

THE EVOLUTION OF REPO CONTRACTING CONVENTIONS IN THE 1980S

- The growth of the repo market, new uses for repos, and the appearance of previously unappreciated risks led to dramatic changes in repo contracting conventions in the 1980s.
- The changes included recognition of accrued interest on repo securities, a revision to how federal bankruptcy law applied to repos, and the faster growth of tri-party repo—a new form of repurchase agreement.
- Individual market participants, motivated largely by profit, hastened the growth of tri-party repo.
- Because uncoordinated, individual solutions would have been too costly, market participants took collective action to bring about the recognition of accrued interest on repo securities and petition Congress to amend federal bankruptcy law.

1. INTRODUCTION

Repurchase agreements, or repos, play an important role in U.S. securities markets. Securities dealers use repos to finance market-making and risk management activities, and the agreements provide a safe and low-cost way for mutual funds, corporations, and others to lend both money and securities. At the end of 2004, primary dealers with a trading relationship with the Federal Reserve Bank of New York were borrowing a total of \$3.2 trillion on repos and lending a total of \$2.4 trillion. Repurchase agreements also play an important role in the implementation of monetary policy—the Federal Reserve uses them to dampen transient fluctuations in the supply of reserves available to the banking system. In 2004, the New York Fed’s Trading Desk arranged 192 overnight repos, with an average size of \$5.9 billion.

A repo is a sale of securities coupled with an agreement to repurchase the securities at a specified price on a later date. It is analogous to a loan, in which the proceeds of the initial sale correspond to the principal amount of the loan and the excess of the repurchase price over the sale price corresponds to the interest paid on the loan. A market participant might, for example, sell securities for \$10 million and simultaneously agree to repurchase them ten days later for \$10,005,555. As Exhibit 1 shows, this is comparable to borrowing \$10 million for ten days at an interest rate of 2 percent per annum. If the borrower fails to repurchase the

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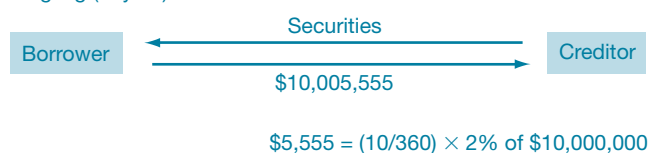
EXHIBIT 1

Borrowing \$10 Million at a 2 Percent Interest Rate on a Ten-Day Repo

Starting leg (day 0)



Closing leg (day 10)



securities, the creditor can sell them to a third party and use the proceeds to satisfy its claim for repayment. Conversely, if the creditor does not return the securities to the borrower, the borrower can use the funds that it otherwise would have repaid to the creditor to replace the securities.¹

Repos have a long history. Federal Reserve Banks used them to extend credit to member banks as early as 1917, when a wartime tax reduced the attractiveness of rediscounting commercial paper.² During the 1920s, the New York Fed used repurchase agreements to extend credit to nonbank dealers in bankers' acceptances to encourage the development of a liquid secondary market for acceptances.³ Repos fell into disuse during the Great Depression and World War II, but reappeared following the restoration of Federal Reserve control of monetary policy in 1951.⁴

Contracting conventions for repurchase agreements hardly changed between the revival of repos in the early 1950s and 1981. However, they began to change dramatically in 1982.

¹See, generally, the Bond Market Association's 1996 Master Repurchase Agreement (<http://www.bondmarkets.com/agrees/master_repo_agreement.pdf>).

²Beckhart, Smith, and Brown (1932, p. 310), Harris (1933, p. 289), and Simmons (1954, p. 25). See also the wartime extension of credit to nonmember banks by the Federal Reserve Bank of New York using repurchase agreements on Treasury certificates of indebtedness (Federal Reserve Bank of New York 1919, pp. 24-5; Beckhart, Smith, and Brown 1932, pp. 310-1).

³Committee on Banking and Currency (1927a, pp. 431-6, testimony of Benjamin Strong, Governor, Federal Reserve Bank of New York), Committee on Banking and Currency (1927b, pp. 930-5 and 981-91, testimony of W. R. Burgess, Assistant Federal Reserve Agent, Federal Reserve Bank of New York), Committee on Banking and Currency (1931, pp. 818-24), Beckhart, Smith, and Brown (1932, pp. 363-4), Hardy (1932, pp. 249-53), Harris (1933, pp. 289-90), and Roosa (1956, p. 25). Additionally, in 1920 the Federal Reserve Bank of New York used repurchase agreements to encourage the development of a liquid secondary market in certificates of indebtedness (Federal Reserve Bank of New York 1921, p. 17; Beckhart, Smith, and Brown 1932, pp. 334-5).

The collapse of Drysdale Government Securities, a midsized dealer, in May of that year led to an important change in the treatment of accrued interest on repo securities. The collapse of a second dealer, Lombard-Wall, three months later prompted an equally important change in the application of federal bankruptcy law to repos. Additional dealer failures in 1984 and 1985 accelerated the growth of a new form of repo, tri-party repo.

This paper examines how repo contracting conventions evolved in the 1980s. In the next section, we consider the revival of repo financing in the 1950s and the contracting conventions associated with that revival. Section 3 describes how the rising level and volatility of interest rates and growing Treasury debt fueled a significant expansion in the size of the repo market in the 1970s and early 1980s, as well as an important change in how market participants used repos. Existing contracting conventions proved inadequate for the expanding and changing market. Sections 4, 5, and 6 describe how new and previously unappreciated risks led participants to modify those conventions.

Understanding how repo contracting conventions evolved in the 1980s is important for two reasons. First, the evolution illustrates how contracting conventions that are efficient in one market environment may need to be revised when the environment changes. The experience with repurchase agreements suggests that revisions may sometimes come slowly and only in the wake of "precipitative events" that focus attention on inefficient practices.⁵ Second, the evolution demonstrates that institutional arrangements can change in a variety of ways. The growth of tri-party repo followed from the autonomous adoption of a more efficient contract form by individual market participants acting in their own economic self-interest. In contrast, the change in the treatment of accrued interest was the result of collective action by the major government securities dealers and the change in bankruptcy law was brought about by market participants seeking relief in the form of Congressional legislation, because in both cases uncoordinated, individual action would have been more costly.

⁴Simmons (1954, p. 26). Between mid-1942 and mid-1947, the Federal Reserve used repurchase agreements to encourage investors to hold Treasury bills at the wartime "posted" rate of 3/8 percent. See Federal Reserve Bank of New York Circular no. 2476 (August 8, 1942), Circular no. 3230 (July 3, 1947), and Simmons (1947, p. 337; 1952, p. 26; and 1954, pp. 27-8). The Federal Reserve reintroduced the use of repurchase agreements for monetary policy purposes in June 1949, but used them only intermittently before 1951 (Simmons 1954, pp. 23-5 and 32-4).

⁵The importance of precipitative events in fostering change was also noted in a recent study of the origins of the Federal Reserve book-entry system (Garbade 2004).

2. REPURCHASE AGREEMENTS AFTER THE TREASURY-FEDERAL RESERVE ACCORD

Monetary policy after the Treasury-Federal Reserve Accord of March 1951 placed renewed emphasis on controlling inflation and reduced emphasis on keeping interest rates low. Nonbank dealers in Treasury securities, almost all of whom were located in New York, began to search for cheaper financing than what was available from the large New York banks that had historically funded most dealer loans. Rising interest rates also gave large state and local governments and nonfinancial corporations an incentive to substitute short-term loans for interest-free bank demand deposits. Minimal risk, operational simplicity, negotiable maturities, and a unique set of contracting conventions made repos ideally suited for both dealer financing desks and institutional cash managers.⁶ Two particularly important contracting conventions involved margin and the allocation of property rights to repo securities.

