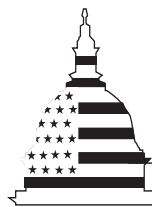


October 1999

LONG-TERM CAPITAL MANAGEMENT

Regulators Need to Focus Greater Attention on Systemic Risk



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United States General Accounting Office
Washington, D.C. 20548

General Government Division

B-281371

October 29, 1999

The Honorable Byron L. Dorgan
United States Senate

The Honorable Tom Harkin
United States Senate

The Honorable Harry Reid
United States Senate

The Honorable Edward J. Markey
United States House of Representatives

This report responds to your request that we review Long-Term Capital Management's (LTCM) near-collapse and some of the broader issues it raised. Between January and September 1998, LTCM, one of the largest U.S. hedge funds,¹ lost almost 90 percent of its capital. In September 1998, the Federal Reserve determined that rapid liquidation of LTCM's trading positions and related positions of other market participants might pose a significant threat to already unsettled global financial markets. Thus, the Federal Reserve facilitated a private sector recapitalization to prevent LTCM's collapse. Although the crisis involved a hedge fund, the circumstances surrounding LTCM's near-collapse and recapitalization raised questions that go beyond the activities of LTCM and hedge funds to how federal financial regulators fulfill their supervisory responsibilities and whether all regulators have the necessary tools to identify and address potential threats to the financial system. As agreed, the issues we addressed were (1) how LTCM's positions became large and leveraged² enough to be deemed a potential systemic threat, (2) what federal regulators knew about LTCM and when they found out about its problems, (3) what the extent of coordination among regulators was, and (4) whether

¹Although there is no statutory definition of hedge funds, it is the term commonly used to describe private investment vehicles that often engage in active trading of various types of securities and commodities. Although some funds are subject to certain federal reporting requirements, hedge funds are generally exempt from direct federal regulation.

²Leverage is broadly defined as the ratio between some measure of risk and capital. Simple balance sheet leverage is assets divided by capital. However, this measure of leverage does not take into account risk from off-balance sheet activities, such as the use of derivatives.

regulatory authority limits regulators' ability to identify and mitigate potential systemic risk.³

Results in Brief

LTCM was able to establish leveraged trading positions of a size that posed potential systemic risk, primarily because the banks and securities and futures firms⁴ that were its creditors and counterparties failed to enforce their own risk management standards. Other market participants and federal regulators relied upon these large banks and securities and futures firms to follow sound risk management practices in providing LTCM credit. However, weaknesses in the risk management practices of these creditors and counterparties allowed LTCM's size and use of leverage to grow unrestrained. According to federal financial regulators, these weaknesses, at least in part, resulted from overreliance on the reputations of LTCM's principals, the relaxing of credit standards that typically occurs during periods of sustained economic prosperity, and competition between banks and securities and futures firms for hedge fund business.

The effects of these weaknesses became apparent during the unsettled market conditions that occurred in the summer of 1998. LTCM began to lose large amounts of money—\$1.8 billion in August alone—in various trading positions worldwide and by mid-September was on the verge of failure. The Federal Reserve facilitated a private sector recapitalization of LTCM because of concerns that a rapid liquidation of LTCM's trading positions and related positions of other market participants in already highly volatile markets might cause extreme price movements and cause some markets to temporarily cease functioning. Following the LTCM crisis, a group of major financial firms prepared a report that addressed risk management issues and recommended improvements to financial firms' existing counterparty risk practices.

Federal financial regulators did not identify the extent of weaknesses in banks' and securities and futures firms' risk management practices until after LTCM's near-collapse. Although regulators were aware of the potential systemic risk that hedge funds can pose to markets and the perils of declining credit standards, until LTCM's near-collapse, they said they believed that creditors and counterparties were appropriately constraining

³Systemic risk is generally defined as the risk that a disruption (at a firm, in a market segment, to a settlement system, etc.) could cause widespread difficulties at other firms, in other market segments, or in the financial system as a whole.

⁴Broker-dealers and futures commission merchants are often part of larger organizations, which for the purpose of this report we refer to as securities and futures firms. These firms may include a holding company, if one exists, and other subsidiaries organized under the holding company. When we refer to affiliates, we are referring to the holding company and any subsidiaries engaged in financial activities.

hedge funds' leverage and risk-taking. However, examinations done after LTCM's near-collapse revealed weaknesses in credit risk management by banks and broker-dealers that allowed LTCM to become too large and leveraged. The existing regulatory approach, which focuses on the condition of individual institutions, did not sufficiently consider systemic threats that can arise from nonregulated entities, such as LTCM. Similarly, information periodically received from LTCM and its creditors and counterparties did not reveal the potential threat posed by LTCM. Since LTCM's near-collapse, regulators and industry groups have taken steps to address many of the issues raised, including revising examination guidance and enhancing information reporting.

Because of the blurring in recent years of traditional lines that separate the businesses of banks and securities and futures firms, it is more important than ever for regulators to assess information that cuts across these lines. Regulators for each industry have generally continued to focus on individual firms and markets, the risks they face, and the soundness of their practices, but they have failed to address interrelationships across each industry. The risks posed by LTCM crossed traditional regulatory and industry boundaries, and the regulators would have needed to coordinate their activities to have had a chance of identifying these risks. Although regulators have recommended improvements to information reporting requirements, they have not recommended ways to better identify risks across markets and industries. We are recommending that federal financial regulators develop ways to better coordinate oversight activities that cross traditional regulatory and industry boundaries.

Lack of authority over certain affiliates of securities and futures firms limits the ability of the Securities and Exchange Commission (SEC) and the Commodity Futures Trading Commission (CFTC) to identify the kind of systemic risk that LTCM posed. Although SEC and CFTC regulate registered broker-dealers and futures commission merchants (FCMs),⁵ they do not have the authority to regulate unregistered affiliates of broker-dealers and FCMs except for limited authority to gather certain information. This lack of authority, or regulatory "gap," has become more significant as the percentage of assets held outside the regulated entities has grown; for example, almost half of the total assets of four major securities and futures firms are held outside the registered broker-dealers. These unregistered affiliates often have large positions in such markets as over-the-counter derivatives and can be major providers of leverage in the markets, as they were in the LTCM case. How they manage their own risks,

⁵FCMs are firms that buy and sell futures contracts as agents for customers.

as well as their provision of leverage to counterparties, can affect the financial system.

The President's Working Group report recognized this regulatory gap and recommended that Congress provide SEC and CFTC expanded authority to obtain and verify information from unregistered affiliates of broker-dealers and FCMs. However, this recommendation may not go far enough in enabling SEC and CFTC to more quickly identify and respond to the next potential systemic crisis. The Working Group recommendation would still leave important providers of credit and leverage in the financial system without firmwide risk management oversight by financial regulators. For example, LTCM was able to become too large and excessively leveraged, in part, through its dealings with these providers—the unregulated affiliates of broker-dealers and FCMs. Without additional authority to regulate the affiliates, SEC and CFTC do not have the authority needed to identify and address potential weaknesses in securities and futures firms' risk management practices that might lead to the next systemic crisis. Such authority could be similar to that already available to the Federal Reserve over bank holding companies.

Expanding SEC's and CFTC's regulatory authority over unregistered affiliates of broker-dealers and FCMs to include the ability to examine, set capital standards, and take enforcement actions, raises controversial issues and operational considerations that would have to be recognized and addressed. For example, some believe that expanding SEC's and CFTC's authority would undermine market discipline. However, we believe that expanded authorities would not lessen the role of effective market discipline and that imprudent behavior could result in a firm's failure with creditors and investors suffering losses. It also would require that SEC and CFTC evaluate their operational and resource capacities to accommodate any expanded authority. However, the number of firms that are likely to be of concern is limited and thus should not involve a significant resource commitment. In order to identify and prevent potential future crises, we are suggesting that Congress consider providing SEC and CFTC authority to regulate affiliates of broker-dealers and FCMs.

Background

Following the announcement of the Russian debt moratorium in mid-August 1998, investors began to seek superior credit quality and higher liquidity; and credit spreads widened in markets around the world, creating major losses for LTCM and other market participants. The Bank

for International Settlements (BIS)⁶ described the events of last summer as follows:

“In mid-August 1998 ... financial markets around the globe experienced extraordinary strains, raising apprehensions among market participants and policy makers of an imminent implosion of the financial system. As investors appeared to shy away from practically all types of risk, liquidity dried up in financial markets in both industrial and emerging economies, and many borrowers were unable to raise financing even at punitive rates. Prices for all asset classes except the major industrial country government bonds declined and issuance of new securities ground to a halt.”

It was in this financial environment that Federal Reserve officials deemed the rapid liquidation of LTCM’s worldwide trading positions and those of others in the market a potential systemic threat to markets worldwide. As a result, the Federal Reserve facilitated the private sector recapitalization of LTCM by its largest creditors and counterparties (the Consortium).⁷

Oversight of hedge fund leverage and risk-taking is left to creditors and counterparties, which includes banks and securities and futures firms. These firms are expected to perform risk analysis and price according to risk, i.e., charge higher interest rates for more risky activities. These activities are part of market discipline. Regulators play a secondary role in that they are supposed to conduct oversight activities to help ensure that regulated banks and securities and futures firms follow prudent practices, including their business dealings with hedge funds.

Long-Term Capital Management

LTCM was considered unique among hedge funds because of the large scale of its activities and size of its positions in certain markets. BIS considered LTCM to be a “market-maker” in some markets. According to some in the industry, LTCM’s counterparties often treated it more like an investment bank than a hedge fund. Hedge fund researchers estimate that 70 percent of hedge funds use leverage, most with a leverage ratio of less than 2 to 1. However, leverage was an important part of LTCM’s investment strategy. LTCM’s leverage was achieved in various ways,

⁶BIS was established in 1930 in Basle, Switzerland, by European central banks. The Federal Reserve joined the BIS board in 1994. The objectives of BIS are to promote the cooperation of central banks and to provide additional facilities for international operations.

⁷On September 23, 1998, 14 major domestic and foreign banks and securities firms agreed to recapitalize LTCM. On September 28, 1998, they contributed approximately \$3.6 billion, representing 90 percent of the net asset value of the fund on that date. The 14 firms were: Chase Manhattan Corporation; Goldman Sachs Group L.P.; Merrill Lynch & Co. Inc.; J.P. Morgan & Co. Incorporated; Morgan Stanley Dean Witter & Co.; Salomon Smith Barney (Travelers Group); Credit Suisse First Boston Company; Barclays PLC; Deutsche Bank AG; UBS AG; Bankers Trust Corporation; Société Générale; Paribas; and Lehman Brothers Holdings, Inc.

including derivatives transactions,⁸ repurchase agreements,⁹ short sales,¹⁰ and direct financing (loans). LTCM was also able to increase its leverage by negotiating favorable credit terms for these transactions. For example, LTCM was able to negotiate credit enhancements, including zero initial margin,¹¹ two-way collateral requirements,¹² and rehypothecation rights.¹³ Although leverage was key to LTCM's high returns, it also magnified LTCM's losses. For additional detail about the events surrounding LTCM's near-collapse, see appendix I.

Although LTCM relied on leverage as an integral part of its investment strategy, as shown in table 1, high leverage is not unique to LTCM. A simple leverage ratio is only one indicator of riskiness. Although several large securities and futures firms had leverage ratios comparable to LTCM's, according to SEC, the assets carried by the securities firms were less volatile. In addition, the President's Working Group report¹⁴ noted that these firms may be in a better position to ride out market volatility because they tend to have more diversified revenue and funding sources than hedge funds. These benefits, however, tend to be offset by securities and futures firms' more constricted costs structures, higher fixed operating expenses, and illiquid assets.

⁸Derivatives are financial products whose value is determined from an underlying reference rate (interest rates, foreign currency exchange rates); index (reflects the collective value of various financial products); or asset (stocks, bonds, and commodities). Derivatives can be (1) traded through central locations, called exchanges, where buyers and sellers, or their representatives, meet to determine prices; or (2) privately negotiated by the parties off the exchanges or over the counter (OTC).

⁹Repurchase agreements are agreements between buyers and sellers of securities, whereby the seller agrees to repurchase the securities at an agreed-upon price and, usually, at a stated time.

¹⁰Short sales involve borrowing securities and selling them in hopes of repurchasing them at a lower price at a later date.

¹¹Initial margin is the amount of cash or eligible securities required to be deposited with a counterparty before parties engage in a transaction.

¹²Two-way collateral means that both parties to a contract are required to post collateral, depending on the direction of the credit exposure.

