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The New York Times

January 24, 1999, Sunday, Late Edition - Final

SECTION: Section 6; Page 24; Column 5; Magazine Desk

LENGTH: 8181 words

HEADLINE: How the **Eggheads Cracked**

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BODY:

A lot of unusual things have happened in the four months since Long-Term Capital Management announced that it lost more than \$4 billion in a bizarre six-week financial panic late last summer, but nothing nearly so unusual as what hasn't happened. None of the 180 employees of the hedge fund have stood up to explain, to fess up or to excuse themselves from the table. Even the two Nobel Laureates on staff, who could very easily have slipped back into their caps and gowns in the dead of night and pretended none of this ever happened, have stayed and worked, quietly. The man in charge, John Meriwether, has shown a genius for lying low. Photographers in helicopters circle his house, and journalists bang on his front door at odd hours and frighten his wife. Yet whenever the question "Who is John Meriwether?" has demanded an answer, it has been supplied not by those who know him and work with him but by a self-appointed cast of casual acquaintances and perfect strangers. They have described Meriwether and his colleagues as reliable Wall Street stereotypes: the overreaching, self-deluded speculators. In doing so they have missed pretty much everything interesting about them.

Not long ago, I visited the hedge fund's offices in Greenwich, Conn., to see if its collapse made any more sense from the inside than it did from the outside. So many different activities take place in enterprises called "hedge funds" that the term is perhaps more confusing than helpful. In general, hedge funds attract money from rich people and big institutions and, as a result, are somewhat less stringently regulated than ordinary money managers. Long-Term Capital was an especially odd case, less a conventional money manager than a sophisticated Wall Street bond-trading firm. The floor it had constructed in Greenwich was a smaller version of a Wall Street trading floor, with subtle differences. The old wall between the trading floor and the research department had been pulled down, for instance. For most of Wall Street the trading floor is a separate room, distinct from research. The people who pick up the phone and place the bets (the traders) are the highly paid risk takers, while the people who analyze and explain the more complicated securities (the researchers) are glorified clerks. Back in 1993, when Meriwether established Long-Term Capital, he also created a new status system. The title "trader" would no longer exist. At Long-Term Capital, anyone who had anything to do with thinking about how to make money in financial markets would be called a "strategist."

The strategists spent several days with me going over the details of their collapse. They began with a six-hour presentation they had just put together for the investors whose money they had lost, because, as one of the fund's partners puts it: "Virtually no one has called and asked us for the facts. They just believe what they

read in the papers." Then I was shown the bets that had cost the strategists their fortunes and their reputations as the smartest traders on or off Wall Street. The guided tour of the spectacular ruin concluded with a conversation with John Meriwether. He, and they, offered a neat illustration of the limits of reason in human affairs.

Riding the Crash of '87 With Meriwether and His Young Professors

"The first time I saw a market panic up close was also the last time I had seen John Meriwether -- the stock-market crash of Oct. 19, 1987. I was working at Salomon Brothers, then the leading trading firm on Wall Street. A few yards to one side of me sat Salomon's C.E.O., John Gutfreund; a few yards to the other side sat Meriwether, the firm's most beguiling character. The stock market plummeted and the bond market soared that day as they had never done in anyone's experience, and the two men did extraordinary things.

I didn't appreciate what they had done until much later. You cannot really see a thing unless you know what you are looking for, and I did not know what I was looking for. I was so slow to grasp the importance of the scene that I failed to make use of it later in "Liar's Poker," the memoir I wrote about my Wall Street experience. But the events of those few hours were in many ways the most important I ever saw on Wall Street.

What happened in the stock-market crash was one of those transfers of authority that seem to occur in the financial marketplace every decade or so. The markets in a panic are like a country during a coup, and seen in retrospect that is how they were that day. One small group of people with its old, established way of looking at the world was hustled from its seat of power. Another small group of people with a new way of looking at the world was rising up to claim the throne. And it was all happening in a few thousand square feet at the top of a tall office building at the bottom of Manhattan.

John Gutfreund moved back and forth between his desk and the long, narrow row of government-bond traders, where he huddled with Craig Coats Jr., Salomon's head of government-bond trading. Together they decided that the world was coming to an end, as it came to an end in the Crash of 1929. The end of the world is good news for the bond market -- which is why it was soaring. Gutfreund and Coats decided to buy \$2 billion worth of the newly issued 30-year United States Treasury bond. They were marvelous to watch, a pair of lions in their jungle. They did not stop to ask themselves, Why do we of all people on the planet enjoy the privilege of knowing what will happen next? They believed in their instincts. They had the nerve, the guts or whatever it was that distinguished a winner from a loser on a Wall Street trading floor in 1987.

And in truth they had been the winners of the 80's boom. Business Week had anointed Gutfreund the King of Wall Street. Coats was believed by many to be the model for the main character in a book then just published called "The Bonfire of the Vanities." Coats was tall and handsome and charismatic. He was everything that a bond trader in the 80's was supposed to be.

