

ECONOMIC HISTORY

Too Interconnected to Fail?

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The rescue of Long-Term Capital Management

When the Russian government defaulted on its debts to bondholders on Aug. 17, 1998, few could have predicted that the chain of events it sparked would culminate a little over a month later in an unprecedented meeting of the heads of the major Wall Street financing houses in the boardroom at the Federal Reserve Bank of New York. The point of that meeting was to find a way to save a particular hedge fund by the name of Long-Term Capital Management (LTCM). The company had suffered substantial losses the past month. If the firm crumbled, the companies run by all those around the conference table at the New York Fed would see big losses related to their investments in and loans made to LTCM.

At the heart of the New York Fed's involvement in facilitating the meeting was a concern about the systemic ramifications the failure of a firm like LTCM would have on financial markets. Its involvement was seen largely as making explicit a sometimes implicit notion that some firms are simply too big — or too interconnected with others — to be allowed to fail. Some argue that the Fed's actions in this case have changed the financial world's assumptions about risk-taking.

Sucking Up Nickels

Started in 1993 by former Salomon Brothers bond trader, John Meriwether, Long-Term Capital Management was a hedge fund based on a simple premise. The analysts at the firm would look for bonds that had a predictable spread between their yields over a specific time period. Whenever the observed spread would widen, the LTCM traders operated under the assumption that it would eventually narrow again. So they would invest in derivative contracts that paid off when the spreads narrowed. This is the classic model of “arbitrage.”

One element in the LTCM approach was that the firm used complex mathematical models to find connections between yields of a variety of different bonds. Whereas the traditional arbitrage opportunities occurred in markets of fairly conventional bonds, the LTCM analysts cast a broad net and looked for all sorts of correlations between yields in various markets. The firm capitalized on advances in data mining technology and a greater sophistication of the finance models on which their internal analysis was based.

Another characteristic was that the firm had as two of its partners Myron Scholes and Robert Merton, both of whom

would in 1997 win the Nobel Prize in Economics for their contributions to financial economics. The approach LTCM used was based on their economic models. At the firm's inception, the star power of both Scholes and Merton — already well-known in their field — was an attractive enticement to potential investors in LTCM. It and Meriwether's reputation from his days at Salomon Brothers helped attract \$1.25 billion in startup capital by the time the firm began its trading operation in 1994. Investors included Goldman Sachs, J.P. Morgan, and Merrill Lynch. The LTCM partners also kicked in a total of \$100 million of their own money.

The final element of the firm's strategy was leverage. The business of arbitrage assumes there are small marginal differences between prices that can be exploited. Such an investment strategy might be described, as Scholes is said to have suggested, as “sucking up nickels from all over the world.” But if the spread between yields is so small, so are the payouts on investments based on those spreads. Thus, to make it worthwhile to place the bets LTCM did, the bets themselves had to be large. That meant the firm would borrow large sums, using the derivative contracts as collateral. Leveraging like this was a common practice on Wall Street, and the assumption was that the bets would pay off eventually and the loans could be paid back.

In the case of LTCM, the bets usually did pay off, and quite well. As the *Wall Street Journal* reported, “the fund's returns hit 42.8 percent in 1995, then 40.8 percent in 1996, after fees. That far outpaced hedge funds' average performance of 16 percent and 17 percent, respectively.” By the middle of 1996, the partners had tripled their original investment.

A Shock to the System

Starting in 1997, LTCM began to lose steam. Part of the reason was that the bond markets they traded in became too crowded — many investors were trying the sort of thing that LTCM did. The profits were getting smaller as a result, and the firm's computer models were finding fewer arbitrage opportunities. That year, the firm's return dropped to a more conventional 17 percent after fees.

At this point, LTCM still had \$7 billion in capital. But then the investment philosophy had begun to change. LTCM began trading emerging-market debt and also started speculating in foreign currencies.

Some of the partners, most notably Scholes, were uneasy about this. When the firm took a big stake in the future of the Norwegian kroner, Scholes warned that the firm didn't have an “informational advantage” in that market and it should stick to what the firm's models could handle well.

Soon, murmurs of unease in foreign bond markets didn't bode well for the firm. In June 1998, LTCM racked up a 10 percent loss, their largest one-month loss to date.

Then came the biggest shock of all. On Monday, August 17, the Russian government defaulted on its debt and let its currency plummet. This triggered a flight to more stable assets, like U.S. Treasury bonds. This created problems for LTCM's balance sheet, and not just because the fund held a large number of Russian bonds outright. The events also threw off the well-defined and predictable pattern of interest rate spreads upon which the firm's derivative investments in domestic and foreign bonds relied. Now, instead of interest rates converging, the massive rush to more secure bonds — an anomalous occurrence in the assumptions of LTCM models — were driving the rates further apart.