¹³Hypothecation means offering assets owned by a party other than the borrower (e.g., collateral held by the borrower from another transaction, such as a derivatives contract) as collateral for a loan without transferring the title. Rehypothecation is the reuse of posted collateral.

¹⁴Hedge Funds, Leverage, and the Lessons of Long-Term Capital Management, Report of The President's Working Group on Financial Markets, Apr. 28, 1998.

Table 1: Comparison of LTCM's Leverage to Major Securities and Futures Firms

Institution	Leverage Ratio^a
LTCM	28-to-1
Goldman Sachs Group, L.P.	34-to-1
Lehman Brothers Holdings, Inc.	28-to-1
Merrill Lynch & Co., Inc.	30-to-1
Morgan Stanley Dean Witter & Co.	22-to-1

^aSimple balance sheet leverage calculation (ratio of assets to equity capital).

Source: GAO analysis of the President's Working Group hedge fund report and the firms' 1998 annual report data.

Most of LTCM's balance sheet consisted of trading positions in government securities of major countries, but the fund was also active in securities markets, exchange-traded futures, and over-the-counter (OTC) derivatives. According to regulators, some of its positions were considered "very significant" relative to trading in specific securities in those markets. As of August 31, 1998, LTCM held about \$1.4 trillion notional value of derivatives contracts off-balance-sheet, of which more than \$500 billion were contracts on futures exchanges and at least \$750 billion were OTC derivatives. Although the notional, or principal, amount of derivatives contracts is one way that derivatives activity is measured, it is not necessarily a meaningful measure of actual risk involved. The actual amount at risk for many derivatives varies by both the type of product and the type of risk being measured. A few of the futures positions, both on U.S. and foreign exchanges, were quite large (over 10 percent) relative to activity in those markets. According to LTCM officials, LTCM was counterparty to over 20,000 transactions and conducted business with over 75 counterparties. BIS reported that LTCM was "perhaps the world's single most active user of interest rate swaps."¹⁵

Financial Regulatory Structure

Hedge funds are generally not subject to direct federal regulation, instead they are indirectly "regulated" by the banks and securities and futures firms that are their creditors and counterparties. The regulators' role is to ensure that those banks and securities and futures firms are practicing prudent risk management, including the risks they take in dealing with hedge funds. A primary mission of bank regulators is to promote the safety and soundness of the banking system, and this is achieved primarily through ensuring the safety and soundness of individual institutions. Three federal bank regulators oversee banks, some of which are also subject to state regulatory oversight.¹⁶ Bank regulators have the authority to establish

¹⁵69th Annual Report, 1 April 1998-31 March 1999, Bank for International Settlements, Basle, Switzerland, June 7, 1999.

¹⁶The Federal Reserve oversees all bank holding companies and all state-chartered banks that are members of the Federal Reserve. The Office of the Comptroller of the Currency oversees banks with

capital requirements, establish information-reporting requirements, conduct periodic examinations, and take enforcement actions. The Federal Reserve, the lender of last resort for banks and other financial institutions, also has an additional objective of ensuring the overall stability of the U.S. financial system.

SEC's and CFTC's primary purposes are to protect investors or customers in the public securities and futures markets and to maintain fair and orderly markets. Unlike the bank regulators, which can regulate all bank activities, SEC and CFTC are authorized to regulate only activities involving securities and futures and only those entities that trade these products. SEC regulates activities involving securities and the firms that trade these products. Such firms include broker-dealers, which must register with SEC and comply with its requirements, including capital requirements. Broker-dealers must also comply with the requirements of various self-regulatory organizations (SROs) of which they are members, such as the New York Stock Exchange (NYSE) and National Association of Securities Dealers (NASD).¹⁷ CFTC regulates activities involving FCMs, which must also comply with rules imposed by futures SROs—the various futures exchanges, such as the Chicago Board of Trade and Chicago Mercantile Exchange, and an industry association, the National Futures Association (NFA). SEC and CFTC have the authority to establish capital standards and information reporting requirements, conduct examinations, and take enforcement actions against registered broker-dealers and FCMs, but generally not their unregulated affiliates.

The U.S. financial regulatory system has evolved over time, in part, in response to financial crises. For example, SEC and the Federal Deposit Insurance Corporation (FDIC) were created during the depression to fill perceived gaps in the regulatory structure. In the 1980s and 1990s, crises and disruptions to markets have revealed additional regulatory gaps. Many of these gaps have been filled by extensions of authority rather than by the creation of new agencies. For example in 1990 and 1992, in response to the Drexel bankruptcy, Congress provided SEC and CFTC, respectively, with authority to obtain information from certain broker-dealer and FCM affiliates. However, SEC and CFTC still lack consolidated regulatory authority over securities and futures firms.

national charters. In addition, the Federal Deposit Insurance Corporation oversees banks with state charters that are not members of the Federal Reserve.

¹⁷SROs assist SEC and CFTC in implementing the federal securities and commodities laws.

Scope and Methodology

As agreed, our objectives were to discuss (1) how LTCM became large and leveraged enough to pose a potential systemic threat, (2) what federal regulators knew about LTCM and when they found out about its problems, (3) what the extent of coordination among regulators was, and (4) whether regulatory authority limits regulators' ability to identify and mitigate potential systemic risk. To fulfill our objectives, we reviewed the events surrounding LTCM's near-collapse, including reviews of information collected by CFTC, the Federal Reserve, and SEC and relevant documents obtained from various other financial regulators. We reviewed "Hedge Funds, Leverage, and the Lessons of Long-Term Capital Management" issued on April 28, 1999, by the President's Working Group on Financial Markets (President's Working Group).¹⁸ We also reviewed "Improving Counterparty Risk Management Practices" issued on June 21, 1999, by the Counterparty Risk Management Policy Group (Policy Group).¹⁹ In addition, we reviewed the following reports and regulatory guidance:

- "Sound Practices for Banks' Interactions with Highly Leveraged Institutions," Jan. 1999, Basle Committee on Banking Supervision;²⁰
- "Banks' Interaction with Highly Leveraged Institutions," Jan. 1999, Basle Committee on Banking Supervision;
- "Supervisory Guidance Regarding Counterparty Credit Risk Management" (SR-99-3)(SUP), Feb. 1, 1999;
- OCC Bulletin 99-2, Jan. 25, 1999; and
- "Broker-Dealer Risk Management Practices Joint Statement," July 29, 1999, SEC, NYSE, and NASD Regulation, Inc. (NASDR).

Finally, we reviewed various other articles, studies, surveys, reports, papers, and guidance.

We interviewed officials from the Federal Reserve Board, the Federal Reserve Bank of New York, SEC, CFTC, the Department of the Treasury

¹⁸The President's Working Group was established by executive order in 1988 following the 1987 stock market crash. Its purpose was to enhance the continued integrity, competitiveness, and efficiency of U.S. financial markets and maintain the public's confidence in those markets. We are currently reviewing the activities of the President's Working Group in a separate report to be issued in the near future.

¹⁹The 12 firms that participated in and presented the report were Barclays; Bear Stearns; Chase Manhattan Corp.; Citigroup; Credit Suisse First Boston; Deutsche Bank; Goldman Sachs & Co.; Lehman Brothers; Merrill Lynch & Co., Inc.; J.P. Morgan & Co., Inc.; Morgan Stanley Dean Witter; and UBS AG.

²⁰The Basle Committee on Banking Supervision is a committee of banking supervisory authorities that was established by the Central Bank Governors of the Group of Ten countries in 1975. It meets under the auspices of BIS in Basle, Switzerland. The Group of Ten consists of 11 major industrialized member countries—Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the United States, and the United Kingdom.

(Treasury), Office of the Comptroller of the Currency (OCC), FDIC, and the Department of Justice. However, we focused on the activities of the members of the President's Working Group, which includes the heads of Treasury, the Federal Reserve Board, SEC, and CFTC. We also interviewed various industry officials. In addition, we collected information from the 14 consortium members and met with LTCM officials. Finally, we drew upon our relevant prior work.²¹

We requested comments on a draft of this report from the heads of CFTC, the Federal Reserve, SEC, and Treasury. They provided written comments, which are discussed near the end of this letter and reprinted in appendixes II through V. We did our work in Washington, D.C.; New York, NY; and Greenwich, CT between October 1998 and August 1999 in accordance with generally accepted government auditing standards.

Lapses in Market Discipline Enabled LTCM to Have Large, Leveraged Trading Positions, Creating Potential Systemic Risk

The LTCM crisis demonstrated that lapses in market discipline can create potential systemic risk. Although the creditors and counterparties that supplied leverage to LTCM had policies requiring that they conduct due diligence of LTCM's activities, they were not fully aware of the size of LTCM's trading positions and the risk these might pose to financial markets until days before its imminent collapse. The LTCM crisis has renewed concerns among regulators about systemic risk and illustrates the risks that can exist in large trading positions. Since LTCM's near-collapse, at the request of SEC's chairman, a group of creditors and counterparties has developed a framework to strengthen their risk management practices and enhance market discipline.

Market Discipline Did Not Constrain LTCM's Leverage and Risk-taking

In our market-based economy, market discipline is the primary mechanism to control risk-taking. For market discipline to be effective, it is essential for creditors and counterparties to increase the costs or decrease the availability of credit to customers as the latter assume greater risks. The President's Working Group's hedge fund report stated that increasing the cost or reducing the availability of credit "provides a powerful economic incentive for firms to constrain their risk-taking." It added, however, that "[market participants'] motivation is to protect themselves but not the system as a whole ... No firm ... has an incentive to limit its risk-taking in order to reduce the danger of contagion for other firms."

²¹Securities Firms: Assessing the Need to Regulate Additional Financial Activities (GAO/GGD-92-70, Apr. 21, 1992); Financial Derivatives: Actions Needed to Protect the Financial System (GAO/GGD-94-133, May 18, 1994); Financial Derivatives: Actions Taken or Proposed Since May 1994 (GAO/GGD/AIMD-97-8, Nov. 1, 1996); and Risk-Based Capital: Regulatory and Industry Approaches to Capital and Risk (GAO/GGD-98-153, July 20, 1998).

Although market discipline can be effective in constraining leverage and risk-taking, the regulators found that some of LTCM's creditors and counterparties failed to apply appropriate prudential standards in their dealings with that firm. According to the President's Working Group report, such standards include (1) due diligence assessments of the financial soundness and managerial ability of the counterparty, including its risk profile; (2) requirements for ongoing financial reports, supplemented by information on the prospective volatility of the counterparty's positions and qualitative evaluations; (3) collateral requirements against present and potential future credit exposures, when insufficient information is available on the counterparty's creditworthiness; (4) credit limits on counterparty exposures; and (5) ongoing monitoring of the counterparty's financial condition. Although some firms were willing to compromise their standards to do business with LTCM, others refused to do so. According to LTCM officials, these firms believed that LTCM would not provide sufficient information about its investment strategies.

Regulators cited a number of reasons why some financial firms did not apply adequate market discipline in their dealings with LTCM, including the following:

- LTCM benefited from a "halo" effect; that is, creditors and counterparties appeared to base their credit decisions for LTCM on the credentials of its principals—among whom were a former vice chairman of the Federal Reserve Board and two Nobel laureates—rather than on traditional credit analysis.
- Business with LTCM and other hedge funds was profitable for financial firms, and competition for this business among major banks and securities firms provided an additional incentive to relax credit standards.
- Favorable economic conditions had prevailed for several years, contributing to an atmosphere in which financial firms liberalized their credit standards.

In addition, regulators found that some of the analytical tools used by banks and securities and futures firms to assess LTCM's riskiness appeared to have been flawed. The firms apparently shared LTCM's view that its risks were widely diversified because its positions were spread across markets around the globe. However, LTCM's worldwide losses in August and September showed that although its risks were spread across global markets, LTCM had replicated similar strategies in each market. As

a result, when its strategies failed, they failed across markets. According to the President's Working Group report, the firms' risk models underestimated the size of shocks and the resulting price movements that might affect world markets. Related to this, they did not fully consider the potential impact on markets of a liquidation of LTCM's positions.

The LTCM Crisis Illustrated that Potential Systemic Risk Can Exist in Large Trading Positions

The Federal Reserve's decision to facilitate the private sector recapitalization of LTCM was based on its concern that LTCM's failure might pose systemic risk. Although a systemic crisis can result from the spread of difficulties from one firm to others, in this case the potential threat was to the functioning of financial markets. According to Federal Reserve officials, they were concerned that rapid liquidation of LTCM's very large trading positions and of its counterparties' related positions in the unsettled market conditions of September 1998 might have caused credit and interest rate markets to experience extreme price moves and even temporarily cease functioning. This could have potentially harmed uninvolved firms and adversely affected the cost and availability of credit in the U.S. economy.