2.1 Credit Risk and Margin

Credit risk on a repurchase agreement arises when the market value of the underlying securities differs from the principal amount of the repo. (The borrower is also liable for interest but, as suggested by Exhibit 1, this is usually small compared with the principal amount of a repo.)

The creditor bears risk when the value of the repo securities declines below the repo principal, because the proceeds derived from liquidating the securities will not satisfy the creditor's claim if the borrower defaults on its repurchase commitment. To protect against the adverse consequences of a decline in the market value of repo securities, a creditor might request "margin" by, for example, expressing a willingness to lend \$10 million only against securities worth at least \$10.2 million.

Conversely, the borrower bears risk when the value of the repo securities rises above the repo principal, because the principal will not cover the cost to the borrower of replacing the securities if the creditor fails to return them. To protect

⁶Meltzer (2003, pp. 629-716) discusses the shift of control of monetary policy from the Treasury to the Federal Reserve after the end of World War II. Writing shortly before the Accord, Simmons (1951, p. 413) states that probably no more than ten large New York banks accounted for most lending to government securities dealers. The revival and growth of the repo market in the 1950s is noted in Simmons (1954), Roosa (1956, pp. 22 and 47-8), U.S. Treasury and Federal Reserve System (1959, pp. 30 and 32-5), Board of Governors of the Federal Reserve System (1959, pp. 17, 32, 47, and 49), Meltzer and von der Linde (1960, pp. 76-8), U.S. Treasury and Federal Reserve System (1960, pp. 53 and 67-91), Gaines (1962, pp. 213 and 225-6), Willis (1970, pp. 21-7), Lucas, Jones, and Thurston (1977, p. 43), and Smith (1978, p. 355).

against the consequences of a rise in the market value of repo securities, a borrower might request margin by expressing a willingness to borrow \$10 million only against securities worth no more than \$9.8 million.

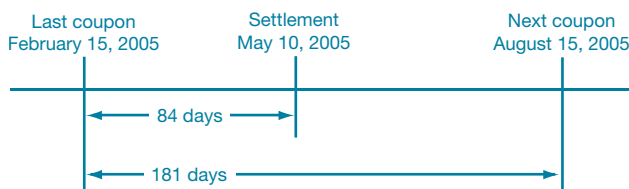
Margin can protect a creditor (that lends \$10 million against securities worth at least \$10.2 million), or it can protect a borrower (that borrows \$10 million against securities worth no more than \$9.8 million), but it cannot protect both parties simultaneously. During the 1950s and 1960s, it was customary for repo borrowers—primarily nonbank Treasury dealers—to give margin to creditors, because the creditors were typically more creditworthy than the dealers. In addition, creditors did not lend on accrued interest on notes and bonds. (Box 1 explains accrued interest.) Creditors lending on notes and bonds demanded, and received, securities with a *quoted* value that exceeded the principal amount of a loan by the agreed-upon margin.⁷

Box 1

Accrued Interest

When a dealer is asked to bid on Treasury notes that a customer wants to sell, the dealer quotes a bid price denominated in percent of the principal amount of the notes, with fractions of a percent in 32nds. For example, the dealer might bid 99¹⁵, or 99.468750 percent of principal ($99.468750 = 99 + 15/32$), for \$10 million principal amount of the 4 ¼ percent notes maturing on August 15, 2014.

The *invoice price* of the notes, that is, the amount paid to the customer upon delivery of the notes, is the quoted price *plus* accrued interest to the settlement date of the transaction. Suppose, for example, that the dealer is bidding on Monday, May 9, 2005, for settlement on May 10. The 4 ¼ percent note last paid a coupon on February 15 and will pay its next semiannual coupon (equal to 2.125 percent of principal) on August 15. There are, therefore, 181 days in the current coupon period, with 84 days having elapsed since the last coupon payment:



The accrued interest on the August 15 coupon payment, as of the May 10 settlement date, is 0.986188 percent of principal ($0.986188 = (84/181) \times 2.125$). The invoice price on the customer's sale is 100.454938 percent of the principal amount of the notes ($100.454938 = 99.468750$ quoted price, plus 0.986188 accrued interest), or \$10,045,494.

2.2 Property Rights to Repo Securities

The most complicated feature of a repo was the allocation of property rights to the underlying securities. Describing a repo as “a sale of securities coupled with an agreement to repurchase the securities at a later date” suggests that it was a pair of conventional transactions, one for current settlement and the other for deferred settlement. This was not the case. Consistent with the convention noted above, that creditors did not lend on accrued interest, a borrower was entitled to any coupons paid on repo securities during the term of a repo. In addition, the parties to multiday repos commonly agreed that a borrower could substitute securities from time to time during the term of a repo. This “right of substitution” allowed a dealer to retrieve a security if it identified an opportunity to sell the security at an attractive price in an outright transaction.

The right to coupon payments and the right of substitution were rights typically enjoyed by dealers when they borrowed money on conventional loans secured with pledges of securities. The two rights made repos look very much like secured loans. However, repo *creditors* had an important right that was *not* enjoyed by conventional creditors: a repo creditor could sell repo securities, or deliver repo securities in settlement of a prior sale, during the term of the repo.⁸ This reduced the cost of lending on a repurchase agreement, because a creditor did not have to treat repo securities as the property of the borrower and did not have to segregate repo securities from its own securities.

3. THE REPO MARKET IN THE 1970S AND EARLY 1980S

The repo market expanded and changed in the 1970s and early 1980s for three reasons:

- short-term interest rates reached successive new heights in 1969, in 1973-74, and again after October 1979 (Chart 1),

⁷Joint Economic Committee (1959, p. 1558, testimony of Girard Spencer, Partner, Salomon Brothers & Hutzler), Meltzer and von der Linde (1960, p. 92), U.S. Treasury and Federal Reserve System (1960, pp. 68, 76, and 91), Willis (1970, p. 22, fn. 2), Lucas, Jones, and Thurston (1977, p. 35), Smith (1978, p. 354), Stigum (1978, pp. 312 and 315), Committee on Banking, Housing, and Urban Affairs (1982, p. 35, testimony of Irwin Sandberg, Vice President, Federal Reserve Bank of New York), and Lumpkin (1993, p. 63).

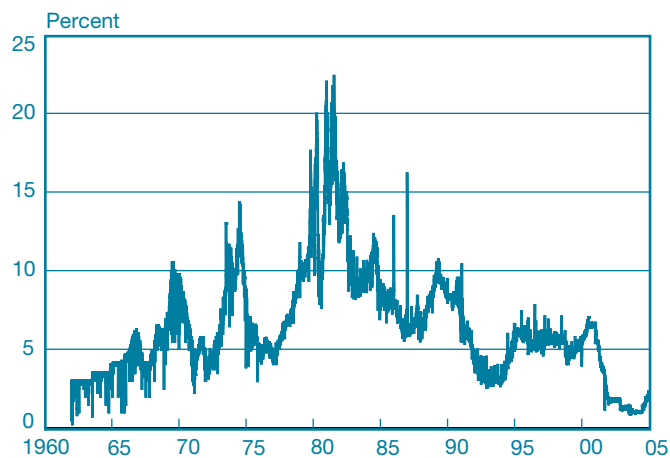
⁸However, the creditor remained obligated to resell comparable securities to the borrower at the maturity of the repo, to remit to the borrower any coupon payments on the repo securities during the term of the repo, and to return the repo securities before the expiration of the repurchase agreement if the borrower had, and chose to exercise, a right of substitution.