Except that he was wrong. The world was not coming to an end. Bond prices were not about to keep rising. The world would pretty much ignore the stock-market crash. Soon, Coats would arrive at work and find that his \$2 billion of Treasury bonds had acquired a new name: the Whale. Traders near Coats started asking him about the Whale. As in, "How's that Whale today, Craig?" Or, "That Whale still beached?" In the end, the gut decision to buy the Whale cost Salomon Brothers \$75 million.

Meanwhile, 20 yards away was Meriwether. When I think of people in American life who might have been like him, I think not of financial types but creative ones -- Harold Ross of the old New Yorker, say, or Quentin Tarantino. Meriwether was like a gifted editor or a brilliant director: he had a nose for unusual people and the ability to persuade them to run with their talents. Right beside him were his first protgs, four young men fresh from graduate schools -- Eric Rosenfeld, Larry Hilibrand, Greg Hawkins and Victor Haghani. Meriwether had taken it upon himself to set up a sort of underground railroad that ran from the finest graduate finance and math programs directly onto the Salomon trading floor. Robert Merton, the economist who himself would later become a consultant to Salomon Brothers and, later still, a partner at Long-Term Capital, complained that Meriwether was stealing an entire generation of academic talent.

No one back then really knew what to make of the "young professors." They were nothing like the others on the trading floor. They were physically unimposing, their bodies merely life-support systems for their brains, which were in turn extensions of their computers. They were polite and mild-mannered and hesitant.

When you asked them a simple question, they thought about it for eight months before they answered, and then their answer was so complicated you wished you had never asked. This was especially true if you asked a simple question about their business. Something as straightforward as "Why is this bond cheaper than that bond?" elicited a dissertation. They didn't think the same way about the markets as Craig Coats did or, for that matter, as anyone else on Wall Street did.

It turned out that there was a reason for this. On the surface, American finance was losing its mystique, what with ordinary people leaping into mutual funds, mortgage products and credit-card debt. But below the surface, a new and wider gap was opening between high finance and low finance. The old high finance was merely a bit mysterious; the new high finance was incomprehensible. The financial markets were spawning vastly complicated new instruments -- options, futures, swaps, mortgage bonds and more. Their complexity baffled laypeople, and still does, but created opportunities for those who could parse it. At the behest of John Meriwether, the young professors were reinventing finance, and redefining what it meant to be a bond trader. Their presence on the trading floor marked the end of anti-intellectualism in American financial life.

But at that moment of panic, the young professors did not fully appreciate their own powers. All their well-thought-out strategies, which had yielded them profits of perhaps \$200 million over the first 10 months of 1987, wilted that October day in the heat of other people's madness. They lost at least \$120 million, which was sufficient to ruin the quarterly earnings of the entire firm. Two years before, they were being paid \$29,000 to teach Finance 101 to undergraduates. Now they had lost \$120 million! And not just anybody's \$120 million! One hundred twenty million dollars that belonged in part to some very large, very hairy men. They were unnerved, as you can imagine, until Meriwether convinced them that they should not be unnerved but energized. He told them to pick their two or three most promising trades and triple them.

They did it, of course. They paid special attention to one big trade. They sold short the newly issued 30-year U.S. Treasury bond of which Craig Coats had just purchased \$2 billion and bought identical amounts of the 30-year bond the Treasury had issued three months before -- that is, a 29-year bond. (To "short" a stock or bond means to bet that its price will fall.) The young professors were not the first to see that the two bonds were nearly identical. But they were the first to have studied so meticulously the relationship between them. Newly issued Treasury bonds change hands more frequently than older ones. They acquire what is called a "liquidity premium," which is to say that professional bond traders pay a bit more for them because they are a bit easier to resell. In the panic, the premium on the 30-year bond became grotesquely large, and the young professors, or at any rate their computers, noticed. They laid a bet that the premium would shrink when the panic subsided.

But there was something else going on that had nothing to do with computers. The young professors weren't happy making money unless they could explain to themselves why they were making money. And if they couldn't find the reason for a market inefficiency they became suspicious and declined to bet on it. But when they stood up on Oct. 19, 1987, and peered out over their computers, they discovered the reason: everyone else was confused. Salomon's own long-bond trader, the very best in the business, was lost. Here was the guy who was meant to be the soul of reason in the government-bond markets, and he looked like a lab rat that had become lost in a maze. This brute with razor instincts, it turned out, relied on a cheat sheet that laid out the prices of old long bonds as the market moved. The move in the bond market during the panic had blown all these bonds right off his sheet. "He's moved beyond his intuition," one of the young professors thought. "He doesn't have the tools to cope. And if he doesn't have the tools, who does?" His confusion was an opportunity for the young professors to exploit.