LTCM's creditors and counterparties would have faced sizeable losses if LTCM had failed. Estimates are that individual firms might have lost from \$300 million to \$500 million each and that aggregate losses for LTCM's top 17 counterparties might have been from \$3 billion to \$5 billion. However, according to financial regulators, these losses were not large enough to threaten the solvency of LTCM's major creditors. Among the eight U.S. firms that participated in the recapitalization, equity capital at the end of fiscal 1998 ranged from \$4.7 billion to \$42.7 billion. The Basle Committee on Banking Supervision noted that these losses could have increased further if the repercussions had spread to markets more generally.

According to Federal Reserve officials, LTCM's failure, had it occurred in the unsettled market conditions of September 1998, might have disrupted market functioning because of the size and concentration of LTCM's positions in certain markets and the related sales of other market participants. As noted previously, the firm had sizeable trading positions in various securities, exchange-traded futures, and OTC derivatives markets. Moreover, LTCM's counterparties might have faced the prospect of "unwinding" their own large LTCM-related positions in the event of that firm's default. Unwinding these positions could have been difficult: according to LTCM officials, about 20,000 transactions were outstanding between LTCM and its counterparties at the time of its near-collapse.

According to Federal Reserve officials, a default by LTCM on its contracts might have set off a variety of reactions. For example, most of LTCM's creditors and counterparties held collateral against their current credit exposures to LTCM. In the event of LTCM's default, however, the exposures might have risen in value by the time the collateral was sold, resulting in considerable losses. Also, derivatives counterparties, faced with sudden termination of all their contracts with LTCM, would have had to rebalance their firms' overall risk positions; that is, they would have had to either purchase replacement derivatives contracts or liquidate their related positions. In addition, firms that had lent securities to LTCM might have had to sell the collateral held and buy replacement securities in the marketplace at prevailing prices. In considering the prospect of these developments, Federal Reserve officials said that a "fire sale" of financial instruments by LTCM's creditors and counterparties might have set off a cycle of price declines, losses, and further liquidation of positions, with the effects spreading to a wider group of uninvolved investors.

After the Crisis, Major Financial Firms Proposed Improved Risk Standards

In January 1999, a group of 12 major, internationally active commercial and investment banks formed the Policy Group to promote enhanced management of counterparty risk by financial firms. In July 1999, the Policy Group issued a report that reviewed key risk management issues, evaluated emerging improvements, and made recommendations.²² In addition to recommendations to improve risk management practices, the report recommended ways to improve financial institutions' assessments of their own leverage and that of their counterparties. It also recommended that risk evaluation frameworks incorporate linkages among various types of risk, such as between credit and market risks, and that stress-testing include a focus on potential illiquidity in markets. The report further recommended enhanced information-sharing with regulators on counterparty relationships but stated that this should be strictly voluntary, informal, and confidential. (We discuss this in greater detail later in the report.)

The industry reportedly already had begun to respond to the risks posed by LTCM. According to surveys done by Arthur Andersen LLP,²³ the LTCM crisis prompted strong reactions from virtually all large firms that were counterparties of hedge funds and an increased sense of awareness regarding risk management policies and procedures. Andersen noted that all surveyed firms reported a lower level of hedge fund exposures in mid-

²²Improving Counterparty Risk Management Practices, the Counterparty Risk Management Policy Group, June 21, 1999.

²³Arthur Andersen Market Practices Group, New York, NY.

1999 compared to before the crisis, notwithstanding a slow increase toward the end of the period. Andersen reported that industry reactions have included the following:

- The number of banks and securities and futures firms doing business with hedge funds has decreased, and the business is substantially more concentrated among the largest, globally active firms.
- These firms have focused on their risk management activities, including obtaining more complete information through required data reports and on-site visits; tightening credit terms and increasing margin requirements; and improving risk models and recognizing the risks of unanticipated market events.
- The hedge funds have become more forthcoming with meaningful data and information ensuring greater transparency to their activities.

Although these reactions appear to have improved market discipline, as the President's Working Group noted, market history indicates that even painful lessons recede from memory with time. Regulators, through their oversight activities, can play a role in helping to ensure the maintenance of sound risk management practices.

Regulatory Oversight Did Not Identify Lapses in Risk Management Practices and the Threat Posed by LTCM

Regulators had expressed general concern about the potential risks posed by hedge funds and the perils of declining credit standards, but they said they generally believed that hedge funds' creditors and counterparties were appropriately constraining the funds' leverage and risk-taking. Examinations, which are one way regulators oversee the activities of their regulated entities and markets, done after the crisis revealed that banks and securities and futures firms had not consistently followed prudent standards. In addition, information collected through off-site monitoring from regulated entities and, in some cases, from LTCM also did not fully identify the potential threat that LTCM posed to financial markets. Since the LTCM crisis, many of the regulators have issued additional regulatory guidance and have recommended additional regulatory steps that could help them better identify lapses in risk management practices like those involving LTCM. Some market participants have also recommended ways to enhance the information voluntarily reported to regulators in addition to enhancing their own practices.

Federal Regulators Had Expressed General Concerns About Hedge Funds for Years

Since the early 1990s, regulators have been aware that the activities of hedge funds could significantly affect financial markets. In 1992, SEC observed that “Hedge funds have the potential to both increase and decrease liquidity in the markets in which they invest.” Also in 1992, Treasury, the Federal Reserve, and SEC issued a joint report on government securities that stated that “their capacity for leverage allows hedge funds to take large trading positions disproportionate to their capital base.”²⁴ In 1994, one of the members of the Federal Reserve Board testified before the Committee on Banking, Finance and Urban Affairs that “... hedge funds, because they are large and are willing to take large positions, can have important effects on financial markets.” Between 1992 and early 1998, regulators observed that fund managers and their creditors and counterparties appeared to have adequate controls in place.

In late 1997 and early 1998, the Federal Reserve updated its previous work on hedge fund activities by surveying several large banks about their relationships with hedge funds. The Federal Reserve survey results revealed that LTCM was one of the large hedge funds mentioned but did not identify any specific concerns about bank relationships with LTCM. In addition, the survey results indicated that banks had adequate procedures in place to manage their relationships with hedge funds and indicated no concern about exposures to the funds because of the quality of collateral held (cash and U.S. Treasuries). Bank examiners did not independently verify actual credit practices at the time of the survey but were instructed to focus special attention on bank relationships with hedge funds given their “special” risk profile.

As is common during periods of economic expansion, bank regulators had been urging bankers to maintain prudent lending standards and alerting them to underwriting practices that could become unsound. In June 1998, the Federal Reserve and OCC also warned banks not to succumb to competitive pressures and compromise standards. However, before LTCM’s near-collapse, regulators generally appeared to be unaware of the extent to which credit standards had declined in relation to certain hedge funds. Just days before federal officials visited LTCM in Greenwich, CT, to discuss its problems, the Chairman of the Federal Reserve Board testified before the House Committee on Banking and Financial Services that “hedge funds were strongly regulated by those who lend the money.” At the same hearing, the Secretary of the Treasury basically agreed with the Chairman that hedge funds are “in effect, regulated by the creditors.”

²⁴Improper Activities of Government Securities Markets,” Joint Report by the Department of the Treasury, the Federal Reserve Board, and SEC (Jan.1992).

However, he raised questions about whether additional things could be done to maintain discipline among creditors.

Regulators Did Not Identify Weaknesses in Firms' Risk Management Practices Until After the Crisis

Federal bank, securities, and futures regulators did not identify the lapses in risk management practices and the threat posed by LTCM, primarily because they limited their focus to problems involving the largest credit exposures of the firms they regulated. However, LTCM was not among the largest exposures of any of these firms. After the crisis, when they looked again at the regulated firms, the regulators found substantial lapses in credit risk management practices of banks' and broker-dealers' relationships with hedge funds.

Federal financial regulators do on-site examinations to obtain first-hand knowledge about the operations of the firms that they regulate. Bank regulators focus their examinations on internal control systems and risk management and look for problems in areas that could significantly affect the safety and soundness of the bank, such as major credit exposures. Bank regulatory officials said that because its positions were generally collateralized, examiners did not identify LTCM as a major risk to any bank and did not investigate the full range of the banks' transactions with LTCM until after the crisis. Securities examinations, which focused primarily on investor protection and financial responsibility, internal controls, and risk management of individual broker-dealers, did not identify the extent of activity with LTCM, much of which was done in affiliates outside the regulated entities.

After the crisis, when federal financial regulators focused their examinations on banks' and broker-dealers' relationships with LTCM, they discovered a number of risk management weaknesses. The weaknesses were also reported to be evident in the firms' dealings with other highly leveraged customers, including commercial and investment banks. For example, Federal Reserve officials found that banks failed to perform adequate due diligence, relying primarily on collateralization of their current exposures. When hedge funds failed to provide sufficient details about their positions and investment strategies, banks generally failed to apply controls to mitigate their risks. According to regulatory officials, LTCM's creditors were largely unaware of the size and scope of its trading positions until its near-collapse. Federal Reserve officials also reported that the banks had inadequate credit stress-testing procedures and weaknesses in ongoing exposure monitoring.

SEC officials found similar problems at broker-dealers. For example, SEC found that credit decisions were often not consistent with established

policies, and hedge funds provided limited or no information on aggregate security portfolios, leverage, risk concentrations, performance, or trading strategies. SEC officials also found that hedge funds were not always subject to greater disclosure requirements commensurate with their greater risks. In addition, broker-dealers, like commercial banks, failed to factor concentration and liquidity risks into assumptions about the riskiness of certain activities, and stress-testing was not thoroughly performed at all firms. CFTC investigated the dealings between LTCM and two of its FCMs, which had numerous and extensive relationships with LTCM, to determine if there were any violations of the Commodity Exchange Act or the rules thereunder but found no such violations.

Offsite Monitoring Did Not Reveal the Potential Systemic Threat Posed by LTCM

In addition to on-site examinations, regulators perform off-site monitoring through periodic information received from regulated entities and other market participants, such as LTCM. However, periodic information provided to the regulators did not reveal the potential systemic threat posed by LTCM. For example, although bank regulators require each individual bank and bank holding company to file detailed quarterly statements of financial condition and income and operations, this information does not identify any individual creditors and counterparties and would not be expected to have identified potential problems related to LTCM.

SEC and CFTC require periodic reports from registered broker-dealers and FCMs and receive voluntary information from the unregulated derivatives affiliates of these firms. For example, they require broker-dealers and FCMs to report quarterly statements of financial condition, including supplemental information. However this information, like the information provided to bank regulators, does not identify individual exposures. SEC and CFTC, under their risk assessment authorities, also require broker-dealers and FCMs to provide certain information about significant affiliates.²⁵ However, the affiliates' net exposures to LTCM were not large enough to be classified as material and were not reported. In addition, members of the Derivatives Policy Group (DPG) voluntarily provide information to SEC and CFTC about the OTC derivatives activities of their unregulated OTC derivatives affiliates.²⁶ This information identifies the

²⁵The Market Reform Act of 1990 authorized SEC to collect certain information from registered broker-dealers about the activities and the financial condition of their holding companies and materially associated persons. The Futures Trading Practices Act of 1992 provided CFTC with similar authority.

²⁶DPG was organized in 1994 to address the public policy issues raised by the OTC derivatives activities of unregistered affiliates of SEC-registered broker-dealers and CFTC-registered FCMs. DPG-member firms included CS First Boston, Goldman Sachs, Lehman Brothers, Merrill Lynch, Morgan Stanley, and Salomon Brothers (now part of Citigroup). CS First Boston does not report to SEC under the framework because it is subject to the jurisdiction of a foreign regulator.

affiliates' 20 largest individual counterparty credit exposures (net of collateral) but does not routinely identify the counterparties by name. According to SEC officials, LTCM did not show up as a significant exposure because its positions with these affiliates were collateralized.