- marketable Treasury debt began to grow at a significantly faster pace after 1974 (Chart 2), and
- intermediate- and long-term interest rates became materially more volatile after October 1979 (Chart 3).

The rising level of short-term interest rates made repurchase agreements increasingly attractive to creditors. An executive at one industrial corporation stated in early 1979 that “At these interest rates, I’d be crazy to leave my money in a . . . checking account [that did not earn any interest].”⁹ As time went on and interest rates rose, an increasing number of corporations and state and local governments initiated repo lending relationships. They were aided in their efforts by brokers that arranged for school districts and other small creditors to lend to dealers in regional and national repo markets. Some dealers also began to intermediate repo credit by running “matched books”—borrowing and then relending on repurchase agreements.¹⁰

The rapid growth in the volume of marketable Treasury debt after 1974 led to a parallel growth in dealer positions and dealer financing. The table shows that repo financing

CHART 1
Overnight Federal Funds Rate



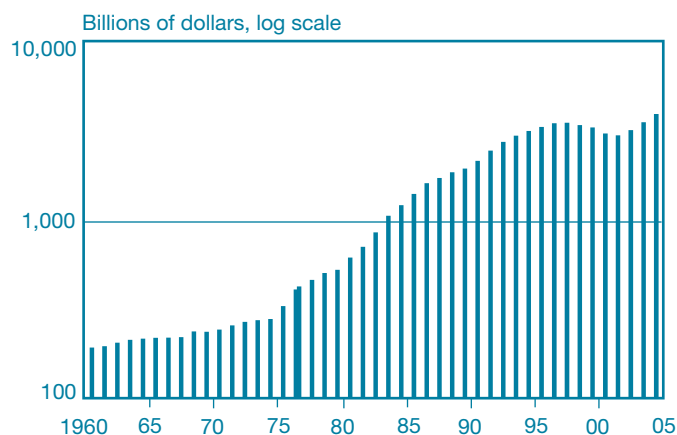
Source: Federal Reserve Statistical Release H.15.

⁹“More Firms Use Repurchase Agreements As a Way to Earn Interest on Idle Funds,” *Wall Street Journal*, April 16, 1979, p. 15. The expansion in the repo market during the 1970s is described in Lucas, Jones, and Thurston (1977), Smith (1978), and Bowsher (1979, 1981). Those authors also cite the importance of advances in computer technology for stimulating the growth of repos, including increasingly sophisticated corporate cash management systems and the Federal Reserve’s book-entry and wire transfer systems. Garbade (2004) discusses the latter factors.

¹⁰Matched-book credit intermediation is noted in Lucas, Jones, and Thurston (1977, p. 44), McCurdy (1977-78, p. 46), Smith (1978, p. 357), Stigum (1978, pp. 326-32), and Bowsher (1979, pp. 18-9).

CHART 2

Marketable Treasury Debt



Source: *Treasury Bulletin* (various issues).

Note: The chart depicts marketable debt on June 30 until and including June 30, 1976, and on September 30 thereafter.

by nonbank primary dealers began to expand at the same time that marketable Treasury debt began to grow more rapidly. (A primary dealer is a dealer with a trading relationship with the Federal Reserve Bank of New York.) By the end of 1980, bank and nonbank primary dealers were borrowing a total of \$55 billion on repurchase agreements. A year later, they were borrowing \$94 billion.¹¹

The rising volatility of interest rates affected the repo market indirectly by elevating the importance of risk management. Short sales of Treasury securities, undertaken to hedge long positions, became increasingly important. (As explained in Box 2, a short sale is a sale of a security that the seller has to borrow to make delivery.) Prior to the late 1970s, short sellers typically borrowed Treasury securities by pledging securities with a lender and paying the lender a fee of about 50 basis points per annum.¹² By the late 1970s, a significant number of market participants had adopted a simpler way to borrow securities: by lending money and “reversing in” securities on *special* (or *specific*) *collateral reverse* repurchase agreements.¹³ (Box 2 explains this method of borrowing.) The use of repurchase agreements to borrow securities for delivery against short sales relied on the established convention that a creditor was free to use repo securities to settle an outright sale to a third party.

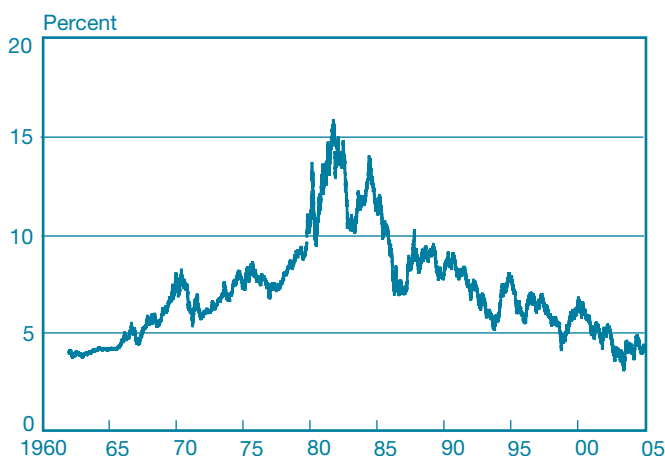
¹¹*Federal Reserve Bulletin*, April 1981, p. A32, and April 1982, p. A34.

¹²Meltzer and von der Linde (1960, p. 73), Gaines (1962, p. 210), and Lucas, Jones, and Thurston (1977, p. 44).

¹³Lucas, Jones, and Thurston (1977, p. 44), Smith (1978, p. 357), and Bowsher (1981, p. 55). Some market participants borrowed securities on reverse repurchase agreements as early as the late 1950s (U.S. Treasury and Federal Reserve System 1959, p. 38).

CHART 3

Yields on Ten-Year Treasury Securities



Source: Federal Reserve Statistical Release H.15.

Repo Financing by Nonbank Primary Dealers

	Repos (Billions of Dollars, Daily Average)
1973	1.4
1974	1.6
1975	3.9
1976	5.1
1977	7.9

Source: McCurdy (1977-78, Table 5).

Repurchase agreements evolved in the 1980s because existing contracting conventions proved inadequate for the market expansion fueled by rising interest rates and growing Treasury indebtedness, and because they proved inadequate for the growing use of repos to borrow securities. The next three sections describe how problems with the existing conventions emerged and how those problems were resolved.

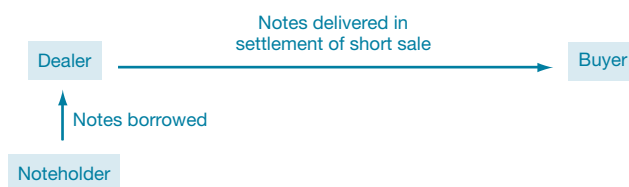
4. EVOLUTION OF THE TREATMENT OF ACCRUED INTEREST

The basis for the convention by which repo borrowers gave margin to creditors—because creditors were generally more creditworthy than borrowers—began to erode when dealers started lending money to regional banks and institutional investors on special collateral reverse repurchase agreements

Short Sales and Special Collateral Reverse Repos

Suppose that a dealer has a long position in investment-grade corporate bonds and expects interest rates to rise. To hedge against a decline in the value of the bonds, the dealer may choose to sell Treasury notes short. If interest rates go up, the dealer will be able to close out its short position at a price below where it sold the notes. The premise of the hedge is that gains on the short notes will offset losses on the bonds.