Years later it would be difficult for them to recapture the thrill of this moment, and dozens of others like it. It was as if they had been granted a more evolved set of senses, and a sixth one to boot. And they had nerve: they were willing to put money where their theory was. Three weeks after the 1987 crash, when the markets calmed down, they cashed out of the Treasury bonds with a profit of \$50 million. All in all, the bets they placed in the teeth of one of the greatest panics Wall Street had ever seen eventually made them more money than any bets they had ever made, perhaps \$150 million altogether. By comparison, all of Merrill Lynch generated \$391 million in profits that year. The lesson in this was not lost on the young professors: panic was good for business. The stupid things people did with money when they were frightened was an opportunity for more reasonable people to exploit. The young professors knew that in theory already; now they knew it in practice. It was a lesson they would regret during the next big panic, far bigger and more mysterious than the Crash of October 1987 -- the panic of August 1998. They would still be working together, but at

Long-Term Capital Management.

What Long-Term Capital Was and Wasn't About

I was a tad uneasy about meeting these people again. All those pregnant pauses! All those explanations! Even more than 10 years later, I can recall the dreadful minutes after I had asked them to walk me through one of their trades, when my brain felt like a beaten cornerback watching the receiver dancing into the end zone. On top of it all was their Spock-like analytical detachment, which still hung heavy in the air in Greenwich and overshadowed any larger consideration, like shrewd management of the press. "If everything had gone well," one of the young professors said not long after I stepped off the elevator, "we wouldn't be talking to you." But everything did not go well, and they had decided to explain themselves to someone they had practice explaining things to.

When I heard that Long-Term Capital had collapsed, my initial reaction was a sneaky relief: Hans Hufschmid was no longer worth \$50 million. Anyone who has quit one life for another will understand the importance of insuring that none of the people you leave behind do so well for themselves as to suggest that you have made a truly colossal mistake. Since I left Salomon Brothers in 1988 to make a living as a writer, I had remained curious about how rich I would have become if I had stayed on Wall Street. There were several people whose fortunes I considered fair proxies for my own, and whom I tagged for further observation, like wolves released in a wildlife experiment.

Hans was one of them. Back in 1986, Hans and I left the same New York training program for the same London trading floor, where we were ultimately supervised by John Meriwether. Although neither of us was a young professor, we had gone into the same arcane line of work. We both spent half of our time flying around Europe trying to coax innocent investors into complicated new American-born financial instruments and the other half seeking out speculations for those who needed no coaxing. But those were just our surface similarities. Deep down, Hans and I shared a dirty little secret: we couldn't keep up with the young professors. We belonged to a new semi-informed breed who could "pass" as experts on the new financial complexity without possessing true understanding.

In any case, Hans was one of those people I might have become had I remained on Wall Street. And so, at the end of 1993, after I heard that Salomon Brothers had paid Hans a bonus of \$28 million, I spent at least three hours wondering why I hadn't done so. Twenty-eight million dollars was just the original insult. At the end of 1994, Hans left Salomon to become a partner in Long-Term Capital's London office. It gives you an idea just how desirable it was to work for John Meriwether that to do so people quit jobs at the finest Wall Street firms, which paid them bonuses of \$28 million. Word came that Hans had sunk not merely his \$28 million bonus into the fund but also \$15 million he had borrowed from some bank.

The fund rose by 43 percent in 1995, by 41 percent in 1996 and by 17 percent in 1997. At the end of each year, Hans reinvested his profits in the fund. That was another odd thing about the people at Long-Term Capital. They did not define themselves in the usual Wall Street way, by their material possessions. Their hundreds of millions of dollars didn't lead inexorably to private jets and new life styles. (They would be better off now if that had been the case.) Their favorite form of conspicuous consumption was to buy more and more of their own investment genius. As a result, before their demise, Long-Term Capital's 16 partners had invested roughly \$1.9 billion of their own money in their fund. Making some fairly conservative assumptions about Hans and his effective tax rate, \$50 million of that pile belonged to him. This, to my way of thinking, made it a bit more expensive than it should have been not to be Hans Hufschmid.

And then . . . poof . . . it was not so very expensive at all. Not being Hans was positively joyous. By the end of September 1998, the same friends from Salomon Brothers who had informed me how rich Hans was becoming in late 1997 were telling me that he and all his partners were wiped out. As Hans himself had borrowed to invest in himself, it was at least conceivable that he was worth less than zero.

That did it for me: I demanded no further reparations. I was once again satisfied to be paid by the word. But it turned out that I was alone in this sentiment. A lot of people wanted not only Hans's money but also his hide, along with the hides of Larry Hilibrand, Victor Haghani, Eric Rosenfeld, Greg Hawkins and John Meriwether. Plus those of Robert Merton and Myron Scholes, Nobel Prize-winning economists who had joined Meriwether. (They won the 1997 Nobel Prize for their work on risk management of options.) Hans and his partners were accused by all sorts of people of behaving recklessly, succumbing to hubris and

jeopardizing the economic health of the West.