CFTC also received certain information directly from LTCM because of the nature of its activities. For example, LTCM provided CFTC its annual financial statements and other information because it was a registered commodity pool operator (CPO).²⁷ LTCM's year-end 1997 statement showed its large asset positions, leverage of about 28 to 1, and off-balance sheet derivatives positions exceeding \$1 trillion in notional amount. According to CFTC's testimony in 1998, CFTC staff reviewed LTCM's financial statements, along with more than 1,000 such statements received annually, and found no compliance problems.²⁸ Further, LTCM was considered well capitalized and profitable, and its balance sheet leverage ratio was comparable to other leveraged hedge funds as well as investment and commercial banks. CFTC officials explained that CFTC does not have the authority to regulate CPOs for prudential purposes, nor does it review the appropriateness or nature of CPO investments. Instead, they said that CFTC focuses on whether CPOs engage in improper activity, such as market manipulation or fraud. NFA completed a limited compliance audit of LTCM's annual statement in April 1998 but was not required to, nor did it, analyze the report for the appropriateness of LTCM's investment strategy and risk management. LTCM also provided CFTC daily information concerning some of its exchange-traded futures positions because those positions made it a large trader as defined by CFTC regulation.²⁹ CFTC officials said that the Large Trader System works well for detecting price manipulation in the exchange-traded futures markets but is not useful for monitoring activities in broader financial markets because the information is limited to futures trading.

Finally, SEC requires institutional investment managers to file a quarterly report of equity holdings if they have equity securities under management of \$100 million or more. Pursuant to Section 13(f) of the Exchange Act, LTCM filed an itemized schedule of its equity holdings exceeding the

²⁷ A CPO is the manager of a commodity pool, which is a collective investment vehicle that trades futures contracts.

²⁸ Testimony of CFTC before the U.S. Senate Committee on Agriculture, Nutrition and Forestry, Dec. 16, 1998.

²⁹ 17 C.F.R. § § 17 & 18 (1998) require daily reporting by large traders on their futures and options positions, delivery notices, and exchanges for cash. The exact level of a reportable position differs from contract to contract and is defined in CFTC Rule 15.03. 17 C.F.R. § 15.03 (1998).

reporting threshold, including the name of the issuer, fair market value, number of shares held, and other information.³⁰ SEC officials said that the reports offered no indication of the potential threat LTCM's other activities posed to global financial markets because the information received covered only LTCM's equity securities activities.

Regulators and Industry Adopted and Recommended Improved Oversight and Practices

Following their post-crisis examinations, OCC and the Federal Reserve both issued additional examination guidance on supervising credit risk management. SEC and its SROs also issued joint guidance on risk management practices for broker-dealers. Finally, the President's Working Group and the Policy Group recommended enhanced information reporting requirements.

In early 1999, OCC and the Federal Reserve each issued supplements to their existing guidance to bank examiners that were intended to improve the focus on issues raised by the LTCM crisis and by other world financial problems in 1997 and 1998. Although the degree of detail in the supplements varied, each had similar emphasis on both improving the sophistication of banks' risk management policies concerning counterparties and ensuring that banks practiced and enforced these policies. The regulators intended to prepare their examiners to address not only hedge fund issues, but also other challenges arising from banks' evolving business. They responded to specific flaws in banks' risk management involving LTCM. For example, both agencies noted the unexpected interactions that could occur among market, credit, and liquidity risks in unsettled times and emphasized the importance of stress-testing to ensure that banks did not risk facing unacceptable exposures to their counterparties during such times. They also emphasized the importance of banks' understanding the risk profiles of their counterparties.

In July 1999, SEC and two securities SROs, NYSE and NASDR, issued a joint statement that included a compendium of sound practices and weaknesses noted during their review of risk management systems of registered broker-dealers. The statement provided examples of weaknesses identified, as well as examples of sound practices observed during the review, and stressed the importance of sound practices in today's dynamic markets. Finally, the statement concluded by stressing the importance of maintaining an appropriate risk management system and noted that examination staffs of SEC, NYSE, and NASDR were to increase

³⁰15 U.S.C. § 78m(f).

their emphasis on the review of risk management controls during regulatory examinations.

In its April 1999 report, the President's Working Group identified several areas where information reporting could be improved. It recommended that Congress grant SEC and CFTC authority to collect and verify additional information on broker-dealer and FCM affiliates.³¹ The expanded reporting would include information on credit risk by counterparty; nonaggregated position information; and more detailed data on concentrations (e.g., financial instruments, region, and industry sector), trading strategies, and risk models. It also recommended giving regulators the authority necessary to review risk management procedures and controls at the holding company level and to examine the books and records of the unregulated affiliates. (This issue is discussed in greater detail later in this report.) The Chairman of the Federal Reserve Board declined to endorse this recommendation but deferred to the judgment of those with supervisory responsibility. To enhance market discipline, the President's Working Group also recommended improvements to public reporting and disclosure. First, it recommended that hedge funds be required to disclose current information to the public.³² Second, it recommended that all public companies disclose a summary of direct material exposures to significantly leveraged financial institutions. These entities would be aggregated by sector (for example, commercial banks, investment banks, insurance companies, and hedge funds). According to the President's Working Group, requiring such public disclosure about material exposures to significantly leveraged financial entities could reinforce market discipline.

Finally, the Policy Group report included recommendations about enhancing the quality, timeliness, and relevance of information flows between the major market participants and their regulators, with the provision that such flows be informal, voluntary, and confidential. The report noted that information flows should include informal high-level meetings on a periodic basis to discuss principal risks, market conditions, and trends with potential for market disruptions or systemic risks. In

³¹The President's Working Group report also recommended that Treasury's authority over affiliates of government securities broker-dealers and FCMs be similarly expanded.

³²For hedge funds that are CPOs, the report suggested that the CPO filings might provide the best vehicle for enhanced reporting. In addition, it recommended that large CPOs file quarterly rather than annual reports. The reports could include more meaningful and comprehensive measures of market risk (value-at-risk or stress test results) without requiring the disclosure of proprietary information on strategies or positions. For hedge funds that are not CPOs, Congress would need to enact legislation for authorizing mechanisms for disclosure.

addition, it recommended that financial intermediaries, such as banks and securities and futures firms, voluntarily provide reports to regulators, if requested, detailing information on large exposures on a consolidated basis. The proposed voluntary reporting would include information on large exposures to counterparties.

The format for the voluntary reports would be similar to the voluntary DPG reporting, but with important differences. First, the proposed report would cover not just derivatives but many other types of transactions with counterparties. Second, the proposed report would list a greater number of counterparties than is covered by the DPG report and would include counterparty names. Third, the report would call for the firms to explicitly quantify how potential market illiquidity might affect their risks. Thus, if these reports are provided to regulators, and if they are used to seek additional information on large or growing counterparties, regulators' ability to identify significant concentrations of risk could be enhanced. Although much of the information reporting could provide regulators with additional information that might help them monitor and identify systemic risk, the voluntary nature of the reporting means that firms could withhold information or refuse to cooperate if regulators request additional information. In addition, regulators would not be able to verify the accuracy or completeness of the information provided through examination or inspection.

Existing Coordination Could be Improved to Enhance Regulators' Ability to Identify Risks Across Industries and Markets

Federal financial regulators followed their traditional approaches to oversight in the LTCM case: bank regulators focused on risks to banks; and securities and futures regulators focused on risks to investors, regulated entities, and markets. However, these approaches were not effective because the risks posed by LTCM crossed traditional regulatory and industry boundaries. Regulators would have had a better opportunity to identify these risks if their oversight activities had been better coordinated. More broadly, cross-industry risks have become more common as the activities of major firms have blurred the boundaries among industries, making effective coordination among regulators more important. Although the importance of coordination among the federal financial regulators continues to grow, the President's Working Group report on the LTCM crisis did not include recommendations about ways that the regulators might enhance their coordination.

Bank regulators' traditional role has been to protect the banking system from disruptions and to help reduce the risk to taxpayers from the government-backed guarantees on bank deposits provided through the deposit insurance fund. In fulfilling this role, their approach has been to

focus on maintaining the safety and soundness of banks, including, in the case of the Federal Reserve, examining risks posed by bank affiliates in a bank holding company structure. Bank regulators have various coordination mechanisms, including the Federal Financial Institutions Examination Council³³ and the Shared National Credit Program.³⁴ Securities and futures regulators' traditional role has been to protect investors and the integrity of securities and futures markets. Their approach to maintaining the financial integrity of the regulated firms has been to focus on the extent to which investor funds and investments might be at risk in case of firm failures. SEC and CFTC also have coordinated their efforts through various groups, such as the Intermarket Financial Surveillance Group.³⁵ Other broader coordinating groups exist that cut across industries, including the President's Working Group. However, these groups generally do not provide the type of coordination that includes routine staff-level interaction, including sharing information and observations about specific firms and markets that would be required to reveal potential systemic risk like that posed by LTCM.

Traditional approaches to coordination, although necessary for achieving their regulatory purposes, did not help regulators identify the cross-industry risks that LTCM posed. As discussed previously, the Federal Reserve's December 1997 and January 1998 survey of large banks' relations with hedge funds revealed that LTCM was a large hedge fund. On the basis of what they were told, officials concluded that bank procedures were adequate to control the risks hedge funds posed. In addition, as discussed previously, LTCM did not surface as a problem during routine examinations because bank examiners focused their attention on each bank's exposure (net of collateral), which appeared small in the case of LTCM (and hedge fund exposures overall). In March 1998, CFTC received a year-end 1997 financial report from LTCM. The report showed both the leverage and large derivatives positions that LTCM had accumulated worldwide. CFTC found nothing in the report to raise questions about LTCM's commodity pool operations. On a daily basis LTCM provided CFTC information concerning its reportable positions on U.S. futures

³³The Federal Financial Institutions Examination Council is a mechanism for bank regulators to coordinate certain activities, including developing uniform principles, standards, and report forms and coordinating the development of uniform reporting systems and regulations.

³⁴The Shared National Credit Program is an interagency program designed to review and assess risk in many of the largest and most complex credits shared by multiple institutions (for example, syndicated loans).

³⁵The Intermarket Financial Surveillance Group comprises securities and futures SROs, SEC, and CFTC. It was formed after the 1987 market crash to ensure coordination and cooperation with respect to the financial or operational condition of member firms in times of market stress.

markets, but CFTC determined that these positions did not threaten those markets. In August 1998, SEC heard about troubles at LTCM through market sources. It investigated the exposures of large broker-dealers to LTCM and other hedge funds, but the information submitted indicated that any exposure to LTCM existed outside the registered broker-dealer. Because none of the regulators considered the information they obtained important enough to share with the other regulators, LTCM raises questions about how regulators decide what information needs to be shared.

Even if they had fully coordinated their activities, the regulators still may not have identified the cross-market and industry risks that LTCM posed. In part, this could result because of the information that regulators relied on, such as exposures net of collateral, to determine risk. Had they looked at gross exposures and aggregated them across industry lines, they may have been more likely to recognize the linkages among markets. However, the potential benefits of such coordination could increase as better information becomes available. As discussed previously, the President's Working Group and the Policy Group each recommended that financial intermediaries, including banks and securities and futures firms, make additional information available to their regulators. For example, the Policy Group has recommended that banks and securities and futures firms supply their primary regulator with lists of the counterparties with whom they have their largest aggregate credit risk exposures. The reports would cover a broad range of transactions, such as derivatives contracts, repo agreements, and loan agreements. These reports would also include information on potential future exposures. To fully benefit from this information, regulators might share these lists with one another to identify those counterparties that have large cross-industry activity.

Officials from the Federal Reserve, SEC, and CFTC told us that they share information they judge to be important with other regulators on a case-by-case basis and that this approach generally works well. Moreover, the President's Working Group, which includes the heads of these agencies and the Secretary of the Treasury, did not make recommendations for enhanced coordination, and the Policy Group only acknowledged the possibility of sharing information among regulators under tight restrictions. However, because the traditional lines that separate banks, securities, and futures businesses have been blurred, and large financial firms now compete with each other in offering the same financial services, activities generating risks that cross industries and markets may be increasingly common.

Developing ways to routinely coordinate assessment of cross-industry risks among regulators may take time and require ingenuity. They might have to develop criteria to determine when and what information needs to be shared. Also, focusing on data needed to develop measures of risk that may have systemic implications under stressful conditions may be a place to start. In addition, regulators would have to consider how to address issues related to sharing proprietary and confidential information.³⁶ Nonetheless, given the potential for risks across industry and market lines and the inability of existing coordination methods to effectively monitor such risks, each regulator should be held accountable for identifying methods for coordinating their activities to identify potential systemic risk across industries.