On the settlement date of the short sale, when the dealer has to deliver the notes that it sold short, the dealer borrows the notes and delivers the borrowed notes:



The dealer can borrow the notes by entering into a special collateral reverse repurchase agreement. A *reverse* repurchase agreement is a repo seen from the perspective of the money lender. A repurchase agreement is a *special collateral* repo if the borrower and lender have agreed that only a single designated security is acceptable on the repo and that the borrower has no right to provide substitute securities. A special collateral repurchase agreement differs from a conventional, or “general collateral,” repo because in the latter the borrower of funds has an option to choose—possibly subject to some limitations—the securities that the creditor is to receive and may also have the right to substitute securities during the term of the repo.

Suppose that the dealer decides to sell short a ten-year Treasury note. Suppose also that the one-week general collateral repo rate is 6 percent. The dealer might propose to a holder of the ten-year note that the holder sell the note to the dealer pursuant to a repurchase agreement at an interest rate of 5 percent per annum for one week. The holder can then earn 100 basis points for the week by relending at 6 percent the dealer’s money on a general collateral repo.

When the dealer decides to close out its short position, it reacquires the notes in an outright purchase and terminates its reverse repurchase agreement by returning the notes.

in order to borrow securities needed to deliver against short sales. However, despite the changing balance of credit risks, market participants continued to ignore accrued interest on repo securities.¹⁴

Continued neglect of accrued interest exposed lenders of securities on special collateral repos to growing risk as interest rates rose. To understand why, consider a bond with a 12 percent coupon quoted at 98 percent of principal value. Suppose a dealer could “reverse in” \$100 million principal amount of the bond from a regional bank against lending the full quoted value of \$98 million. If the bond had just paid a coupon, the bond’s accrued interest would be small and the bank would be reasonably well protected (lending bonds worth a bit more than \$98 million against borrowing \$98 million in cash). However, if the bond was about to pay a semiannual coupon, the accrued interest on the bond would be nearly 6 percent of principal. In that case, the bank would be lending bonds with a total market value of nearly \$104 million. The exposure of securities lenders to credit risk on loans of notes and bonds close to their coupon payment dates became increasingly significant as coupon rates on new issues rose in parallel with the level of interest rates (see Chart 3). One market participant acknowledged that the continued neglect of accrued interest made “no sense at all.”¹⁵

4.1 The Drysdale Failure

On Monday, May 17, 1982, a midsized government securities dealer, Drysdale Government Securities, failed. At the time of its collapse, Drysdale had a \$4 billion short position and a \$2.5 billion long position in Treasury securities. Although details on how Drysdale had depleted its equity capital were initially unclear,¹⁶ it was quickly evident that firms that had lent securities to Drysdale were inadequately margined and were going to be left with far less cash than the replacement cost of their securities. Drysdale’s failure ultimately led to counterparty losses of about \$300 million.

Most of the securities borrowed by Drysdale came from other dealers through a securities lending desk at Chase Manhattan Bank. Initially, on May 17 and 18, Chase officials maintained that the bank had been acting as Drysdale’s agent and that the losses would have to be borne by the dealers. The dealers, however, contended that they had lent securities to Chase and that what Chase did with the securities was a matter for Chase’s account. The losses were

¹⁴Committee on Banking, Housing, and Urban Affairs (1982, p. 35, testimony of Irwin Sandberg, Vice President, Federal Reserve Bank of New York).

¹⁵Quoted in Stigum (1978, p. 315).

¹⁶Welles (1982) provides an extensive post-mortem. See also Stigum (1983, pp. 323-7) and Committee on Banking, Finance, and Urban Affairs (1983, p. 19, testimony of Anthony Solomon, President, Federal Reserve Bank of New York).

large enough that some dealers were liable to be “impaired” if they, rather than Chase, had to bear the losses. A senior official at one firm conjectured that “This thing is going to blow a hole in somebody.”¹⁷

The Drysdale failure was immediately recognized as a potentially catastrophic event. Market participants remarked that “We’re all in uncharted waters on this one,” and that “No one really knows what’s going to happen.”¹⁸ The prospect of a chain of failures was particularly worrisome: “There are hundreds of [repo] transactions out there that look safe until one participant goes under.”¹⁹

As news of Drysdale’s failure filtered through the market, uncertainty about whose capital might be impaired led some participants to begin to think about pulling back from further trading.²⁰ Faced with an impending crisis, the Federal Reserve Bank of New York reminded market participants that it stood ready to act as a “lender of last resort” to assist the commercial banks in meeting “unusual credit demands related to market problems.”²¹ The New York Fed also announced that it was temporarily suspending limits on loans of Treasury securities to primary dealers to facilitate settlements and that, contrary to previous policy, it would lend securities to finance dealer short positions.²² This led to a ten-fold increase in securities lending by the New York Fed. Equally important, on Wednesday, May 19, Chase reversed its previous position and announced that, pending the outcome of prospective litigation, it would assume responsibility for all of the securities loans that its collateral desk had arranged.

¹⁷“Chase, Dealers Dispute Debts of \$160 Million,” *Wall Street Journal*, May 19, 1982, p. 2. A Chase official commented that “If the problem remained unresolved, it could have led very quickly to the ‘impairment’ of several Wall Street firms” “Chase Bank Will Pay Off Interest Owed by Defaulting Bond Dealer,” *Wall Street Journal*, May 20, 1982, p. A1.

¹⁸“Bond Prices Seesaw, End Slightly Lower Amid Tensions Over the Drysdale Affair,” *Wall Street Journal*, May 19, 1982, p. 44.

¹⁹“Drysdale’s Default Shows Dangers of Intricate Financing Agreements,” *Wall Street Journal*, May 20, 1982, p. 29.

²⁰Committee on Banking, Housing, and Urban Affairs (1982, p. 26, testimony of Anthony Solomon, President, Federal Reserve Bank of New York, that “Uncertainty about clearing and financing arrangements seemed to be building. There was concern that investors and traders would pull away from the markets because of uncertainty about the magnitude of the problem, and that major securities firms would be threatened with losses that could jeopardize their ability to function.”). See also Committee on Banking, Finance, and Urban Affairs (1983, p. 20, testimony of Anthony Solomon that “our primary concern at the Federal Reserve was to preserve the orderly functioning of the market until the situation could be resolved. We recognized some risk that failure to make [coupon payments due on May 15] could cause a widespread ‘seizing up’ of the market in which normally major participants would be reluctant to undertake new commitments or perhaps even perform on their existing commitments.”).

²¹“A Dealer in Bonds Defaults on Debt,” *New York Times*, May 19, 1982, p. A1.

