURI									
Civilian Labor Force - thous.	15,274	15,166	14,999	+ 2	Nonfarm Employment - thous.	12,721	12,710	12,322	+ 3
Total Employed - thous.	14,023	14,098	13,776	+ 2	Manufacturing	2,304	2,299	2,328	- 1
Total Unemployed - thous.	1,251	1,087	1,219	+ 3	Construction	782	769	767	+ 2
Unemployment Rate - % SA	8.1	7.4	8.0		Trade	3,144	3,131	2,976	+ 6
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	2,227	2,265	2,176	+ 2
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	2,673	2,664	2,526	+ 6
Mfg. Avg. Wkly. Hours	41.1	40.7	41.1	0	Fin., Ins. & Real. Est.	727	721	697	+ 4
Mfg. Avg. Wkly. Earn. - \$	348	343	326	+ 7	Trans. Com. & Pub. Util.	734	732	720	+ 2
NEBRASKA									
Civilian Labor Force - thous.	1,798	1,802	1,822	- 1	Nonfarm Employment - thous.	1,397	1,401	1,403	- 0
Total Employed - thous.	1,633	1,665	1,621	+ 1	Manufacturing	354	352	367	- 4
Total Unemployed - thous.	165	157	201	-18	Construction	67	66	67	0
Unemployment Rate - % SA	9.4	9.1	11.2		Trade	295	294	291	+ 1
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	294	303	297	- 1
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	232	233	230	+ 1
Mfg. Avg. Wkly. Hours	41.1	40.8	41.3	- 0	Fin., Ins. & Real. Est.	66	65	63	+ 5
Mfg. Avg. Wkly. Earn. - \$	341	339	330	+ 3	Trans. Com. & Pub. Util.	75	73	73	+ 1
NEVADA									
Civilian Labor Force - thous.	5,239	5,219	5,085	+ 3	Nonfarm Employment - thous.	4,417	4,428	4,201	+ 5
Total Employed - thous.	4,877	4,963	4,748	+ 3	Manufacturing	515	518	503	+ 2
Total Unemployed - thous.	362	256	337	+ 7	Construction	331	329	321	+ 3
Unemployment Rate - % SA	6.9	5.2	6.6		Trade	1,165	1,167	1,107	+ 5
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	685	695	648	+ 6
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	1,145	1,145	1,068	+ 7
Mfg. Avg. Wkly. Hours	41.1	40.9	41.5	- 1	Fin., Ins. & Real. Est.	315	313	300	+ 5
Mfg. Avg. Wkly. Earn. - \$	322	318	315	+ 2	Trans. Com. & Pub. Util.	251	250	244	+ 3
NEW HAMPSHIRE									
Civilian Labor Force - thous.	2,880	2,851	2,771	+ 4	Nonfarm Employment - thous.	2,608	2,590	2,461	+ 6
Total Employed - thous.	2,677	2,677	2,599	+ 3	Manufacturing	544	543	550	- 1
Total Unemployed - thous.	202	183	172	+17	Construction	151	146	133	+14
Unemployment Rate - % SA	7.0	6.6	6.1		Trade	671	665	600	+12
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	449	452	444	+ 1
Insured Unempl. Rate - %	N.A.	N.A.	N.A.	0	Services	487	480	441	+10