Gap in SEC's and CFTC's Regulatory Authority Limits Their Ability to Identify and Mitigate Systemic Risk

SEC and CFTC lack the regulatory authority to supervise unregistered affiliates of broker-dealers and FCMs. The lack of authority over these affiliates, which often act as financial intermediaries, creates a regulatory gap that impedes SEC's and CFTC's ability to identify and mitigate problems that may threaten markets or the entire financial system. The significance of the gap has grown as the amount of activity conducted outside of the broker-dealers and FCMs has increased. The President's Working Group recognized this gap and the need for SEC and CFTC to have greater authority. However, it did not recommend consolidated regulatory authority over securities and futures firms, which would expand SEC's and CFTC's regulatory authority over unregulated affiliates—primarily the authority to set capital standards, conduct comprehensive examinations, and take enforcement actions. Instead, it recommended greater authority to collect and verify information. As we have stated in past reports, we believe that the existing regulatory gap should be closed, and previous attempts to fill it with greater information reporting have been inadequate. However, we recognize that there are controversial issues to be resolved before filling this gap.

SEC and CFTC Lack Authority to Regulate Affiliates of Broker-Dealers and FCMs

SEC and CFTC generally lack authority to regulate the unregistered affiliates of broker-dealers and FCMs. This gap impedes their ability to identify and mitigate problems at securities and futures firms that could contribute to systemic risk and threaten financial markets. For example, when market participants notified SEC of LTCM's problems in August 1998, SEC surveyed the registered broker-dealers about their hedge fund exposures, in general. However, information submitted suggested that any exposure to LTCM existed outside the registered broker-dealers, either in

³⁶Officials of the Federal Reserve cited the Trade Secrets Act (18 U.S.C. 1905), which applies to all federal agencies, as a potential impediment to information sharing.

the holding companies or in their unregulated affiliates. Because of SEC's limited authority, officials were unable to determine the extent of hedge fund activity at unregulated affiliates of broker-dealers. If SEC had the authority to supervise the activities of the broker-dealer and its affiliates firmwide, it would have been able to obtain information about the exposures of unregulated affiliates of broker-dealers to LTCM. In addition, when SEC staff examined major broker-dealers following LTCM's near-collapse, they had limited access to certain documents and information because credit risk management is primarily a firmwide function conducted at the holding company level and thus outside of SEC's jurisdiction. According to SEC officials, this information is often provided to SEC on a voluntary basis.

Regulators have full regulatory authority over securities and futures activities of broker-dealers and FCMs, but the percentage of assets held outside the regulated entities has grown significantly. At four major securities and futures firms, the percentage of assets held outside the regulated broker-dealer grew from an average of 22 percent in 1994 to 41 percent in 1998. The OTC derivatives activities of the major securities and futures firms are usually conducted through non-broker-dealer and FCM affiliates and are therefore generally outside of the regulatory authority of SEC and CFTC. As a result, SEC and CFTC are not able to supervise all activities that may pose potential threats to the financial system. Table 2 shows that in 1998 the notional value of total derivatives contracts at four major securities and futures firms was larger than LTCM's.³⁷

Table 2: Comparison of Total Notional Value of Derivatives Contracts (dollars in billions)

Entity	Total notional value^a
LTCM	\$1,400
The Goldman Sachs Group, L.P.	3,410
Lehman Brothers Holdings, Inc.	2,398
Merrill Lynch & Co., Inc.	3,470
Morgan Stanley Dean Witter & Co.	2,860

^aTotal notional value includes OTC and exchange-traded derivatives.

Source: GAO analysis of data from the President's Working Group for LTCM as of August 31, 1998. Annual reports for Goldman, Lehman as of November 30, 1998; Morgan Stanley as of November 30, 1998; and Merrill Lynch as of December 25, 1998.

³⁷Notional values are not necessarily a meaningful measure of risk, but there were concerns at the time of LTCM's near-collapse that sudden liquidation of large derivatives positions could affect market stability as counterparties sought to rebalance their own positions.

Regulators Recommended Limited Expansion of SEC and CFTC Authority Over Activities of Affiliates of Broker-Dealers and FCMs, but Regulatory Gap Would Remain

The President's Working Group recommended that Congress expand SEC and CFTC risk assessment authority over unregistered affiliates of broker-dealers and FCMs, but the regulatory gap would remain. As part of that expanded authority, SEC and CFTC would be authorized to (1) require broker-dealers and FCMs and their unregulated affiliates to report credit risk information for significant counterparties; (2) require recordkeeping and reporting of nonaggregated position information; (3) obtain additional data on concentrations, trading strategies, and risk models; and (4) review risk management procedures and controls conducted at the holding company level and examine the records and controls of the holding company and its material unregulated affiliates. According to an official involved with the President's Working Group report, examinations would be limited to verification of the information provided, rather than a comprehensive examination of the entities' risk management and operations. The President's Working Group also reported that it would consider potential additional steps, including consolidated supervision, if evidence emerges that indirect regulation of currently unregulated market participants is not working effectively to constrain excessive leverage and risk-taking in the market.³⁸

If adopted by Congress, providing for enhanced information reporting and giving SEC and CFTC the ability to verify it would be important steps, but SEC and CFTC would still lack the authority to perform comprehensive examinations,³⁹ set capital standards, and take general enforcement actions. These additional authorities could help to ensure that SEC and CFTC are able to supervise the activities of unregulated affiliates of broker-dealers and FCMs that they believe could pose a risk to financial markets. As discussed earlier in the report, the U.S. regulatory structure generally leaves the oversight of hedge funds and highly leveraged institutions to their creditors and counterparties. Regulators are to play a secondary role in overseeing the activities of banks and securities and futures firms, yet SEC and CFTC lack the authority to regulate affiliates of broker-dealers and FCMs. The extent to which SEC and CFTC would choose to exercise this authority could vary on the basis of some articulated criteria, such as asset size, complexity, and riskiness of the unregulated affiliates' activities. The examinations performed after the LTCM crisis illustrate the importance of examinations as part of the

³⁸These next steps could create consolidated supervision of broker-dealers and their currently unregulated affiliates (including enterprise-wide capital standards), direct regulation of hedge funds, and direct regulation of derivatives dealers unaffiliated with a federally regulated entity.

³⁹According to an official involved with the President's Working Group report, the examinations envisioned in the report would simply be a verification of the accuracy of the information provided.

supervisory process, not only to verify the accuracy and completeness of information, but also to determine whether firms are following prudent risk management practices and to review their overall operations. Because of the existing gap, SEC was not able to fully assess the operations of all of the broker-dealers; at some firms certain management functions were conducted outside of the regulated broker-dealer and thus beyond SEC's regulatory purview. Although the President's Working Group recommendation, if adopted by Congress, would authorize SEC to receive this information, it would not ensure that SEC would be granted access to information not specifically referred to in statute.

The authority to set capital standards, among other benefits, would provide a mechanism to better relate leverage to risk in the affiliates of securities and futures firms, which may employ as much leverage as LTCM did.⁴⁰ LTCM has renewed regulatory concerns about leverage and how to measure and manage it. Finally, enforcement authority would provide SEC and CFTC with recourse to take action against the affiliates of broker-dealers and FCMs if they failed to adhere to regulations.

Since 1990, Congress has tried to address this gap through enhanced information reporting. In 1990 and 1992, Congress granted SEC and CFTC, respectively, the authority to establish rules to obtain certain information from affiliates of broker-dealers and FCMs to provide insights into the operations of unregulated affiliates in lieu of direct regulatory authority. Limitations of these risk assessment rules surfaced in the mid-1990s. To supplement the information received under the risk assessment rules, in 1994 the industry formed DPG, whose members voluntarily provide SEC and CFTC with information on the activities of their unregulated OTC derivatives dealer affiliates. For example, DPG firms are to provide SEC and CFTC a list of their 20 largest individual credit exposures (net of collateral) quarterly. However, LTCM's OTC derivatives exposures (net of collateral) to DPG participants did not make it large enough to be included in these reports despite its potential systemic threat to financial markets worldwide. The Policy Group also recommended additional voluntary reporting that could supplement the DPG information. However, it appears that additional information would not fill the regulatory gap that exists for affiliates of broker-dealers and FCMs. Since 1992, we have also recommended that Congress and regulators address the gap in regulatory authority that exists for affiliates of broker-dealers because of the growing

⁴⁰Simple balance sheet leverage is not an indicator of relative riskiness. See table 1 and previous discussion about leverage.

importance of these activities to the regulated entities and the financial system.⁴¹

Expanding SEC and CFTC Authority Over Affiliates Would Raise Controversial Issues

Although expanding SEC and CFTC authority to include the ability to examine, set capital standards, and take enforcement actions, as they deem necessary, would close the existing gap, several controversial issues must be considered. First, extending regulation to previously unregulated activities could increase certain costs of doing business, which, in turn, could partially offset these firms' competitive edge compared to other providers of financial services. However, many of the affiliates' U.S. bank and foreign competitors are already subject to regulatory oversight, so that some oversight of these currently unregulated affiliates may help restore a more level playing field along with reinforcing practices consistent with market discipline. In any case, the amount of regulatory interference can be kept to a minimum by focusing attention on risk management activities already in place. In past work, we found that many sophisticated financial firms were managing risks comprehensively at the holding company level.⁴² Bank regulators are attempting to use the existing risk management systems, including systems of internal control and internal audit, as a focal point for their oversight of banks and bank holding companies. A similar approach could be used by SEC and CFTC to better understand the risk management systems of holding companies in which broker-dealers or FCMs are the primary financial component. By using the existing framework of internal controls, including the internal audit function, after testing its reliability, regulators can minimize the burden imposed on those firms whose risk management systems are up to industry standards.

Second, designing appropriate risk-based capital standards for all affiliates is a controversial issue. Traditional SEC and CFTC capital standards for broker-dealers and FCMs are related to risk but are not truly risk-based. For example, payments due a broker-dealer or FCM on certain OTC derivatives, such as interest rate swaps, are deducted from the firm's net worth, which is the equivalent of a 100-percent capital requirement. This is one reason that such activities are effected outside of the regulated entity. To encourage OTC derivatives-dealing affiliates to move under a regulatory umbrella, SEC has developed a new voluntary regulatory structure for OTC derivatives dealers that provides capital standards for derivatives activities

⁴¹GAO/GGD-92-70, GAO/GGD-94-133, and GAO/GGD/AIMD-97-8.

⁴²GAO/GGD-98-153.

that are more risk-based.⁴³ SEC has announced further initiatives to make capital standards of broker-dealers more risk-based.

Third, Federal Reserve officials expressed concern that extension of regulatory authority, as recommended by the President's Working Group, might undermine market discipline—instead of strengthening it as intended—by creating the impression that the newly regulated firms would be included in the government “safety net.” However, focusing regulatory attention on the risk of securities and futures firms does not mean that the government would keep those institutions from failing. If a large broker-dealer or FCM affiliate became insolvent and could be allowed to fail without undue market disruption, it should be allowed to fail. If it is too large to be allowed to fail or liquidated quickly, it may need to be eased into failure.

Finally, some operational issues would take additional time and effort to resolve. For example, SEC and CFTC would have to coordinate to resolve overlapping authorities and functions within securities and futures firms over broker-dealers and FCMs with dual registrations.⁴⁴ Additional information sharing and coordination would be necessary to minimize the burden on these firms of consolidated regulation. In addition, SEC and CFTC would have to evaluate their operational and resource capacities to accommodate any new authority. In particular, SEC and CFTC may have to hire new staff or train existing staff that is currently analyzing risk assessment and DPG information. Understanding the risk management system of sophisticated financial firms requires substantial expertise. However, the number of such firms that are likely to be of concern should not be large. Thus, the staff and resource commitment should not be substantial.

Conclusions

The LTCM case illustrated that market discipline can break down and showed that potential systemic risk can be posed not only by a cascade of major firm failures, but also by leveraged trading positions. LTCM was able to establish leveraged trading positions of a size that posed potential systemic risk primarily because the banks and securities and futures firms that were its creditors and counterparties failed to enforce their own risk management standards. Subsequent to the LTCM crisis, major financial firms issued recommendations for enhanced risk management by firms.

⁴³17 C.F.R. Parts 200, 240, 249. To date, only one firm has opted to participate.

⁴⁴The largest FCMs are also registered broker-dealers.

However, as LTCM illustrated, conditions can arise in which self-imposed standards are ignored.

Although market participants have the primary responsibility to practice prudent risk management standards, prudent standards do not guarantee prudent practices. The LTCM crisis demonstrated the importance of regulatory on-site examinations and off-site monitoring in identifying and prompting correction of weaknesses in practices. Since the derivatives problems in the 1990s, awareness of the importance of risk management systems has continued to grow, and regulators have made risk management an integral part of their examination process. However, as shown by the inability of regulators to identify the extent of firms' activities with LTCM, the traditional focus of oversight on credit exposures is not sufficient to monitor the provision of leverage to trading counterparties.