4.2 Aftermath

The immediate crisis passed without any additional failures, but market participants realized that they had been to the edge of a precipice. They further understood that the cause of the problem was their neglect of accrued interest on repo securities. Allan Rogers, president of the Association of Primary Dealers in U.S. Government Securities, noted that the neglect was “not rational.”²³

A week after Drysdale’s failure, the executive committee of the dealer association met to discuss contracting conventions for repos and recommended that the full membership adopt a resolution calling for recognition of accrued interest. Shortly thereafter, the Federal Reserve Bank of New York announced that it would begin recognizing accrued interest in its own repurchase agreements as soon as it could adapt its computer programs. Prompted by the Fed’s new policy as well as by its executive committee, the dealer association adopted the recommended resolution at a meeting on June 14.²⁴

The Federal Reserve also encouraged other market participants to recognize accrued interest on repo securities. In late July, the president of the New York Fed announced that he had charged Bank officials with working “with the dealer community in encouraging [all market participants] to recognize the value of accrued coupon interest”²⁵ When progress appeared to slow in late August, the Fed reiterated its view of the importance of changing the contracting convention.²⁶ The Fed understood that change would not be costless and that change might require “extra efforts . . . perhaps involving temporary substitution of manual for automated processing.” (Box 3 explains an important operational problem created by the recognition of accrued interest.) Nevertheless, the Fed stated that it expected the change would be implemented by every primary dealer by early October—a deadline that was met “with few problems.”²⁷

²²“Short-term Interest Rates Plunge as Fed Injects Reserves Due to Drysdale Problems,” *Wall Street Journal*, May 21, 1982, p. 45, “How Agencies Helped Avert Drysdale Panic,” *Wall Street Journal*, June 1, 1982, p. 29, and Committee on Banking, Housing, and Urban Affairs (1982, pp. 28 and 40-1, testimony of Anthony Solomon, President, Federal Reserve Bank of New York). This was the first time the Fed relaxed the terms of the securities lending program that it had put in place in 1969 to help alleviate a growing problem of settlement fails (Federal Open Market Committee 1970).

²³“Financing Quirk at Drysdale Studied,” *Wall Street Journal*, May 25, 1982, p. D5.

²⁴“Repurchase Agreements Financing Change Voted,” *Journal of Commerce*, June 16, 1982, p. 6A. The author is grateful to Allan Rogers for his assistance in clarifying the chronology of events following Drysdale’s collapse.

²⁵Letter dated July 29, 1982, from Anthony Solomon, President, Federal Reserve Bank of New York, to all primary dealers.

²⁶Letter dated August 27, 1982, from Peter Sternlight, Executive Vice President, Federal Reserve Bank of New York, to all primary dealers.

Box 3

An Operational Problem Created by the Recognition of Accrued Interest on Repo Securities

Recognition of accrued interest complicated the operational aspects of a repurchase agreement on a security that pays a coupon during the term of the repo.²⁷ To understand why, consider a dealer with a long position in \$100 million principal amount of Treasury notes with a 12 percent coupon.

Suppose that the notes are quoted at 98 percent of principal and that just before a semiannual coupon is due the dealer finances the notes on a \$103 million repo. The repo creditor has a margin of about \$1 million (\$1 million = \$98 million quoted market value of the notes, plus a bit less than \$6 million accrued interest, less \$103 million repo principal). When the coupon is paid, the accrued interest vanishes and the total market value of the notes drops to \$98 million. After the creditor remits the \$6 million coupon payment to the borrower, the creditor has an exposure, or negative margin, of about \$5 million. To cure this deficiency and restore a \$1 million margin, the borrower either has to deliver additional securities to the creditor or repay \$6 million. Neither action would have been required under the contracting conventions that prevailed prior to 1982 because, pursuant to those conventions, creditors did not lend on accrued interest, so passing a coupon payment back to a borrower did not expose a creditor to credit risk.

²⁷The problems associated with coupon payments on repo securities were studied during the summer of 1982 by a special committee of the Association of Primary Dealers in U.S. Government Securities, headed by Miles Slater of Salomon Brothers. They are discussed in “Repo Dealers’ Choice?” *Barron’s*, October 18, 1982, p. 11, and Stigum (1983, pp. 402-4).

4.3 Assessment

When, in the late 1970s, securities dealers began lending money to regional banks and institutional investors on special collateral reverse repurchase agreements, the economic basis for the custom of repo borrowers giving margin to lenders began to erode. However, even though nonrecognition of accrued interest was an important component of lender margins, market participants continued to ignore accrued interest. This illustrates the proposition that a contracting convention that was efficient for one market environment may need to be revised when the environment changes.

²⁷Committee on Banking, Finance, and Urban Affairs (1983, p. 24, testimony of Anthony Solomon, President, Federal Reserve Bank of New York).

Some market participants had concluded, well before 1982, that continued neglect of accrued interest made “no sense at all.” However, it took the collapse of Drysdale to galvanize participants into action. This supports the proposition that change in an inefficient contracting provision may sometimes come slowly and only in the wake of a precipitative event that provides a compelling reason for change.

The decision of the major government securities dealers to act collectively through the Association of Primary Dealers, rather than individually, is significant. Liquidity in the repo market would have suffered if some firms and some creditors had decided to recognize accrued interest while others continued to ignore it, because a dealer could not fully fund a loan to a counterparty that recognized accrued interest with a borrowing from another counterparty that ignored accrued interest. Absence of a common contracting convention also would have led to higher operating costs, because dealers would have had to distinguish between creditors that lent only on quoted value and those that lent on accrued interest as well as quoted value. Consensus preserved the homogeneity of repos with different counterparties, thereby preserving liquidity and limiting operating costs.

5. EVOLUTION OF THE RIGHT TO SELL A DEFAULTER’S SECURITIES PROMPTLY

Prior to 1982, most repo market participants believed that a creditor could sell the securities underlying a repurchase agreement promptly in the event of the borrower’s default. In the words of one participant, “If I have your bonds and you do not pay me back, it is my prerogative to sell those bonds”²⁸ However, the issue was not nearly so clear. If a repurchase agreement was construed as a loan secured by a pledge of the borrower’s securities, the creditor’s right to liquidate the securities might be subject to the “automatic stay” of bankruptcy law. (The automatic stay requires suspension of all efforts at collecting pre-petition claims immediately upon the filing of a bankruptcy petition.²⁹) The creditor would then be subject to the risk of fluctuations in the market value of the securities and—if it planned on making a payment with the proceeds of the maturing repo—could be subject to a cash flow squeeze while it waited for a bankruptcy court to grant it access to the securities.

²⁸Quoted in Stigum (1978, p. 332). See also Committee on the Judiciary (1983, p. 308, testimony of Thomas Strauss, Chairman, Government and Federal Agency Securities Division, Public Securities Association, that “Investors believed that they could liquidate their repo transactions in the market and cut the risk of loss as soon as they received word of a dealer’s insolvency.”).

²⁹See Epstein, Nickles, and White (1993, ch. 3).

Although the prospect of significant delay in liquidating repo securities was unattractive to creditors, market participants had limited incentive to specify clearly that a repo was not a loan. Some participants could borrow and lend money but were constrained in their ability to purchase and sell securities, especially more volatile, longer term securities. Leaving open the question of whether a repo might be a secured loan allowed them to participate in the repo market. One dealer recalled that “We left [the characterization of a repo] purposely vague because doing so fit our needs. If a customer said, ‘I can’t do repo,’ we said, ‘OK, we will sell you securities and buy them back.’ If another customer said he could not buy securities, we said, ‘Fine, we will borrow money from you and give you collateral.’ It was all very convenient”³⁰

Prior to 1982, no court had directly addressed the question of whether repo securities were subject to the automatic stay.³¹ In July of that year, Thomas Russo, a prominent attorney in private practice in New York, observed that “The most important legal uncertainty concerning repos . . . is whether they will ultimately be characterized for purposes of [bankruptcy law] . . . as secured loans or as independent contracts for the sale and repurchase of securities.” He noted that “In light of Drysdale . . . and of rumors of difficulties at . . . other firms, market participants . . . are devoting substantial attention to devising strategies . . . to reduce or avoid the effects of the automatic stay and the uncertainties and delays of possibly protracted proceedings.”³²

³⁰Quoted in Stigum (1983, p. 398).