One number that kept popping up in the papers was the "\$1.2 trillion" that Hans and the young professors had supposedly wagered. The \$1.2 trillion represented what are known as the open trading positions of the fund. Anyone who works on Wall Street knows that a firm's open trading positions contain all sorts of things that offset one another. At any given time, Goldman, Sachs or Shearson Lehman, which had only about twice as much capital available as Long-Term, might carry \$7 trillion or \$8 trillion in positions on their books. What was important was not the gross amount of the positions but the amount of risk in them.

That's where "leverage" came into the newspaper accounts. Leverage means borrowing to buy things you otherwise could not afford, and many of the public accounts invariably equated it with "risk." "At L.T.C.M.," wrote Carol J. Loomis in *Fortune*, "the best minds were destroyed by the oldest and most famously addictive drug in finance, leverage." Possibly there was once a time when leverage was a good measure of risk. But one consequence of the new complexity in financial markets has been to make any such simple calculation impossible. A portfolio might be leveraged 50 times and have almost no risk. A portfolio might be leveraged five times and be perfectly mad. Long-Term Capital had been in pretty much the same line of work as a Wall Street investment bank, and Wall Street investment banks were leveraged the same amounts, about 25 times (although a Wall Street investment bank can lay its hands on capital more quickly than a hedge fund can).

The important number in any portfolio is not its leverage but its volatility: how much do its net assets rise and fall each day? By that measure, to which no one paid much attention, Long-Term Capital was running a fund that looked to all of Wall Street a bit less risky than if it had taken its capital and simply invested all of it, unleveraged, in a diversified portfolio of U.S. stocks.

Then there was the inevitable search for True Character. One of the stories I had told in 1989 about Meriwether had been twisted beyond recognition into evidence that he was indeed a madman. The story ran as follows: John Gutfreund, who routinely dropped tens of thousands of dollars to the young professors playing liar's poker, a game of both chance and skill using the serial numbers on dollar bills, challenged Meriwether to one hand for \$1 million. ("One hand, \$1 million, no tears" was what he supposedly said.) Meriwether replied that he would play only for \$10 million. Gutfreund walked away. End of story. All sorts of people, Gutfreund included, later denied that the incident ever occurred, but in any case the point of the episode was just the opposite of the interpretation now placed on it. The point of the story was that in a world where you weren't supposed to flinch from financial risk, Meriwether had found a clever way to avoid what was clearly an act of lunacy.

But even without knowing much about what Meriwether did, or how he did it, or what sort of man he was, you could see that the public accounts of the collapse of Long-Term Capital were, at the very least, incomplete. From the mid-80's right up until last summer, the young professors had been the most widely imitated men on Wall Street. If they were so wildly irresponsible, why had every big Wall Street firm copied them? Even after Long-Term's collapse, a lot of smart people were sniffing acquisitively around their portfolio. If that portfolio was so recklessly speculative, why was Warren Buffett, among others, trying to buy it?

Between the lines of the stories were hints of a more complicated one. The most remarkable gurgling noises from last summer's panic came from the inner sanctums of finance. Treasury Secretary Robert Rubin said then that "the world is now experiencing its worst financial crisis in 50 years." That was something coming from a man who specialized in soothing investors and who had been on a trading desk at Goldman, Sachs during the Crash of 1987. Alan Greenspan, the Federal Reserve Chairman, said that he had never seen anything in his lifetime that compared to the terror of August 1998. From one end of Wall Street to the other, firms were announcing record bond-trading losses. Goldman, Sachs, which worked harder than any other firm to copy Meriwether's success, explained its own disaster by saying that "our risk model did not take into account enough the copycat problem." That statement was true but inadequate. It failed to mention the name of the original cat.

How Meriwether and the Young Professors Lost Control

If you didn't know who John Meriwether was, you wouldn't have the slightest curiosity about him. He has small, even features, a shock of cowlicky brown hair that droops boyishly down over his forehead and a blank expression that could mean nothing or everything. His movements are quick, however, and so is his

talk. He speaks in fragments and moves rapidly from one idea to the next, leaving behind a trail of untidy thoughts. He shapes other people more completely than he does himself. His discomfort with the first person occasionally makes him difficult to follow, especially when he is supposed to be talking about himself. When he says, "If anyone wants to focus on anybody and wants to take them apart, he can," he means, "I believe that people set out to destroy me, and succeeded."

When I arrived, he was hunched over at his desk on the trading floor, but by the time I got to him he was in his office. It was a token office, big and empty and conspicuously unused. It had a nice view of some trees, which I'm sure no one had glanced at in months. A tall stack of books and a large basket of shiny apples crowded the area beside his desk. Meriwether offered me one of each.

The book was "Miracle on the 17th Green," a fantasy for adults about a regular middle-aged man who one day is blessed with the talent of a golf champion. "Extraordinary things happen to ordinary people," said the back of the dust jacket. It was soon clear that this reflects Meriwether's own sense of himself and his current situation. About the first thing he said after we sat down across from his coffee table was, "I don't want this story to be about me."

To insure that it was not, he would not allow me to quote him much. And for good measure, he insisted that Richard Leahy, who hired me onto the Salomon trading floor and who is Meriwether's oldest business partner, sit in on our conversation.