LTCM's crisis showed that the traditional focus of federal financial regulators on individual institutions and markets is not adequate to identify potential systemic threats that cross these institutions and markets. Developing ways to enhance coordination of activities related to identifying risks that cross traditional boundaries could better position these regulators to address potential systemic risk before it reaches crisis proportions. Because coordinating requires judgments about what information would need to and could be shared and about how best to share it, the regulators are in the best position to determine the most effective ways to enhance their coordination. Changes in markets that have blurred the traditional lines of market participants' activities will continue to create risks that cross institutions and markets, thus making the need for effective coordination even more critical.

Gaps in SEC's and CFTC's regulatory authority impede their ability to observe and assess activities in securities and futures firms' affiliates that might give rise to systemic risk. Although the Federal Reserve's consolidated oversight of bank holding companies did not reveal banks' risk management weaknesses related to LTCM, recommended or already-implemented improvements in examination focus and in information gathered may give bank regulators a better opportunity to identify future problems that might pose systemic risk. Without similar authority over the consolidated activities of securities and futures firms, SEC and CFTC cannot contribute effectively to regulatory oversight of potential systemic risk, because a large and growing proportion of those firms' risk taking is in their unregulated affiliates. The affiliates may have large positions in markets such as OTC derivatives and can be major providers of leverage in

the markets, as they were in the LTCM case. How they manage their own risks, as well as their provision of leverage to counterparties, can affect the financial system. The President's Working Group has recommended granting new authority for SEC and CFTC over the affiliates. However, the new authority would not grant capital-setting or enforcement authority and would not involve the type of examination of their risk activities and management that would allow a thorough assessment of potential systemic risk. Further, expanding SEC's and CFTC's authority over unregulated affiliates would require resolving several controversial issues and operational considerations, including increased costs for unregulated affiliates and potentially higher staffing and resource commitments for SEC and CFTC.

Recommendation

We recommend that the Secretary of the Treasury and the Chairmen of the Federal Reserve, SEC, and CFTC, in conjunction with other relevant financial regulators, develop better ways to coordinate the assessment of risks that cross traditional regulatory and industry boundaries.

Matter for Congressional Consideration

In an effort to identify and prevent potential future crises, Congress should consider providing SEC and CFTC with the authority to regulate the activities of securities and futures firms' affiliates similar to that provided the Federal Reserve with respect to bank holding companies. If this authority is provided, it should generally include the authority to examine, set capital standards, and take enforcement actions. However, SEC and CFTC should have the flexibility to vary the extent of their regulation depending on the size and potential threat posed by the securities and futures firm.

Agency Comments and Our Evaluation

CFTC, the Federal Reserve, SEC, and Treasury provided written comments on a draft of this report, which are reprinted in appendixes II, III, IV and V. The agencies raised no objections with our findings in general but provided additional insights from their unique perspectives, which we summarize below and discuss further in the report where appropriate. We believe the agencies' perspectives will be helpful for Congress in considering changes to the regulatory authority of SEC and CFTC.

CFTC raised no objections to our findings or recommendation. It reiterated the recommendations of the President's Working Group and noted that CFTC has taken steps to implement those recommendations that are within its authority and is working with other members of the President's Working Group on the others. CFTC said the goal is to strengthen market discipline by increasing transparency. Most notably, its efforts have focused on developing models for disclosure of risk

information by institutions that could pose a systemic risk to markets. As pointed out in our report, although market discipline is the primary mechanism for controlling risk-taking, LTCM's creditors and counterparties failed to apply it in LTCM's case. Thus, we continue to believe that market discipline should be supplemented by regulatory off-site monitoring and on-site examinations to help ensure the prompt identification and correction of weaknesses in risk management practices.

The Federal Reserve also raised no objections to our findings in general but indicated that our recommendation to financial regulators concerning the need for improved coordination among financial regulators was not necessary because an adequate coordinating structure already exists. It said that the President's Working Group is an adequate structure to coordinate and the Federal Reserve is committed to making that mechanism function effectively. In addition, it said that the current structure for coordinating is adequate, in spite of certain statutory limitations. It noted that legislative proposals under consideration would address any such limitations that may apply to the Federal Reserve. The Federal Reserve also noted the difficulty in developing methods to identify potential systemic risks and coordinating the assessment of that risk. The Federal Reserve commented that the unique nature of systemic crises can make them hard to anticipate. However, the Federal Reserve stated that various working groups under the auspices of the Group of Ten Central Banks and the Financial Stability Forum are struggling with these issues and are trying to identify types of data that might improve their understanding of risks in financial markets. The Federal Reserve ultimately believes that the ability to perceive systemic crises in data is likely to be limited and continues to believe that the most prudent course of action is for financial regulators to ensure the soundness of the individual institutions they supervise.

As mentioned earlier in the text, the President's Working Group plays a role in coordinating issues that cut across market sectors; however, the coordination efforts generally do not involve routine sharing of specific information that may be beneficial in identifying potential systemic threats. Because of the recent blurring of traditional lines that separate the businesses of banks and securities and futures firms, we believe it is vital for financial regulators to develop ways to enhance coordination of their activities and assessments of risk. We also acknowledge that although identifying and sharing relevant data may improve the chances of identifying potential systemic risks, such activities are not likely to anticipate every possible source. Finally, we also agree that ensuring the soundness of individual institutions is an important part of financial

oversight. However, such oversight is not currently applied to all financial institutions that can originate or transmit risk and does not include effective ways to monitor and assess risks that cut across markets.

SEC commended our thorough review of the events and practices that contributed to LTCM's near-collapse. SEC also noted its difficulties in monitoring systemic risks posed by unregulated broker-dealer affiliates as the scope of trading and credit activities conducted outside the regulated broker-dealer has expanded and agreed that it needs additional risk assessment authority over unregulated affiliates of broker-dealers.

SEC also raised three specific concerns about the report. First, SEC commented that the comparison of LTCM's simple leverage ratio to those of several large securities firms may be misleading because the assets carried by the securities firms were less volatile than the assets carried by LTCM. In addition, securities firms are subject to capital requirements. Second, it commented that the President's Working Group provides a productive avenue to share important information. In addition, SEC stressed that although the exchange of information can be improved to facilitate better cooperation and coordination, the focus should be on public dissemination of information on hedge funds. Third, SEC disagreed with our conclusion that it cannot fully assess and evaluate the risk exposures of broker-dealers because of certain limitations on SEC's regulatory authority over broker-dealer affiliates. SEC stated that it has the authority to assess and evaluate the risks incurred at the broker-dealer level; rather, it is at the broader holding company structure level that it encounters difficulty.

As to the first concern raised by SEC, we agree that the comparison between LTCM and securities firms is not a direct one and discussed the differences in the draft. We have added additional language to further illustrate the difference. Regarding SEC's second issue, we generally agree that the President's Working Group provides a forum to exchange certain general information. In fact, we encourage financial regulators to consider the President's Working Group as one way to increase routine coordination of their regulatory activities. Although we agree that hedge fund disclosures could be of some use, we believe that efforts should be made to improve regulatory coordination because future systemic problems may not involve hedge funds. Thus, we continue to support our recommendation that financial regulators find ways to better coordinate the assessment of risks that cross traditional regulatory and industry boundaries. Finally, as to SEC's third issue, we continue to be concerned that SEC may be unable to fully assess risks to the broker-dealers because

of its inability to oversee holding companies (and unregulated affiliates) of broker-dealers. For example, when broker-dealers are part of holding company structures, whose risk management function is located at the holding company level, SEC is unable to review that broker-dealers risk management system unless the holding company provides the information voluntarily.

The Department of the Treasury generally agreed with the factual presentation of the events related to LTCM's near-collapse. However, it believes that our recommendation to develop ways to coordinate the assessment of risks that cross traditional regulatory and industry boundaries may not be necessary. Treasury believes that such coordination is already occurring in the President's Working Group and that it has developed a productive and candid exchange of information on significant market developments. As we stated previously, we agree that the President's Working Group serves as an important forum that better enables regulators to respond to market events, although primarily after the fact, but existing coordination efforts failed to allow regulators to identify the cross-industry risks that LTCM posed. Therefore, we continue to support our recommendation that the financial regulators develop better ways to coordinate the assessment of risks that cross traditional regulatory and industry boundaries.

As we agreed with your offices, we plan no further distribution of this report until 7 days from its issue date unless you publicly release its contents sooner. We will then send copies of this report to Phil Gramm, Chairman, and Paul S. Sarbanes, Ranking Minority Member, Senate Committee on Banking, Housing, and Urban Affairs; Richard Lugar, Chairman, Senate Committee on Agriculture, Nutrition, and Forestry; Jim Leach, Chairman, and John LaFalce, Ranking Minority Member, House Committee on Banking and Financial Services; Tom Bliley, Chairman, and John Dingell, Ranking Minority Member, House Committee on Commerce; Larry Combest, Chairman, and Charles W. Stenholm, Ranking Minority Member, House Committee on Agriculture; and other interested members of Congress. We will also send copies of this report to William J. Rainer, Chairman, CFTC; Alan Greenspan, Chairman, Federal Reserve Board of Governors of the Federal Reserve; Arthur Levitt, Chairman, SEC; and Lawrence Summers, the Secretary of the Department of the Treasury. We will make copies available to others upon request.

If you have any questions on matters discussed in this report, please contact me or Orice M. Williams at (202) 512-8678. Other major contributors to this report are acknowledged in appendix VI.

A handwritten signature in black ink, reading "Thomas J. McCool". The signature is written in a cursive style with a large, prominent initial "T".

Thomas J. McCool
Director, Financial Institutions and Markets Issues

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Abbreviations

BIS	Bank for International Settlements
CFTC	Commodity Futures Trading Commission
CPO	Commodity Pool Operator
DPG	Derivatives Policy Group
FCM	futures commission merchant
LTCM	Long-Term Capital Management
NASD	National Association of Securities Dealers
NASDR	NASD Regulation, Inc.
NFA	National Futures association
NYSE	New York Stock Exchange
OCC	Office of the Comptroller of the Currency
OTC	over-the-counter
SEC	Securities and Exchange Commission
SRO	self-regulatory organization

Overview of LTCM's Near Collapse And Related Events

This appendix provides background information on hedge funds and additional details about Long-Term Capital Management (LTCM), its investment strategy, its use of leverage, the market turmoil that precipitated its near-collapse, what the regulators knew, the recapitalization, and subsequent events.

Hedge Funds

Hedge fund, though not legally defined, is the term used to loosely refer to an investment fund structured to be exempt from certain investor-protection requirements and thus able to follow a flexible investment strategy. Hedge funds, which are often exempt from the Investment Company Act and some (but not all) reporting requirements under the Commodities Exchange Act, are different from registered investment vehicles, such as mutual funds, in several important ways. Hedge fund managers are able to (1) invest in any type of asset in any market, (2) use many investment strategies at the same time, (3) switch investment strategies quickly, and (4) borrow money and/or otherwise use leverage without being subject to investment company leverage limits. There are a wide variety of hedge funds that vary depending on the type of investment strategy used. The fund types include aggressive growth,¹ emerging markets,² macro,³ and market neutral.⁴ According to the President's Working Group's hedge fund report, in mid-1998, there were between 2,500 and 3,500 hedge funds managing between \$200 billion and \$300 billion in capital and \$800 billion to \$1 trillion in total assets. Compared to commercial banks, which had about four times as many assets, and mutual funds, which had five times as many, hedge funds are relatively small.

LTCM Overview

LTCM consists of a combination of limited partnerships and limited liability companies that are collectively known as LTCM. It uses a "master fund/feeder fund" structure to invest its assets. That is, assets of the feeder funds are invested by the master fund. Long-Term Capital Portfolio was the master fund, and there were numerous feeder funds. Since its establishment in 1994, LTCM had produced returns, net of fees, of

¹Aggressive growth funds expect acceleration in growth of earnings per share. Current earnings' growth is often high. They generally have high price/earnings and low or no dividends. These funds usually invest in small-cap or micro-cap stocks, which are expected to experience very rapid growth.

²Emerging markets funds invest in the equity of emerging market countries. These countries tend to have high inflation and high, volatile growth.

³Macro funds involve a global or international manager who employs an opportunistic, "top-down" approach, following major changes in countries' economic policies.

⁴Market-neutral funds focus on obtaining returns with low or no correlation to the market. The manager buys different securities of the same issuer (e.g., the common stock and convertibles) and "works the spread" between them. For example, within the same company the manager buys one form of security that he believes is undervalued and sells short another security of the same company.