As the week wore on, things got worse. As Roger Lowenstein, author of *When Genius Failed: The Rise and Fall of Long-Term Capital Management*, described it: "Long-Term, which had calculated with such mathematical certainty that it was unlikely to lose more than \$35 million on any single day, had just dropped \$553 million — 15 percent of its capital — on that one Friday in August. It had started the year with \$4.67 billion. Suddenly, it was down to \$2.9 billion. Since the end of April, it had lost more than a third of its equity."

The firm's partners scrambled for more capital. One of the partners, Eric Rosenfeld, made an overture to Warren Buffett with a request for the Berkshire Hathaway CEO to invest in LTCM. He was initially rebuffed. Buffett, although intrigued, thought the firm would be better served by having a Wall Street securities firm bolster its balance sheet.

Such insight was not lost on the partners. In fact, they had already begun to redouble their efforts to get more Wall Street investment, but they weren't getting much in the way of positive responses. Large institutional investors like Merrill Lynch declined to invest more in the fund. Meanwhile, the firm's lenders were becoming uneasy, understandably worried about LTCM's ability to repay its loans.

Meriwether still believed that their trades would pay off if they could simply weather the storm. The nature of most of their trades, after all, required a long-term view. But the lack of cash on hand coupled with the increasing buzz that creditors were beginning to consider LTCM a default risk created an environment where the partners were willing to do almost anything to get help.

By September 17, Meriwether had worked out a deal with Goldman Sachs co-chairman, Jon Corzine, that Goldman would lead an investment group to raise at least \$2 billion in capital. The next day, Corzine (now a U.S. Senator from New Jersey) called the president of the New York Fed, William McDonough, and told him that LTCM was "weak," but Goldman was trying to help them re-capitalize. To make sure that McDonough had a pair of eyes on the situation, he called Peter Fisher, the head of the New York Fed's trading desk that handled the bond sales which carry out the Fed's monetary policy. Fisher was dispatched to

Greenwich, Conn., where LTCM was headquartered to take a look at the firm's books on September 20.

When the fundraising push began, however, Corzine discovered that LTCM had already been rebuffed by the same people that Goldman planned to approach for funding. Then Corzine decided to call the New York Fed again to let them know that a new plan had to be hatched quickly and that the Fed needed to help.

The Rescue

The scenario that scared the New York Fed policymakers went like this: LTCM, in its weakened state, would eventually have to succumb to demands by fearful lenders for increased collateral, which could then spur a default by the hedge fund and set off not only fire-sale panic selling of any derivative contracts with LTCM's name attached but also heavy losses for firms that had made similar investments. Add to the mix the crater that would open up in the balance sheets of LTCM's creditors, and Fed officials believed that the larger financial system could be at risk.

After his trip to Connecticut, Fisher and McDonough decided to work with the big institutional investors in LTCM — Merrill Lynch, Goldman Sachs, and J.P. Morgan — to find a way to save LTCM. On the morning of September 22, the lead representatives from these firms met at the New York Fed. By later that day, the group had determined that the firms present would be the lead members in an investment consortium to keep LTCM afloat.

At about 8 p.m., Fisher convened a meeting of the heads of the original trio and other big Wall Street firms — including Chase Manhattan, Lehman Brothers, Morgan Stanley Dean Witter, and Salomon Smith Barney. Press reports later suggested that Fisher did not hint explicitly at using public money to help LTCM. Instead, he observed that a collapse of the hedge fund would be too chaotic for the markets to handle and suggested that there was "a public interest in a collective industry option" to keep LTCM from collapsing. The plan was to ask each firm present to chip in and save the hedge fund in exchange for an ownership stake and oversight of operations. After discussing details, the meeting adjourned until the following morning.

But when the meeting participants arrived the next morning, McDonough abruptly suspended the meeting. That morning, Warren Buffett had faxed an offer to Meriwether stating that he, in partnership with insurance giant AIG and Goldman Sachs, would be willing to buy LTCM for \$250 million. If the partners of LTCM agreed to the deal by 12:30 p.m. that day, Berkshire Hathaway would immediately invest \$3 billion to stabilize the fund. Another \$750 million would come from the other two firms. In addition, Buffett's offer noted that new leadership would be installed at LTCM once the buyout had occurred.