My own guess is that Meriwether would rather people think him a bit weird than know the real reason he avoids publicity, which is that he is deeply uncomfortable with the attention. He has a phobia about public speaking, for instance. When you passed him on the Salomon trading floor, you could see him force himself to meet your eye. In conversations in which he might be expected to take control -- say over drinks with a couple of new employees -- he would shrink from the responsibility. He was one of those people whose desire in conversation was for everyone to be "equal." Oddly, the adjective he often chooses to describe the people he most admires is "shy." He means this as a compliment, as in "shy and polite." Shy and polite was a bizarre combination in the testosterone tank of the Salomon trading floor. It was a handicap, at least for someone seeking power in its usual corporate form, through control over large numbers of people. Meriwether sought power in a different form, through the markets.

In the five years after the 1987 crash, Meriwether and the young professors made billions for Salomon and tens of millions for themselves. They started out as oddballs but became the heart of the firm. From the mid-80's through the early 90's the rest of Wall Street, and Goldman, Sachs in particular, poached bond-trading talent from every major bond department at Salomon -- corporates, governments, mortgages. Jon Corzine, who was co-C.E.O. of Goldman, Sachs until a shake-up earlier this month, rose in the firm in part by buying the right people off the Salomon trading floor.

The single exception to this diaspora was John Meriwether's group: it wasn't for sale. In the end, it was broken up by force. A government-bond trader at Salomon Brothers named Paul Mozer, who replaced Craig Coats in 1988 and who reported to Meriwether, tried to corner the U.S. Treasury-bond market. In 1990 and 1991, he submitted phony bids at the Treasury's quarterly auctions that enabled him to buy more than his legal share. Meriwether found out, and went to his superiors, including Gutfreund, and Gutfreund agreed that the Treasury should be informed. For whatever reason, Gutfreund failed to follow up immediately, and it was several months before Salomon informed the Government.

The fate of the firm hung in the balance until Warren Buffett, Salomon's biggest shareholder, stepped in and cut a deal with the Treasury. Salomon would survive if Buffett would oversee the reform of its culture, and Gutfreund was encouraged to resign. And though everyone including Buffett acknowledged that Meriwether had done nothing wrong, Meriwether was encouraged to resign, too. He quit and created a new firm.

In many ways, Long-Term Capital was better designed for the young professors than Salomon Brothers was. There was only one noticeable disadvantage. Other Wall Street firms might have sensed how well Salomon's young professors and their strategy was paying off and sought to mimic their subtle workings. But they could not actually see these workings. When the young professors left Salomon Brothers, they opened themselves and their bets up for inspection by Wall Street. In exchange for lending Long-Term Capital the money to make its trades, the big firms -- Morgan Stanley, Merrill Lynch, Goldman, Sachs -- demanded to

know what it was up to. This in turn led to higher-fidelity imitation.

"Everyone else started catching up to us," Eric Rosenfeld says. We'd go to put on a trade, but when we started to nibble the opportunity would vanish." Every time they took action, others noticed and copied them, and eliminated whatever slight irrationality had crept into the markets.

At some point, Meriwether lost control of his esoteric markets. In our conversation, I asked him how that experience had changed his ideas about making money. He replied that his old ideas, which worked so well for 15 years, have been in some sense consumed, and that he needs to find new ones. Then he proceeded to explain why.

In its broad outlines, the Long-Term Capital story could be described by a couple of pie charts. The first pie chart would lay out its losses. Of the \$4.4 billion lost, \$1.9 belonged to the partners personally, \$700 million to Union Bank of Switzerland and \$1.8 billion to other investors, half of them European banks. But as original investments had long ago been paid back to most of the banks, the losses came mainly out of their profits. The second and more interesting pie chart would describe how the money was lost. The public accounts have suggested that it was lost in all manner of exotic speculations that the young professors had irresponsibly digressed into. The speculations were exotic enough, but they were hardly digressions. When I paged through their trades, the only thing I hadn't expected to find was a taste for betting on corporate takeovers. One hundred fifty million dollars vanished from Long-Term Capital when a company called Tellabs failed to complete its acquisition of a company called Ciena, and the price of Ciena stock, which Long-Term owned, dropped from 56 to 31 1/4. ("This trade was by far the most controversial in our partnership," Rosenfeld says. "A lot of people felt we shouldn't be in the risk arb business because it is so information sensitive and we weren't trying to trade in an information-sensitive way.") Of course, Long-Term had some complicated notion of its advantage in risk arbitrage, but that notion now looked silly. Still, even taking account of the \$150 million loss in Ciena shares, its stock-market trading was profitable.

The big losses that destroyed Long-Term Capital occurred in the areas the young professors had for years been masters of. The killer blows -- a good \$3 billion of the \$4.4 billion -- came from two bets that Meriwether and his team had been making for at least a decade: interest-rate swaps and long-term options in the stock market. Now there is no reason anyone should feel obliged to understand interest-rate-swap arbitrage. The important point about it is the degree of risk it typically involves.