Appendix I
Overview of LTCM's Near Collapse And Related Events

approximately 40 percent in 1995 and 1996 and about 17 percent in 1997. At the end of 1997, LTCM returned capital to its investors and reduced its capital base by over one-third to \$4.8 billion. By August 31, 1998, LTCM's capital had declined to \$2.3 billion. See table I.1 for a chronology of events surrounding LTCM's near-collapse.

Table I.1: Chronology of Events

Date	Event
December 31, 1997	LTCM returned about \$2.7 billion in capital to its investors. LTCM's net asset value was \$4.67 billion.
Early 1998	LTCM's 16 partners' investment in the fund was valued at about \$1.6 billion (roughly one-third of outstanding equity).
July 6, 1998	Salomon disbanded its bond arbitrage unit in an apparent effort to lower its risk profile following its acquisition by Travelers Group.
July 17, 1998	Salomon announced it was selling certain trades (increasing divergence of certain markets, which adversely affected LTCM).
Early August 1998	The Securities and Exchange Commission (SEC) and New York Stock Exchange (NYSE) surveyed major broker-dealers known to have credit exposure to one or more large hedge funds.
August 17, 1998	The Russian government announced an effective devaluation of the ruble and declared a debt moratorium (defaulted) triggering an investors' fight to quality.
August 21, 1998	LTCM's 1-day trading loss was \$550 million.
August 24, 1998	LTCM partners launched a capital raising campaign.
August 31, 1998	LTCM's net asset value declined to \$2.3 billion.
September 2, 1998	LTCM sent letter to investors announcing that it had lost 52 percent of its capital as of August 31, 1998. It had lost 44 percent in the month of August alone. It also encouraged investors to invest in the fund.
Early September 1998	LTCM partners contacted Federal Reserve officials to notify them of their difficulties and their discussion with investment houses about plans to raise new capital.
September 18, 1998	LTCM principals contacted Federal Reserve officials and invited them to LTCM for a presentation on the fund's positions.
September 19, 1998	The President of the Federal Reserve Bank of New York advised the Chairman of the Federal Reserve Board that the LTCM situation appeared to be deteriorating and efforts to raise capital had failed. The Chairman agreed that a team should go to LTCM to get a better understanding of the situation.
September 20, 1998	Federal Reserve led team visited Greenwich, CT for LTCM's presentation.
September 21, 1998	Federal Reserve Bank of New York contacted Goldman Sachs, Merrill Lynch, and J.P. Morgan officials (LTCM's major creditors). LTCM experienced a single-day trading loss of \$500 million. Bear Stearns, LTCM's clearing agent, set a new condition that required LTCM to collateralize potential settlement exposures.
September 22, 1998	Goldman Sachs, Merrill Lynch, J.P. Morgan, and UBS (core group) dispatched two working groups to Greenwich, CT to consider lifting the fixed-income and equity positions out of LTCM. A third group met at one of the firms in New York to develop the Consortium approach. Later that evening, Federal Reserve officials contacted additional LTCM creditors. That night, in addition to the core group, a meeting of a larger group involving 13 additional firms began. Members of the core group contacted LTCM about the conditions of the Consortium approach.
September 23, 1998	Federal Reserve officials called various foreign central bank officials to inform them about LTCM. Federal Reserve officials suspended the effort to proceed with the Consortium approach until an alternative offer could be considered. At 12:30 p.m., officials found out the alternative offer was not accepted nor would the offer be extended. Treasury notified CFTC about LTCM's problems. CFTC sent audit staff to LTCM as well as to Bear Stearns and Merrill Lynch to inspect LTCM's accounts. Staff of President's Working Group held a telephone conference to discuss LTCM. The 14 members of the Consortium agreed to the terms of the agreement and LTCM accepted the offer.

Appendix I
Overview of LTCM's Near Collapse And Related Events

Date	Event
September 28, 1998	Closing date on the agreement reached among the Fund, the Investment Vehicles, LTCM and its affiliates, and the 14 members of the Consortium. Consortium members infused \$3.6 billion into the fund. One condition of the agreement was that the Management Company agreed to provide management investment services to the Consortium's Investment Vehicle on the basis of a 1 percent per annum management fee and a 15 percent incentive fee for increases in net asset value over a Libor hurdle rate. Representatives of the Consortium met and formally constituted themselves as the Board of Directors of "Oversight Partner I LLC."
September 30, 1998	LTCM's net asset value was \$3.81 billion. Oversight Committee was on-site to carry out its duties.
November 1998	Stake of the 16 original partners valued at \$30 million compared to \$1.6 billion at the beginning of the year.

Source: GAO summary of press reports, agency testimonies, and various other documents.

Investment Strategy

LTCM was primarily engaged in market-neutral arbitrage. Specifically, LTCM was part of a subset of market-neutral funds known as fixed-income arbitrage funds involved in convergence trading. That is, it purchased bonds that it considered undervalued and sold bonds that it considered overvalued. Most of its trades were relative value and convergence, but four classes of trading strategies cover its general investment approach. They were as follows:

- **Convergence trades:** These involve taking long and offsetting short positions in securities, which are virtually perfect substitutes except for tax treatment and liquidity; for example it buying an "old" 2-year U.S. Treasury and selling (shorting) a corresponding "new" 2-year U.S. Treasury. In actual practice more than two securities may be used. Trades in this category meet the conditions of classic arbitrage in which convergence in value of the positions is expected on or before a specifiable future date.
- **Relative-value trades:** These involve taking long and short positions in securities that are closely related to each other along many but not all dimensions; for example, buying one bond issue of a corporation and selling (shorting) a different bond issue of the same corporation. Trades in this category do not meet the definition of an arbitrage trade because convergence in spreads is not expected on a specifiable future date, or the date of expected convergence is distant (e.g., 20 to 30 years).
- **Conditional convergence trades:** These involve long and short positions in securities that would be convergence trades if specific pricing models were valid. That is, conditional on the pricing model being correct, the positions in the securities would satisfy the conditions of arbitrage. One example is writing call options on a stock and hedging the position by a dynamic trading strategy in the underlying stock that should exactly replicate the payoff on the calls if the option-pricing model is correct. Another example would be dynamic trading in U.S. Treasury-based futures

and securities that should produce arbitrage profits if the underlying model of interest rate dynamics and the term structure is valid.

- **Directional trades:** These returns depend either on the direction or change in volatility of return in a particular market. Included in this category are the directional exposures caused by convergence-type trades involving different markets where full directional hedging in each market is not efficient in a risk-reward sense. Also in this category are trades involving long and short positions in securities that are related to each other along too few dimensions (other than general valuation principles) to be classified as relative-value trades (defined above). Directional trades are opportunistic and at times may involve positions of significant size. These trades are not expected to have major impact on the overall return volatility of the portfolio.

LTCM's investments were largely bond arbitrage (for example, primarily arbitraging the difference between U.S. Treasuries with the same maturity but different issuance dates). As previously discussed, LTCM's investment strategy was primarily focused on investment opportunities involving global fixed-income trading strategies (convergence trades). Its investment objective was to maximize the expected total return on its portfolio on a risk-adjusted basis by using analytical models and undertaking proprietary trading on a leveraged basis.

Use of Leverage

LTCM's investment strategy required the use of leverage, one of the objectives of which was to achieve a high rate of return. This strategy was cited in various LTCM documents to investors. For example, documents to investors stated that it planned to make "extensive" use of borrowed funds in its investment activities and would not be subject to limits on its use of borrowed funds except as required by applicable law, including margin requirements. LTCM stated that it generally expected its leverage to be higher than that of typical leveraged investment funds. It also noted that gains and losses with borrowed funds could cause its net asset value to increase and decrease faster than would be the case without borrowings. LTCM's balance sheet leverage ratio ranged from 17 to 1 at year-end 1994 to 28 to 1 at year-end 1997. Although LTCM's leverage increased following its return of capital, its year-end 1997 leverage ratio was consistent with its 1995 and 1996 ratios. LTCM's leverage peaked in September 1998 when its equity dropped, but by year-end 1998, LTCM's leverage ratio was 21 to 1. Because this leverage measure does not include off-balance sheet activities, LTCM's risk-adjusted leverage ratio would be even higher given its off-balance sheet activities, such as its use of derivatives.

LTCM achieved substantial leverage, in part, through the use of OTC derivatives because of low or zero initial margin requirements. It also leveraged through its use of exchange-traded derivatives, securities loans, and securities repurchase agreements. In some cases its ability to leverage was increased through favorable credit arrangements, such as no initial margin requirements, two-way collateral, rehypothecation rights, and high loss thresholds. Initial margin requirements—the amount of cash or eligible securities parties are required to deposit with a counterparty before engaging in a transaction—were at times zero. Two-way collateral arrangements meant that both LTCM and its counterparties were required to post collateral if their loss threshold (that is, the amount of loss that must be exceeded before collateral is to be posted by either party) was exceeded. Two-way collateral requirements, although they are not unusual, are usually reserved for transactions between highly rated counterparties. Rehypothecation occurs when the lender pledges as collateral the same assets held as collateral on another transaction. Rehypothecation rights were not usual but, like the other credit enhancements, they enabled LTCM and several of its counterparties to achieve high levels of leverage.

Market Turmoil Resulted in Huge Losses for LTCM

Although the market conditions alone would not have necessarily caused LTCM to collapse, prevailing market conditions became the catalyst for LTCM's near-collapse. The market had been volatile for several months, but the announcement by the Russian government that it was rescheduling payments on some of its debt obligations and imposing a moratorium on payments by Russian banks on certain obligations sent global markets into a tailspin. The result of the Russian default was a dramatic increase in credit spreads and decrease in liquidity. Investors responded with a “flight to quality” and liquidity. For LTCM, this meant that its strategy of betting that credit spreads in various global markets would return to historical levels was a losing one because spreads widened rather than narrowed. LTCM's diversification was geographic rather than based on different strategies; thus, it had replicated similar bets in markets around the world rather than having different strategies. This lack of true diversification resulted in LTCM experiencing losses on positions in numerous markets. Just as leverage had helped enable LTCM to achieve favorable returns, it also caused its losses to mount quickly.

What the Regulators Knew

The regulators said they began to hear rumors about LTCM's financial difficulties in August and September 1998. According to SEC's October 1, 1998, testimony before the House Committee on Banking and Financial Services, SEC learned of LTCM's financial difficulties in August 1998. Subsequently, SEC and NYSE staff, which shares responsibility with SEC for monitoring the activities of member broker-dealers and their capital

adequacy, surveyed major broker-dealers. The survey indicated that no individual broker-dealer had exposure to LTCM that jeopardized its required regulatory capital or financial stability. SEC was further assured by the fact that the survey indicated the exposures to LTCM were collateralized.

In early September, LTCM's partners contacted the Federal Reserve Bank of New York to notify the president of their financial difficulties and plans to raise additional capital. According to Federal Reserve Bank of New York officials, such contact with nonregulated entities is not uncommon. The President of the Federal Reserve Bank of New York testified before the U.S. House Committee on Banking and Financial Services that he contacted senior Wall Street officials to discuss overall market conditions against the backdrop of particularly unsettled markets.⁵ Everyone he spoke with volunteered concern about the serious effect LTCM's deteriorating condition could have on world financial markets. On Friday, September 18, 1998, LTCM officials contacted the Federal Reserve Bank of New York once again to notify Federal Reserve Bank of New York officials that its efforts to raise additional capital were unsuccessful and invited the officials to LTCM for a presentation.

The President of the Federal Reserve Bank of New York testified that he conferred with the Chairman of the Federal Reserve Board of Governors and Treasury officials, and they agreed that a visit to LTCM was needed. A team that included officials from the Federal Reserve Bank of New York and Treasury met with LTCM's partners on Sunday, September 20, 1998. At this meeting, the team learned the broad outlines of LTCM's major positions in credit and equity markets. They also learned how the positions were deteriorating and the difficulties LTCM was having in reducing its exposure and received loss estimates for counterparties. At that meeting, the team realized the impact LTCM's positions were having on markets around the world and that the sizes of the positions was much larger than market participants imagined. On September 21, 1998, the Federal Reserve Bank of New York contacted three of LTCM's largest creditors to discuss LTCM's situation. These calls ultimately led to the creation of the Consortium of 14 commercial banks and securities firms that recapitalized the fund.