³¹However, following the July 1975 collapse of a small securities firm, *Financial Corp.*, several courts had considered the broader question of whether repos were loans or transactions. See *In re Financial Corp.*, 1 B.R. 522, 526, fn. 7 (W.D. Mo. 1979) (although a repo “had many of the attributes of a secured loan, there was nothing in the record to indicate that [it was] intended to effectuate a security interest”); *Gilmore v. State Board of Administration*, 382 So. 2d 861, 863 (Fla. App. 1980) (a repo was intended to be “two transactions, an actual purchase and sale of securities with minor characteristics of a secured loan, and a simultaneous but separate agreement to repurchase and resell similar securities on specific terms”); and *Securities and Exchange Commission v. Miller*, 495 F. Supp. 465, 467 (S.D.N.Y. 1980) (a repo “may be viewed as comprising two distinguishable transactions, which, although agreed upon simultaneously, are performed at different times”). *Financial Corp.*’s collapse is described in “Firm Involved in Government Securities is Placed in Receivership After SEC Suit,” *Wall Street Journal*, July 11, 1975, p. 19, “How an Investment Firm’s Meteoric Rise Was Reversed by an Interest-Rate Boost,” *Wall Street Journal*, July 14, 1975, p. 26, and “Rate Indicators Signal Advance,” *New York Times*, July 21, 1975, p. 42. See also Stigum (1978, pp. 331-2). Recent discussions of whether repos are loans or transactions appear in Schroeder (1996, 2002). See also *In re Beville, Bresler & Schulman Asset Management Corporation*, 67 B.R. 557 (N.J. 1986) and *Granite Partners, L.P. v. Bear, Stearns & Co.*, 17 F. Supp. 2d 275 (S.D.N.Y. 1998).

³²*American Banker*, August 13, 1982, p. 4.

5.1 The Collapse of Lombard-Wall

On August 12, 1982, Lombard-Wall, a small government securities dealer with about \$2 billion in assets and a similar amount of liabilities, filed for bankruptcy. Unlike Drysdale’s failure three months earlier, the collapse of Lombard-Wall had little direct effect on the Treasury market. Rumors about the firm’s financial condition had been circulating for weeks and many market participants had already reduced their exposure to the failing enterprise.

The most significant consequence of Lombard-Wall’s insolvency came from a court decision. On August 17, the bankruptcy court overseeing the insolvency announced that the firm’s repos would be treated as secured loans, rather than outright transactions, and issued a temporary restraining order prohibiting sale of the repo securities.³³ Despite submissions by the Federal Reserve Bank of New York; Goldman, Sachs; Salomon Brothers; and the Investment Company Institute (a trade association of more than 650 mutual funds) arguing that the decision would undermine the liquidity of the repo market, the bankruptcy court reiterated its position a month later.³⁴ The restraining order crystallized the fears of many repo creditors that they might not be able to liquidate promptly the securities of a defaulting borrower.

5.2 Aftermath

Following the Lombard-Wall ruling, two strategies were available to those market participants that favored placing repo securities outside the boundaries of the automatic stay: they could write contracts that made it clear that a repo was a pair of outright transactions, or they could seek an amendment to federal bankruptcy law exempting repos from application of the stay.

Dealers and institutional investors tried to write contracts that clarified the nature of a repo, but the effort got bogged down.³⁵ In part, this reflected a reluctance to suppress contract

³³“Lombard Securities With Buy-Back Plan Are Frozen by Court,” *Wall Street Journal*, August 18, 1982, p. 7.

³⁴“Securities in Lombard-Wall Case Termed Loan Collateral by a Bankruptcy Judge,” *Wall Street Journal*, September 20, 1982, p. 10. See also Committee on the Judiciary (1983, pp. 333 and 337), Hagerty (1984, pp. 409-10 and 426), Walters (1984, p. 830, fn. 9), and Osenton (1987, pp. 680-1).

³⁵In September 1982, the president of one investment management company remarked that “Our legal department has been working on [the issue] for more than a year.” “Repo Backing is Under Cloud,” *New York Times*, September 29, 1982, p. D1. In early 1984, an observer characterized the situation as “legal gridlock.” “Repo Market Remains Weak as Legal Issues Trouble Many Dealers,” *Wall Street Journal*, January 30, 1984, p. 43.

provisions that made a repo look like a secured loan, including the borrower's right to coupon payments and to substitute securities, while retaining the aspect of a repo that was present in outright transactions: the creditor's right to sell repo securities to a third party.³⁶

In lieu of altering their contracting conventions, private market participants and the Federal Reserve petitioned Congress for relief. Fed Chairman Paul Volcker urged adoption of an amendment exempting repos on Treasury and other specified securities from application of the automatic stay.³⁷ Volcker noted that "repos are a very important tool used in Federal Reserve open market operations" and argued that "it is important that the repo market be protected from unnecessary disruption." He suggested that if repos were subject to the automatic stay, "the rippling effect of the potential loss of liquidity or capital on market participants could generally disrupt the repo market and cause an otherwise manageable and isolated problem to become generalized." In an effort to hasten passage of the proposed amendment, Volcker suggested that "it would be preferable to draw the legislation in a relatively narrow manner and to confine its operation to the key repo markets in U.S. government and agency securities, bankers' acceptances and certificates of deposit."³⁸ The chairman of the Public Securities Association suggested similarly that statutory relief was needed to avoid "severe adverse consequences."³⁹

Efforts to exempt repos from application of the automatic stay were unopposed but became entangled with other, unrelated issues in bankruptcy law.⁴⁰ A bill that included a repo amendment cleared the Senate in April 1983 but remained

³⁶See, for example, Dunning (1982). In addition, as one commentator later observed, "Mere contractual language or testimony declaring that a transaction is not a security interest is not sufficient, standing alone, conclusively to establish that a transaction is not a security interest. The standard rule of commercial law that substance should control over form is particularly important in the bankruptcy context because parties generally wish to avoid treatment of their transactions as security interests and, therefore, would always be expected to include boiler plate language in their contract reciting their intention." Schroeder (2002, p. 594).

³⁷Letter dated September 29, 1982, from Paul Volcker, Chairman, Board of Governors of the Federal Reserve System, to Robert Dole, Chairman, Subcommittee on Courts of the United States Senate Committee on the Judiciary, reprinted in Dunning and Lowy (1982, pp. 397-8). Volcker reiterated his views in follow-up letters on December 13, 1982, and January 30, 1983 (Committee on the Judiciary 1983, pp. 305 and 346-8).

³⁸In a follow-up letter on December 13, 1982, Volcker stated that he had "stressed the desirability of drawing the legislation in a narrow manner to avoid major exceptions to existing bankruptcy law. Thus the Board [of Governors] continues to believe that the protection provided by the proposed legislation should be limited to those markets which are so large as to raise potential systemic problems in situations in which a bankruptcy could affect the liquidity and solvency of a large number of other entities . . ." Committee on the Judiciary (1983, p. 347).

stalled in the House of Representatives in early 1984. Finally, in mid-1984, after a bankruptcy court froze the repo securities of yet another failed dealer,⁴¹ Congress enacted the Bankruptcy Amendments and Federal Judgeship Act of 1984,⁴² exempting from application of the automatic stay repos on Treasury and federal agency securities, bank certificates of deposit, and bankers' acceptances.