Like most of Long-Term Capital's trades, these bets required the strategists to buy one thing and sell short another, so that they maintained a Swiss-like neutrality in the market. Like most of their trades, the thing they bought was similar to the thing they sold. (Their gift was for mathematical metaphor: they noticed similarities where others saw nothing but differences.) But like only some of their trades, the thing they bought became -- or was supposed to become, after a period of time, and under certain conditions -- identical to the thing they sold.

One way to understand this, and to see how bizarre was the panic of August 1998, is to imagine a world with two kinds of dollars, blue dollars and red dollars. The blue dollar and the red dollar are both worth a dollar, but you can't spend them for five years. In five years, you can turn them both in for green dollars. But for all sorts of reasons -- a mania for blue, a nasty article about red -- the blue dollar becomes more expensive than the red dollar. The blue dollar is selling for \$1.05 and the red dollar is selling for 95 cents.

If you are an ordinary sane person who holds blue dollars, you simply trade them in for more red dollars. If you are Long-Term Capital, or any large Wall Street firm for that matter, and are able to borrow money cheaply, you borrow against your capital and buy a lot of red dollars and sell the same number of blue dollars. The effect is to force the price of red dollars and blue dollars back together again. In any case, you wait for blue dollars and red dollars to converge to their ultimate value of a dollar apiece.

At best, the odd passions that drove the red and the blue dollar apart subside quickly, and you reap your profits now. At worst, you must wait five years to collect your profits. The "model" tells you that you will one day make at least a nickel for every red dollar you buy for 95 cents and another nickel for every blue dollar you sell at \$1.05. But as Ayman Hindy, a Long-Term Capital strategist, puts it: "The models tell you where things will be in five years. But they don't tell you what happens before you get to the moment of certainty."

Which brings us to the case of Long-Term Capital in August 1998, when the red dollar and the blue dollar

were driven apart in value to ridiculous extremes. Actually, when you look at the young professors' books, you can see that the first sign of trouble came earlier, on July 17, when Salomon Brothers announced that it was liquidating all of its red dollar-blue dollar trades, which turned out to be the same trades Long-Term Capital had made. For the rest of that month, the fund dropped about 10 percent because Salomon Brothers was selling all the things that Long-Term owned.

Then, on Aug. 17, Russia defaulted on its debt. At that moment the heads of the other big financial firms recanted their beliefs about red dollars and blue dollars. Their fear overruled their reason. Once enough people gave into their fear, fear became reasonable. Fairly rapidly the other big financial firms unwound their own trades, which, having been made in the spirit of Long-Term Capital, were virtually identical to the trades of Long-Term Capital. The red dollar was suddenly worth 25 cents and the blue dollar \$3. The history of red dollars and blue dollars made the statistical probability of that happening 1 in 50 million.

"What we did is rely on experience," Victor Haghani says. And all science is based on experience. And if you're not willing to draw any conclusions from experience, you might as well sit on your hands and do nothing."

Aug. 21, 1998, was the worst day in the young history of scientific finance. On that day alone, Long-Term Capital lost \$550 million.

The young professors' attachment to higher reason was a great advantage only as long as there was a limit to the market's unreason. Suddenly there was no limit. Alan Greenspan and Robert Rubin said they had never seen such a crisis, and neither had anyone else. It was one thing for the average stock-market investor to panic. It was another for the world's biggest financial firms to panic. The world's financial institutions created a bank run on a huge, global scale. "We put very little emphasis on what other leveraged players were doing," Haghani says, "because I think we thought they would behave very similarly to ourselves."

Long-Term Capital had worked on the assumption that there was a pool of professional money around that would see that red dollars and blue dollars were both dollars and therefore should maintain some reasonable relation to each other. But in the crisis, the young professors were the only ones who clung to such reasoning.

Did Long-Term Capital Die or Was It Killed?

By the end of August, Long-Term Capital had run through \$2 billion of its \$4.8 billion in capital. Even so, the fund might well have survived and prospered. But what started as a run on the markets, at least from Long-Term Capital's point of view, turned into a run on Long-Term Capital. "It was as if there was someone out there with our exact portfolio," Haghani says, "only it was three times as large as ours, and they were liquidating all at once."

For nearly 15 years, Meriwether and the young professors had been engaged in an experiment to determine how far human reason alone could take them. They failed to appreciate that their fabulous success had made them, quite unreasonably, part of the experiment. No longer were they the creatures of higher reason who could remain detached and aloof. They were the lab rats lost in the maze.

Inside Long-Term Capital, the collapse is understood as a two-stage affair. First came the market panic by big Wall Street firms that made many of the same bets as Long-Term Capital. Then came a kind of social panic. Word spread that Long-Term was weakened. That weakness, Meriwether and the others say, very quickly became an opportunity for others to prey upon.