When Buffett's representatives met Meriwether in Connecticut before the deadline, Meriwether turned down the offer. Some observers note that he likely did it because he knew he could get a better deal from the Fed-facilitated

consortium. Others point to legal problems with the structure of LTCM and the way the Buffett offer was worded. Yet, as Lowenstein notes, the legal niceties of deals like that are often worked out after the fact. If Meriwether wanted to accept the Buffett deal, he probably could have.

In any case, the attention of everyone involved was again focused on the conference room at the New York Fed. By 5:15 p.m., a deal had been worked out in which most of the participants at the meeting agreed to pitch in to purchase the firm for \$3.65 billion. The 14-member group would collectively receive a 90 percent equity stake in the firm. The LTCM partners would get the remaining 10 percent, worth about \$400 million. LTCM agreed to the offer and the legal matters were settled in the weeks following.

The Aftermath

The day after the deal was announced, the press focused mainly on the Fed's role in the proceedings. The *New York Times* suggested that the Fed had inappropriately stretched the doctrine of "too big to fail" to apply to a high-risk hedge fund.

The assumption that there was a systemic risk present in a potential LTCM default is as controversial a notion today as it was then. In congressional testimony on the LTCM affair in October 1998, Federal Reserve Chairman Alan Greenspan defended the New York Fed's actions this way: "The issue was in all of our judgments that the probability [of systemic collapse] was sufficiently large to make us very uncomfortable about doing nothing." When questioned about where he would place that probability, Greenspan responded: "My own guess is that the probability was significantly below 50 percent, but still large enough to be worrisome."

Roger Lowenstein reports in his history of LTCM that Fisher and McDonough were both aware that estimates of \$3 billion to \$5 billion in losses would have been spread over about 17 banks. That would have been up to \$300 million per firm. In a worldwide capital market of many trillions of dollars, even they agreed it would have been tolerable.

The main concern was that the losses would instill fear in the markets and that would create a system-wide panic. The assumption here is that market participants would not have been able to determine which institutions were most

heavily invested in LTCM and which were not. That opacity could have contributed greatly to the systemic uncertainty which was feared.

The fear of uncertainty, in retrospect, may not have been on such solid ground. Analysis by Bong-Chan Kho of Seoul National University, Dong Lee of Korea University Business School, and René Stulz of Ohio State University sheds some light on the state of market information about individual firm exposures. They looked at the response of bank stocks during the LTCM crisis. For four of the banks that attended the meeting at the New York Fed, they found significantly negative returns on the days surrounding the announcements of LTCM's losses in early September. That contrasts with positive returns for banks not exposed to LTCM investments. They conclude that there is "no basis for concerns that markets react similarly across banks and that banks have to be protected from the markets. Our evidence raises important questions, especially for those who emphasize the importance of U.S. systemic risks as a motivation for bailouts."

Another criticism suggests that the Fed already had more traditional policy tools at its disposal. Instead of seeking to broker a deal between private parties to keep LTCM afloat, it could have instead remained detached from any specific resolution and stood ready to open the discount window to any depository institutions that may have been affected by the events.

The biggest policy question, however, should be focused on how the Fed's actions influenced the assumptions of the market. Some argue that the Fed's response in this event sent a strong signal that it was much less likely to tolerate the failure of a firm which might result in widespread losses and have potentially large systemic implications. That expectation — the too big to fail assumption — brings with it social costs. It encourages behavior that might not otherwise occur except for the presence of an implicit Fed guarantee to backstop a firm plagued by bad investments.

Some argue that the recent troubles with large and highly leveraged investment houses are a direct result of the idea that Wall Street generally assumed the Fed wouldn't let a large firm fail. Whether that is the main legacy of the Fed's role in the LTCM story — and whether it should be an approach to be emulated or avoided in the future — is a debate that will continue for quite some time. **RF**

READINGS

Haubrich, Joseph G. "Some Lessons on the Rescue of Long-Term Capital Management." Federal Reserve Bank of Cleveland Policy Discussion Paper No. 19, April 2007.

Kho, Bong-Chan, Dong Lee, and René M. Stulz. "U.S. Banks, Crises, and Bailouts: From Mexico to LTCM." *American Economic Review*, 2000, vol. 90, no. 2, pp. 28-31.

Lowenstein, Roger. *When Genius Failed: The Rise and Fall of Long-Term Capital Management*. New York: Random House, 2000.

Schlesinger, Jacob M. "Long-Term Capital Bailout Spotlights a Fed 'Radical.'" *Wall Street Journal*, Nov. 2, 1998, p. B1.

Siconolfi, Michael, Anita Raghavan, and Mitchell Pacelle. "All Bets are Off: How the Salesmanship and Brainpower Failed at Long-Term Capital Management." *Wall Street Journal*, November 16, 1998, p. A1.