There is reason to believe that the efforts of the Federal Reserve and government securities dealers to secure an exemption for repos from application of the automatic stay were not misplaced. Chart 4 graphs overnight repo financing by primary dealers as a function of marketable Treasury debt on a monthly basis from October 1980 (when the Federal Reserve began publishing data on primary dealer repos) to September 1990. Marketable Treasury debt rose at a fairly constant rate over the interval (although the growth rate declined a bit after 1986) and it follows from Chart 4 that repo financing expanded more or less in line with the growth in Treasury debt. However, when we compare actual financing with financing predicted from a straight line fitted to the data, we see that repo financing stagnated between mid-1982 and mid-1983. (Financing volumes in the twelve months between June 1982 and May 1983, inclusive, are represented by the white circles in the chart.) Financing growth resumed in mid-1983 (depicted by the squares), but the shortfall from 1982-83 was not made up until the end of 1985. These results are consistent with the proposition that the relative size of the repo market shrunk after Drysdale and Lombard-Wall, that it stabilized (at a lower level) when it became evident that repos would ultimately be exempted from application of the automatic stay, but that it did not recover fully until eighteen months after passage of the Bankruptcy Amendments and Federal Judgeship Act of 1984.

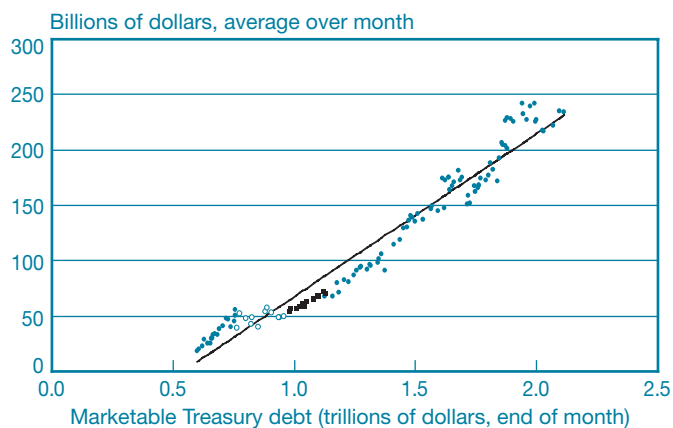
³⁹"U.S. Government Securities Dealers Need Self-Review but No New Rules, Fed Says," *Wall Street Journal*, October 13, 1982, p. 6. The Treasury Department did not support amending federal bankruptcy law. See letter dated March 16, 1983, from Roger Mehle, Assistant Secretary of the Treasury (Domestic Finance), to Robert Dole, Chairman, Subcommittee on Courts of the United States Senate Committee on the Judiciary (concluding that "On balance . . . parties holding Treasury or other securities in connection with [a repurchase agreement] do not merit better treatment under the Bankruptcy Code than any other party making a secured loan" and stating that there was "absolutely no likelihood of a government securities market breakdown from [retaining application of the automatic stay] . . .").

⁴⁰Committee on the Judiciary (1983, p. 304, remark of Senator Robert Dole that proposed amendments were "uncontroversial").

⁴¹"Lion Capital's Collapse Raises Issue of Unresolved Legal Status of 'Repos,'" *Wall Street Journal*, May 8, 1984, p. 2.

⁴²Pub. L. 98-353, 98 Stat. 333 (1984). The provisions that deal with repurchase agreements are discussed in Levin and Donovan (1984, pp. 176-83), Schroeder (1996, pp. 1028-31), and *In re Beville, Bresler & Schulman Asset Management Corporation*, 67 B.R. 557, 596 (N.J., 1986).

CHART 4
 Primary Dealer Financing on Overnight Repos
 as a Function of Marketable Treasury Debt
 Monthly, October 1980 to September 1990



Sources: *Treasury Bulletin* (various issues); *Federal Reserve Bulletin* (various issues).

Note: The white circles represent June 1982-May 1983 financing volumes; the squares represent June 1983-May 1984 financing volumes; the line depicts the least-squares fitted relationship between overnight repo financing and marketable Treasury debt.

5.3 Assessment

Removing repurchase agreements from application of the automatic stay required coordinated action because liquidity might have suffered, and operating costs might have increased, if some repos remained subject to the stay while other repos on the same underlying securities were not. Homogeneous treatment could have been obtained with industrywide repo contracts that suppressed contract terms that made repos look like secured loans. However, because market participants were unwilling to sacrifice efficiencies associated with the existing allocation of property rights, removing repos from application of the automatic stay required Congressional action. The legislative channel was more time-consuming but it preserved the allocation of property rights that participants found most useful.

Efforts to secure a statutory exemption for repos were not initiated until a precipitative event—the freezing of the Lombard-Wall collateral—provided a compelling incentive for change. This illustrates again the proposition that coordinated action may be delayed in the absence of a precipitative event.

6. EVOLUTION OF CREDITOR POSSESSION OF REPO SECURITIES

Virtually all discussions of repurchase agreements begin by describing a repo as a sale of securities coupled with an agreement to repurchase the securities at a specified price on a later date. Left unstated, but clearly implied, is the presumption that the creditor actually takes possession of the securities during the term of the repo. However, taking possession of repo securities before the mid-1980s was not an inexpensive undertaking. A creditor had to arrange for a bank to hold the securities in a custodial account, it had to give the bank payment and delivery instructions for each transaction, and it had to pay a fee for each transaction. The director of finance for one municipality characterized bank custodial services as “an administrative nightmare.”⁴³

Some small and mid-sized creditors sought to avoid the administrative burdens of conventional repos by accepting a representation from a repo borrower that the bank that cleared securities for the borrower would hold the creditor’s repo securities in a segregated account.⁴⁴ Repos based on such representations were called “letter” repos.

6.1 Creditor Losses on Letter Repos

In early 1984, Lion Capital Group was a small New York broker-dealer firm engaged primarily in the business of running a matched-repo book, borrowing money from local governments and school districts and relending the money to others. Lion borrowed on both conventional repos, where it delivered out securities to creditors, and letter repos, where it represented to creditors that their securities were held in safekeeping at its clearing bank. However, Lion’s clearing bank was not a party to any safekeeping arrangements for the benefit of Lion’s creditors and never confirmed to those creditors that it held securities for their benefit. This gave Lion an opportunity to misrepresent the status of its letter repo securities.

⁴³“Growing Caution: Big Treasuries Investors Become More Careful After Two Firms Fail,” *Wall Street Journal*, April 12, 1985, p. 1.

⁴⁴A clearing bank is a bank that acts as the agent of its customer in receiving and delivering money and securities pursuant to the customer’s instructions, and safeguarding securities and funds belonging to the customer. A clearing bank also provides financing for securities that the customer is unable to finance elsewhere. See Committee on Government Operations (1985, pp. 607-18, testimony of Charles Viviano, Managing Director, Security Pacific Clearing & Services Corp.) and *In re Beville, Bresler & Schulman Asset Management Corporation*, 67 B.R. 557, 570-571 (N.J., 1986).

On May 2, 1984, Lion filed for bankruptcy. At the time of the filing, Lion had \$46.5 million of securities at its clearing bank and \$85 million in liabilities other than conventional, possessory, repos. \$33.5 million of securities were held in a clearing account and were pledged to secure a \$45 million loan from the bank. The other \$13 million of Lion’s securities were held in two “segregated” accounts and were not similarly pledged to the bank. Lion owed its letter repo creditors \$40 million—\$27 million more than what was in the segregated accounts. The repo creditors ended up recovering only 73 percent of their claims.