"The few things we had on that the market didn't know about came back quickly," Meriwether says. "It was the trades that the market knew we had on that caused us trouble." Richard Leahy, the Long-Term partner, says: "It ceased to feel like people were liquidating positions similar to ours. All of a sudden they were liquidating our positions."

It was this second stage of his demise that clearly ate at Meriwether. As our conversation drifted toward the subject his unease turned to bitterness and his phrasing became so tortured as to be as useless to me as he hoped it would be.

By the end of August, Long-Term Capital badly needed \$1.5 billion. The trades that the strategists had made lost money, but they would recover their losses if they could obtain the capital to finance them. If Long-Term Capital could ride out the panic, Meriwether figured, it would make more money than ever. "We dreamed of the day when we'd have opportunities like this," Eric Rosenfeld says.

Meriwether called people rich enough to pony up the entire sum Long-Term Capital needed, among them one of America's richest men, Warren Buffett. Buffett was interested in the portfolio but not in Meriwether. "Buffett cares about one thing," one of the fund's partners says. "His reputation. Because of the Salomon scandal he couldn't be seen to be in business with J.M."

Meriwether also called Jon Corzine at Goldman, Sachs. Goldman, Sachs agreed to find the capital but in exchange wanted more than a fee. It wanted to own half of Long-Term Capital. Meriwether and Corzine had been aware of each other's existence since the late 60's, when they studied together at the University of Chicago. For 15 years, Corzine had done his best to figure out what Meriwether was up to. This was his chance to know for all time.

What neither man realized was that the game of saving Long-Term Capital was over before it began. First came the rumors. Traders at other firms began to use "Long-Term" the way weathermen used El Nio -- to justify whatever they needed to justify. Lou Dobbs appeared on CNN to explain that certain stocks were falling because Long-Term Capital was selling them. The young professors, who had not been selling stocks or anything else, watched in wonder. International Financing Review, the most widely read trade sheet in the bond markets, wrote that Long-Term Capital was sitting on \$10 billion of floating rate notes. The young professors say they owned no such things.

The rumors that contained some truth were more damaging, of course, and now the truth was out there, available to Goldman, Sachs and others. Every day someone would publish something about them that left them more exposed than ever to those who might prey on them. "Every rumor about the size of our positions was always double the truth," Richard Leahy says. "Except the rumor about our position in Danish mortgages. That was 10 times what we actually had."

Banks that called up to bid on Long-Term Capital's positions would say things like, "We can't buy all of what we've heard you've got, but we'd like a piece." They would then ask to buy twice what Long-Term actually owned. According to the young professors, Wall Street firms began to get out in front of the fund's positions: if a trader elsewhere knew Long-Term Capital owned a lot of interest-rate swap, for instance, he sold interest-rate swaps, and further weakened Long-Term's hand. The idea was that if you put enough pressure on Long-Term Capital, Long-Term Capital would be forced to sell in a panic and you would reap the profits. And even if Long-Term didn't break, the mere rumor that it had problems might lead to a windfall for you. A Goldman, Sachs partner had been heard to brag that the firm had made a fortune in this manner. A spokesman for Goldman, Sachs said that the idea that the firm had made money from Long-Term Capital's distress was "absurd" in light of how much Goldman, Sachs had lost making exactly the same bets.

When one player in any market is sufficiently big and weak, its size and weakness are reason enough for the market to destroy it. The rumors about Long-Term Capital led to further losses, which in turn led to more rumors. The losses mounted, but strangely. The losses in August were part of a market rout. The losses that continued into September were part of a rout of Long-Term Capital.

The trouble led the New York Federal Reserve to help bring together a consortium of Wall Street banks and brokerage houses to come to the rescue. Goldman, Sachs, a consortium member, was dissatisfied to find itself one of many. It had hoped to control Long-Term, and to acquire the wisdom of the young professors. And so before the consortium finalized its plans, Goldman, Sachs turned up with Warren Buffet and about \$4 billion in an attempt to buy the firm.

Long-Term Capital was caught in a squeeze -- for that's what it's called, and that's what it felt like to Meriwether and the young professors. On the very day, Sept. 21, that Warren Buffett and Goldman, Sachs turned up, Long-Term Capital, for the second time in its history, lost more than \$500 million in one day. Half of that was lost in its second disastrous trade, a short position in five-year equity options. Essentially, it had sold insurance against violent movement in the stock market. The price it received for the insurance was so high that the bet would almost certainly be hugely profitable -- in the long run. But on Sept. 21, the short run took over, in a new and more venal fashion. Meriwether received phone calls from J.P. Morgan and Union

Bank of Switzerland telling him that the options he had sold short were rocketing up in thin markets thanks to bids from American International Group, the U.S. insurance company. The brokers were outraged on Meriwether's behalf, as they assumed that A.I.G. was trying to profit from Long-Term's weakness. A spokesman for A.I.G. declined to comment.