⁵One of the primary functions of the Federal Reserve in its capacity as a central banker is to ensure market stability. As part of that responsibility, the President of the Federal Reserve Bank of New York conducts regular market surveillance activities that include talking to and receiving calls from market participants regarding significant developments and potential dislocations.

According to testimony by the President of the Federal Reserve Bank of New York, on Wednesday, September 23, 1998, he called various foreign central bank officials to inform them of the situation.⁶ He also held a conference call with the principals and informal members of the President's Working Group on Financial Markets, which included SEC, the Commodity Futures Trading Commission (CFTC), the Department of the Treasury, the Federal Reserve, the Federal Deposit Insurance Corporation, and the Office of the Comptroller of the Currency. Subsequently, CFTC notified its exchanges.

The Recapitalization

According to testimony of the President of the Federal Reserve Bank of New York, following their visit to LTCM, Federal Reserve officials contacted the three firms they believed had the greatest knowledge of LTCM's situation and the strongest interest in seeking a solution. The three firms were Goldman Sachs, Merrill Lynch, and J.P. Morgan. This core group of creditors was expanded to include UBS. These four firms sent two groups to LTCM's headquarters to study the feasibility of "lifting" the fixed-income and equity positions out of the fund, and a third group met to discuss the Consortium approach. These four firms agreed that it would not be feasible to lift assets out of LTCM, and they decided the Consortium approach would be the last resort if no outside solution was found. On September 22, the core group was expanded to include 13 additional firms. The following morning, the meeting was to resume but was suspended until an outside offer could be considered. This offer was tendered by Goldman Sachs; Berkshire Hathaway; and the American Insurance Group, Inc., and consisted of purchasing the fund. The offer was to expire at 12:30 p.m.; however, according to LTCM officials, it was withdrawn before it expired because LTCM determined that it could not legally accept the offer without stockholder approval, which was not feasible within the deadline. Following the withdrawal of the offer, the creditor meeting resumed.

On September 23, 1998, 14 of the world's largest banks and securities firms agreed to recapitalize LTCM to avoid its disorderly liquidation. On September 28, 1998, they entered into an agreement with LTCM. The 14 firms contributed about \$3.6 billion (which represented 90 percent of the funds' net asset value at the time) to the fund through a new investment vehicle and general partner called Oversight Partner I. The Consortium members were affiliates of the following institutions: Barclays PLC; Bankers Trust Corporation; The Chase Manhattan Corporation; Credit Suisse First Boston Corporation; Deutsche Bank AG; The Goldman Sachs

⁶Statement by William J. McDonough, President, Federal Reserve Bank of New York, before the Committee on Banking and Financial Services, U.S. House of Representatives, October 1, 1998.

Group, L.P.; Lehman Brothers Holdings Inc.; Merrill Lynch & Co., Inc.; J.P. Morgan & Company, Incorporated; Morgan Stanley Dean Witter & Co.; Paribas; Société Generale; Travelers Group Inc., and UBS AG.⁷ Oversight Partner I was granted general authority over the management and operations of the fund. The Consortium formed an oversight committee, which consisted of representatives of six members (UBS, J.P. Morgan, Morgan Stanley, Goldman Sachs, Salomon Smith Barney, and Merrill Lynch). The representatives assumed the day-to-day oversight responsibility for LTCM, with authority over the investment strategy, capitalization structure, credit and market risk management, compensation policy, hiring and firing, and other significant decisions.

Subsequent Events

According to press reports, between late September 1998 and the end of April 1999, LTCM's value rose 22 percent, after fees. By the end of June, however, the gain had slipped to 14.1 percent. As of June 30, 1999, it returned \$1 billion of the initial \$3.6 billion invested to Consortium members and about \$300 million that original investors, including LTCM, had left in the fund. According to press reports, LTCM was "unwinding" its operations, and its founding partner received permission from the Consortium to begin marketing a new firm. The Consortium also voted to reduce the number of outside bankers overseeing the fund full-time from six to three.

⁷Salomon Smith Barney was a subsidiary of Travelers Group.

Comments From the Commodity Futures Trading Commission

U.S. COMMODITY FUTURES TRADING COMMISSION

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October 14, 1999

Thomas J. McCool
Director, Financial Institutions and Markets Issues
General Accounting Office
Washington, D.C. 20548

Dear Mr. McCool:

Thank you for the opportunity to comment on the General Accounting Office (GAO) draft report entitled "LONG-TERM CAPITAL MANAGEMENT: Regulators Need to Focus Greater Attention on Systemic Risk." The Commission commends GAO's in-depth analysis of these important and timely issues of regulatory reform.

As the draft report indicates, the President's Working Group on Financial Markets (PWG) recently issued a report that made several recommendations in light of this episode. These recommendations include action to promote greater disclosure of information – both disclosure by hedge funds about their own risk exposures and disclosure by financial institutions and other publicly-held companies about their dealings with hedge funds. This disclosure will increase market transparency and thus will enhance the ability of creditors, counterparties, investors, and other market participants to monitor, and to discipline, leverage and risk taking by hedge funds.

CFTC is working to implement those recommendations which are within its authority and has already begun working with other members of the PWG to address issues raised by the LTCM situation. Specifically, CFTC staff have developed possible models for disclosure of risk information by institutions whose size and leverage render them capable of posing potential systemic risk threats. These models would call for disclosure in a format that would be shared with other federal financial regulators and the public. CFTC is consulting with other members of the PWG concerning these models of disclosure. The goal is to reduce the likelihood of systemic risk by increasing transparency, thereby strengthening market discipline.

If you have any additional questions, please contact Allen B. Greenwood, Director, Office of Legislative and Intergovernmental Affairs, at (202) 418-5075.

Sincerely,

William C. Rainer
Chairman

Comments From the Federal Reserve



BOARD OF GOVERNORS
OF THE
FEDERAL RESERVE SYSTEM
WASHINGTON, D. C. 20551

ALAN GREENSPAN
CHAIRMAN

October 20, 1999

Mr. Thomas J. McCool
Director, Financial Institutions
and Market Issues
United States General
Accounting Office
Washington, DC 20548

Dear Mr. McCool:

The Board of Governors of the Federal Reserve System submits this response on the draft report entitled: Long-Term Capital Management: Regulators Need to Focus Greater Attention on Systemic Risk.

The report recommends that the Federal Reserve and other federal financial regulators develop ways to coordinate the assessment of risks that cross traditional regulatory and industry boundaries. As you know, the President's Working Group was reinvigorated in 1994, in part to address coordination concerns, and the Board is committed to making the Working Group function effectively. The Board believes that the structure for coordinating currently is adequate. Although in certain cases there may be statutory limitations on the agencies' ability to share some information, legislative proposals under consideration would address any such limitations that may apply to the Board.

Broadly, the report's recommendation suggests that the federal financial regulators focus on developing data that might reveal potential systemic risks and then coordinate on the assessment of that risk. Identifying the particular types of data that might reveal potential systemic risk is a particularly challenging task, in no small measure because systemic crises tend to embody unique features that are hard to anticipate in advance. Various working groups under the auspices of the Committee on the Global Financial System of the Group of Ten Central Banks and the Financial Stability Forum are struggling with trying to identify the types of data that might improve our understanding of the risks being taken in financial markets. We do not want to prejudge the results of such efforts, but the task is an extremely difficult one. In the final analysis, our ability to perceive systemic crises in data is

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Comments From the Federal Reserve

Mr. Thomas J. McCool
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likely to be limited. We, thus, fall back to our long-standing position that the soundest course for financial regulators is to ensure that the institutions they supervise can withstand the shocks that inevitably occur in markets. To this end, federal financial regulators are working to strengthen further the risk management practices at the institutions they supervise.

Sincerely,

A handwritten signature in black ink, appearing to be "Ben Bernanke", with a horizontal line extending to the right.

Comments From the Securities and Exchange Commission



DIVISION OF
MARKET REGULATION

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

October 18, 1999

Mr. Thomas J. McCool
Director, Financial Institutions and Market Issues
General Government Division
General Accounting Office
Washington, DC 20548

Dear Mr. McCool:

I appreciate the opportunity to comment on the General Accounting Office's ("GAO") draft report entitled Long-Term Capital Management: Regulators Need to Focus Greater Attention on Systemic Risk ("Draft Report"). I commend the GAO on its thorough review of the events and practices that contributed to the difficulties associated with Long-Term Capital Management ("LTCM").

As the scope of trading and credit activities conducted outside the regulated broker-dealer has expanded, the Securities and Exchange Commission ("SEC") has found it increasingly difficult to closely monitor the systemic risks posed by unregulated broker-dealer affiliates. Therefore, I believe the Draft Report accurately concludes that the SEC requires additional risk assessment authority over these unregulated affiliates. The finding also is consistent with the recommendations recently made in the report prepared by the President's Working Group on Financial Markets, Hedge Funds, Leverage, and the Lessons of Long-Term Capital Management.

In addition to our general comments on the conclusions reached in the Draft Report, we have the following three specific concerns:

First, the Draft Report compares, but does not distinguish, the leverage ratios of LTCM and several large securities firms. Though some securities firms had simple balance sheet leverage ratios (assets/equity capital) in the same range as LTCM, the assets carried by the securities firms were less volatile than the assets carried by LTCM. Moreover, securities firms are subject to regulatory capital requirements. Therefore, a general comparison of simple leverage ratios without further explanation may cause the misimpression that securities firms posed as much risk as LTCM.

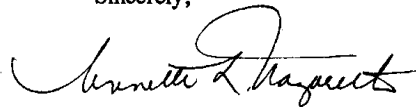
Mr. Thomas J. McCool
Page 2

Second, the Draft Report claims there is an inability of existing coordination methods to monitor risks across industry and market lines. I believe that productive avenues for sharing important information exist today. For example, the President's Working Group on Financial Markets provides an ongoing forum for the primary financial regulators to discuss issues cutting across jurisdictional boundaries. While the exchange of information between regulators can be improved to facilitate better cooperation and coordination, in my view the focus should be on public dissemination of information regarding hedge funds. The President's Working Group report therefore recommended that hedge funds should be required to publicly disclose information in the form of quarterly financial reports that include comprehensive measures of market risk. The SEC's staff also is working on a rule proposal to require public companies to disclose their direct material exposures to significantly leveraged financial institutions.

Third, the Draft Report claims that because of current limitations on the SEC's regulatory authority over broker-dealer affiliates, the SEC cannot fully assess the risk exposures of broker-dealers. The SEC, however, has sufficient information to assess and evaluate the risks incurred at the broker-dealer level. It is at the broader, broker-dealer holding structure level, which encompasses unregulated broker-dealer affiliates, that the SEC encounters difficulty in assessing risk.

In closing, while rigorous market discipline is an effective deterrent against market excesses and disruptions, the LTCM episode demonstrated that financial regulators need better tools to identify intermarket risks, especially those stemming from lapses in private market discipline. Thank you again for this opportunity to provide comments to the GAO as it prepares its final draft of the report.

Sincerely,



Annette L. Nazareth
Director

Comments From the Department of the Treasury



UNDER SECRETARY

DEPARTMENT OF THE TREASURY
WASHINGTON
October 25, 1999

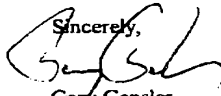
Thomas J. McCool
Director, Financial Institutions and
Markets Issues
U.S. General Accounting Office
441 G Street, NW
Washington, D.C. 20548

Dear Mr. McCool:

Thank you for your letter to Secretary Summers and for this opportunity to review and comment upon the draft report entitled, Long-Term Capital Management: Regulators Need to Focus Greater Attention on Systemic Risk.

The draft report recommends that the Treasury, the Federal Reserve Board, the SEC, and the CFTC "develop ways to coordinate the assessment of risks that cross traditional regulatory and industry boundaries." We believe that such coordination is already occurring in the President's Working Group. The members of the Working Group meet on a regular basis — at both the principal and staff levels — and have developed a productive and candid multilateral environment for exchanging information on significant market developments. The process works well and our working relationships continue to grow and develop over time. While the Working Group is not itself a regulatory body, it serves as an important forum for federal financial regulators that better enables them to respond to market events in effective and appropriate ways.

Thank you again for this opportunity to review and comment on the draft report. We find that its factual presentation is in general agreement with our understanding of the events related to the LTCM episode.

Sincerely,

Gary Gensler
Under Secretary
(Domestic Finance)

GAO Contacts and Staff Acknowledgments

GAO Contacts

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Acknowledgments

James Black, Michael A. Burnett, Rosemary Healy, Richard Hillman,
Christine Kuduk, John H. Treanor, and Cecile Trop.

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