A year later, two more broker-dealer firms failed and imposed another \$300 million of losses on letter repo creditors. On March 4, 1985, E.S.M. Government Securities collapsed with a negative net worth of about \$300 million. Letter repo creditors accounted for a third of the losses. Five weeks later, Bevill, Bresler & Schulman collapsed with a negative net worth of about \$225 million. Letter repo creditors incurred the bulk of the losses. The E.S.M. losses led the president of one large dealer firm to comment that “It seems inconceivable to me that you get in a position where you don’t have either the money or the [securities]. That’s just crazy.”⁴⁵

6.2 Tri-Party Repo

Creditor losses on letter repos in 1984 and 1985 demonstrated the need for a repo mechanism that was both safe and operationally inexpensive. Fortunately, several large clearing banks had been working with their dealer customers and repo creditors to develop a new form of repo, tri-party repo, to reduce dealer financing costs and the costs of delivering repo securities. The collapse of Lion; E.S.M.; and Bevill, Bresler sharply accelerated interest in the new arrangement.⁴⁶

In a tri-party repurchase agreement, an “agent bank” stands between the dealer and the creditor. A previously negotiated contract among the bank, the dealer, and the creditor describes the acceptable securities and the margins required on the securities. As illustrated in Exhibit 2, at the start of a repo, the dealer delivers securities, and the creditor delivers funds, to the bank. After verifying that the securities are acceptable and have a market value that exceeds the principal amount of the repo by more than the required margin, the bank releases the funds to the dealer but continues to hold the securities as the creditor’s custodial agent. At the end of the repo, the dealer returns the

⁴⁵“Thrift Crisis: Closing of Ohio S&Ls After Run on Deposits is One for the Books,” *Wall Street Journal*, March 18, 1985, p. 1.

⁴⁶Sollinger (1994). See also Committee on Government Operations (1985, p. 616, testimony of Charles Viviano, Managing Director, Security Pacific Clearing & Services Corp.).

EXHIBIT 2

Borrowing \$10 Million at a 2 Percent Interest Rate on a One-Day Tri-Party Repo

Starting leg (day 0)



Closing leg (day 1)



$$\$555 = (1/360) \times 2\% \text{ of } \$10,000,000$$

principal—plus interest at the negotiated rate—to the bank, the bank releases the securities back to the dealer, and the bank remits the principal and interest to the creditor.

Tri-party repo has two important credit risk characteristics. First, it protects the creditor by taking margin from a borrower and lodging repo securities with a bank that has explicitly agreed to hold the securities for the benefit of the creditor. If the borrower fails to honor its repurchase commitment, the creditor can instruct the bank to sell the securities and apply the proceeds to satisfy its claim for repayment. Second, tri-party repo protects the borrower because the bank retains possession of the repo securities during the term of the repo, so the borrower can recover the securities promptly upon tender of the repurchase price. Thus, tri-party repo resolves the conflict inherent in conventional repos that borrowers and creditors cannot both be insulated from credit risk simultaneously.

In theory, any bank can serve as an agent bank for a tri-party repo. However, there is an important operational advantage to tri-party repo when the agent bank is the dealer’s clearing bank. In that case, the dealer and the creditor can negotiate the principal amount, maturity, and interest rate of a borrowing, but need not identify the specific securities that will be held by the agent bank for the benefit of the creditor. At the end of the business day, the bank runs a computer program that allocates the securities in the dealer’s clearing account to the custodial accounts of individual tri-party creditors. The program identifies the allocation that minimizes the quantity of unallocated securities, subject to the constraint that no creditor receives an allocation that would violate the terms of its tri-party contract. (The objective of minimizing the quantity of unallocated securities is important because the clearing bank typically finances any unallocated securities that remain in the clearing account at a dealer loan rate in excess of the

contemporaneous repo rate.) This process eliminates the need to transfer securities between banks—as would be necessary if the dealer’s clearing bank and the tri-party agent bank were different banks—and facilitates least-cost financing of the dealer’s securities.⁴⁷

Tri-party repo was pioneered by Salomon Brothers in the late 1970s, primarily as a device to reduce the cost of financing its positions in Treasury securities.⁴⁸ Traders on the firm’s funding desk observed that they sometimes received deliveries of Treasury securities (from sellers and from creditors on the closing legs of maturing repurchase agreements) late in the day, when there was not enough time to redeliver the securities (to buyers or to creditors on the opening legs of new repurchase agreements). The securities were consequently left stranded in the firm’s clearing account and financed at a dealer loan rate in excess of the contemporaneous repo rate. The traders realized that they could finance late-arriving securities at lower cost if they could arrange custodial accounts at the firm’s clearing bank for their repo creditors, so that delivery of securities to those creditors could be done internally on the books of the bank. Thus, tri-party repo originated as a buffer financing device, standing between conventional repo financing and the residual, end-of-day financing provided by a clearing bank.

By the mid-1980s, other dealers and other clearing banks had replicated the tri-party structure. In the wake of Lion; E.S.M.; and Bevil, Bresler, it was not too difficult to appreciate that tri-party solved the problem of effecting low-cost possession of repo securities: the dealer’s clearing bank functioned in a dual capacity, as a clearing bank for the dealer *and* as a custodian for creditors. One observer estimated that, by the early 1990s, large government securities dealers financed somewhat more than three-quarters of their Treasury positions with tri-party repo.⁴⁹

6.3 Assessment

Tri-party repo was driven, in the first instance, by the motive that drives most private sector innovations: profit. Compared with conventional repurchase agreements, tri-party repo

⁴⁷Committee on Government Operations (1985, p. 257, testimony of E. Gerald Corrigan, President, Federal Reserve Bank of New York) and Board of Governors of the Federal Reserve System and Securities and Exchange Commission (2002, Appendix 2).

⁴⁸This synopsis is based on the personal recollections of John Macfarlane, who joined Salomon’s funding desk in 1979.

⁴⁹Sollinger (1994).

provided an operationally cheaper, more flexible way for a dealer to borrow money and for a creditor to lend money. Unlike the recognition of accrued interest and the exemption of repos from application of the automatic stay, the adoption of tri-party repo did not require any collective or legislative action; it depended only on the *individual* assessments of dealers and creditors of its net benefits. The losses experienced by letter repo creditors in the mid-1980s highlighted the risks inherent in letter repos and the importance of obtaining unambiguous control of a borrower’s securities, and thereby hastened the adoption of tri-party repo.

7. CONCLUSION

In the first two decades after the Treasury-Federal Reserve Accord of March 1951, repurchase agreements were used primarily by nonbank government securities dealers to finance their securities positions with large nonfinancial corporations and state and local governments. The repo market expanded in the 1970s, when rising interest rates and growing Treasury indebtedness attracted many new, smaller, and less sophisticated creditors. The market also changed as rising interest rate volatility led dealers to expand their hedging activities and use special collateral reverse repurchase agreements to borrow securities needed to deliver against short sales. Contracting conventions that were not inefficient in the context of the repo markets of the 1950s and 1960s—including neglect of accrued interest, ambiguity about whether repos were loans or transactions, and relatively costly mechanisms for removing repo securities from the control of borrowers—proved inadequate by the early 1980s.

Changing circumstances, and the appearance of new and previously unappreciated risks, produced change in repo contracting conventions in the 1980s. Change occurred in a variety of ways. The autonomous adoption by individual agents of a more efficient contract form—tri-party repo—was the result of the agents acting in their own economic self-interest. In contrast, recognition of accrued interest and the exemption of repos (on Treasury and certain other securities) from application of the “automatic stay” of bankruptcy law were effected, respectively, by collective action and Congressional legislation, because uncoordinated, individual solutions by market participants would have been more costly.

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