But what the people who called Meriwether did not know was that at just that moment, A.I.G. was, along with Warren Buffett and Goldman, Sachs, negotiating to purchase Long-Term Capital's portfolio. But one consequence of A.I.G.'s activities was to pressure Meriwether to sell his company and its portfolio cheaply. Meriwether is convinced that A.I.G. was trying to put him out of business, a contention A.I.G. would also not comment on.

It is interesting to look over the clippings and see the role played by the media in this stage of Long-Term Capital's demise. After the firm entered negotiations to sell its portfolio through Goldman, Sachs, rumors about its holdings trickled out in the financial press, exposing Long-Term Capital's trading positions to outside attack. After negotiations among the fund and Goldman, Sachs and Warren Buffett broke down, a new wave of articles appeared. Carol Loomis wrote in *Fortune*, "Warren Buffett is a longtime friend of this writer," and then went on to tell the following tale -- that Long-Term Capital had refused his bid because John Meriwether didn't like his terms. The story played down the fact that William McDonough, president of the New York Fed, came to the same conclusions as Meriwether -- different from Buffett's -- that the fund could not legally sell without consulting its investors, which Buffett had given them less than an hour to do. Buffett declined to comment.

The *Fortune* story and others like it, the Long-Term strategists maintain, created even more pressure on Meriwether to sell the next time someone made a low bid. Meriwether also says that the A.I.G. trade was "minor compared to some of the things we saw." But he declined to say what these things were, and no wonder. On Sept. 23, a consortium of 14 Wall Street banks and brokerage houses gave Long-Term \$3.6 billion, in exchange for 90 percent of the firm. Some of the things Meriwether "saw" could well have been perpetrated by some of the very Wall Street firms that now own his firm, and that he now works for.

Meriwether did say this about his treatment at the hands of the big Wall Street firms: "I like the way Victor" -- Haghani, one of the young professors -- "put it: The hurricane is not more or less likely to hit because more hurricane insurance has been written. In the financial markets this is not true. The more people write financial insurance, the more likely it is that a disaster will happen, because the people who know you have sold the insurance can make it happen. So you have to monitor what other people are doing."

The End of the World as Long-Term Capital Knew It

In October 1987, the markets took power from people who traded with their intuition and bestowed it upon people who traded with their formulas. In August 1998, the markets took power away from people with formulas who hoped to remain detached from the marketplace and bestowed it upon the large Wall Street firms that oversee the marketplace. These firms will do pretty much exactly the same complicated trading as Long-Term Capital, perhaps in a slightly watered down form, once the whiff of scandal vanishes from the activity. Indeed, the global economy now expects it of them. Without it, risk would be poorly priced and capital poorly distributed. And in any case, Long-Term Capital's portfolio has already turned around, rising almost 10 percent by year's end.

The events of August and September 1998 have left Meriwether and the young professors exactly where they did not want to be, working for the large Wall Street firms. Back is the messy company politics they thought they had left behind. In place of the hundreds of millions they made each year for themselves they are now paid salaries of \$250,000, or the wage of a beginning bond trader without a bonus. In the best-case scenario, their portfolio will make the fortune they predicted for it, they will convince the money culture that they are still worth having around and they will find other rich people to replace their current owners. In the worst and more likely case, they are finished as a group.

It is interesting to see how people respond when the assumptions that get them out of bed in the morning are declared ridiculous by the wider world. There is obviously now a very great social pressure on the young professors to abandon the thing they cherish most, their hyperrational view of the world. In the coming months, they could very well be hauled before some Congressional committee to explain their role in jeopardizing the free world. Oddly, the question that occupies them is not whether to push on with their

models of financial behavior but how to improve the models in light of what has happened to them. "The solution," Robert Merton says, "is not to go back to the old, simple methods. That never works. You can't go back. The world has changed. And the solution is greater complexity."

"It's like there are two businesses here," Eric Rosenfeld says, "the old business, which works fine under normal conditions, and this stand-by business, when the world goes mad. And for that, you either need to buy insurance or have a pool of stand-by capital to take advantage of these opportunities."

The money culture has never been very good at distinguishing bad character from bad judgment and bad judgment from bad luck, and in the complex case of Long-Term Capital it has been worse than usual. Reputations are ruined, fortunes lost and precious ideas simultaneously ridiculed and stolen. So maybe the most interesting thing to happen since Long-Term got itself into trouble is what has not happened. There have been none of the venal self-preservatory acts that often accompany great financial collapse. No one has pointed a finger at his partners. Already several partners have declined offers to work for other fund managers or big Wall Street firms.

Yet for the first time in 15 years, John Meriwether and his young professors cannot steer toward some moment of certainty in the distant future. What they hope will happen next is no longer the same as what they think will happen next. Which is to say that they are, for the first time in 15 years, just like everyone else.

GRAPHIC: Illustrations (Illustrations by Gary Baseman; Photograph of Meriwether by Lawrence Barns/Black Star)(pgs. 25, 26-27, 28-29. 30-31)

LANGUAGE: ENGLISH

LOAD-DATE: January 30, 1999