Mfg. Avg. Wkly. Hours	41.2	40.4	41.2	0	Fin., Ins. & Real. Est.	136	134	129	+ 5
Mfg. Avg. Wkly. Earn. - \$	322	318	3125	+ 2	Trans. Com. & Pub. Util.	162	162	155	+ 5
NEW JERSEY									
Civilian Labor Force - thous.	1,981	1,948	1,978	+ 0	Nonfarm Employment - thous.	1,597	1,591	1,611	+ 2
Total Employed - thous.	1,754	1,729	1,779	- 1	Manufacturing	180	180	184	- 2
Total Unemployed - thous.	227	219	198	+15	Construction	113	111	124	- 9
Unemployment Rate - % SA	11.0	11.3	9.5		Trade	381	379	386	- 1
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	325	328	318	+ 2
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	318	314	315	+ 1
Mfg. Avg. Wkly. Hours	41.6	41.2	41.7	- 0	Fin., Ins. & Real. Est.	84	84	84	0
Mfg. Avg. Wkly. Earn. - \$	427	435	416	+ 3	Trans. Com. & Pub. Util.	116	116	120	- 3
NEW YORK									
Civilian Labor Force - thous.	1,114	1,103	1,087	+ 2	Nonfarm Employment - thous.	841	845	822	+ 2
Total Employed - thous.	1,001	1,000	964	+ 4	Manufacturing	221	219	220	+ 0
Total Unemployed - thous.	114	103	123	- 7	Construction	41	40	40	+ 3
Unemployment Rate - % SA	9.5	9.4	10.6		Trade	186	184	176	+ 6
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	182	189	179	+ 2
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	127	129	124	+ 2
Mfg. Avg. Wkly. Hours	40.5	40.4	40.8	- 1	Fin., Ins. & Real. Est.	35	35	34	+ 3
Mfg. Avg. Wkly. Earn. - \$	291	291	283	+ 3	Trans. Com. & Pub. Util.	40	40	39	+ 3
PENNSYLVANIA									
Civilian Labor Force - thous.	2,262	2,243	2,253	+ 0	Nonfarm Employment - thous.	1,861	1,855	1,824	+ 2
Total Employed - thous.	2,081	2,074	2,065	+ 1	Manufacturing	490	487	504	- 3
Total Unemployed - thous.	181	169	188	- 4	Construction	79	77	82	- 4
Unemployment Rate - % SA	7.9	7.7	8.0		Trade	446	442	416	- 7
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	292	298	290	+ 1
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	364	363	348	+ 5
Mfg. Avg. Wkly. Hours	41.3	41.1	41.7	- 1	Fin., Ins. & Real. Est.	91	90	87	+ 5
Mfg. Avg. Wkly. Earn. - \$	338	333	330	+ 2	Trans. Com. & Pub. Util.	91	91	89	+ 2

NOTES: All labor force data are from Bureau of Labor Statistics reports supplied by state agencies.
Only the unemployment rate data are seasonally adjusted.
The Southeast data represent the total of the six states.
The annual percent change calculation is based on the most recent data over prior year.

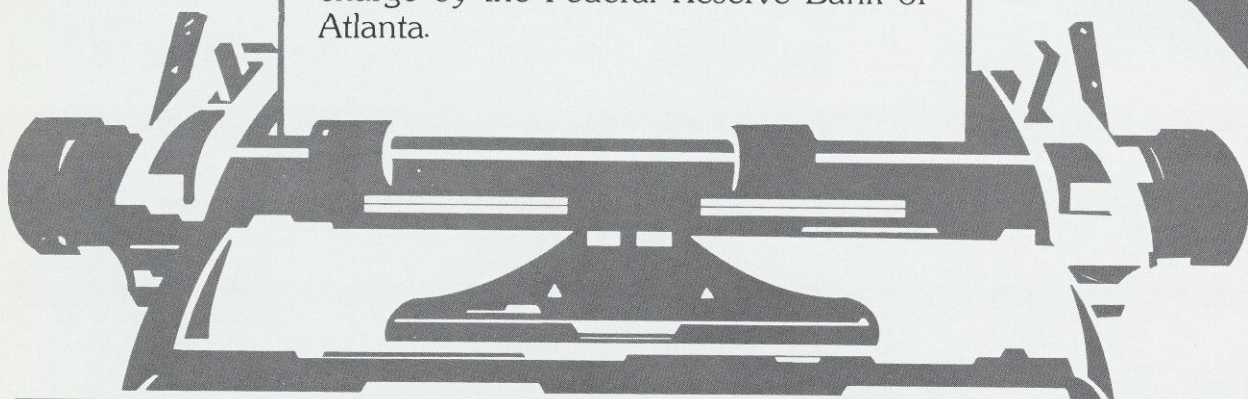
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